

Brookhurst Wood MBT Facility

Environmental Permit Variation - EPR/HP3238GW
Odour Management Plan

Biffa Waste Services Limited

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1. Report Context

1.1 Introduction

AECOM has been commissioned by Biffa Waste Services Limited ("the Operator" or Biffa) to prepare an application to vary the existing environmental permit (EPR/HP3238GW) to include an additional area of land in proximity to the current Mechanical and Biological Treatment (MBT) Facility for the loading, storage and dispatch of MBT outputs. The site is located at Brookhurst Wood, Horsham, West Sussex.

This document represents the Odour Management Plan which has been updated to include the new transfer and storage area and should be read in conjunction with the other supporting application reports and risk assessments.

1.2 Proposed Facility

There are no changes proposed to the existing MBT operations.

Biffa plan to extend the existing MBT Facility to include an area of land known as Site Ha to be used as a waste storage and transfer area for loose or baled refuse derived fuel (RDF) produced by the MBT process to meet the requirements of the West Sussex County Council Materials Resource Management Contract (MRMC).

The area will be operated as a trailer park whereby up to 36 empty transport trailers may be delivered to site empty and subsequently filled with RDF. It is intended that alternate bays will be used for the full and empty trailers so the drivers can drop off and collect in the same trip. The RDF will be stored for a maximum 72 hours prior to export from site to EfW's in the UK or abroad.

It is also proposed to allocate a controlled area for the storage of containerised covered CLO (Compost Like Output), this material will be a by-product of the food waste process and will be taken to land spreading within the vicinity of the site during the week. Over weekends there will be a need to store the CLO at the site; and

No waste treatment or processing will take place as part of this activity and total waste storage (daily maximum) is estimated at 450 tonnes of RDF and estimated 100 tonnes of digestate.

1.3 Scope

This OMP outlines the methods by which the Operator will systematically assess, reduce and prevent potentially odorous emissions, beyond the site boundary, from operations at the Brookhurst Wood Mechanical Biological Treatment (MBT) facility in accordance with the Environmental Permit for the site – EPR/HP3238GW.

Biffa acknowledge that the Brookhurst Wood facility has the potential to generate odours that without control, management and mitigation could impact upon the local environment. However, through the provision of odour control techniques, efficient management protocols and a monitoring regime, the facility will be able to operate without impact upon local amenity. This OMP has been developed with three main odour prevention objectives:

1. To employ all appropriate methods to minimise the emissions of odorous substances beyond the site boundary
2. To prevent exposure of receptors outside the site boundary to levels of odour which would result in annoyance (unacceptable pollution)
3. To minimise the risk of unplanned odour release incidents which have the potential to result in odour annoyance beyond the site boundary.

The OMP is a document that is expected to evolve through the operational life of the Brookhurst Wood MBT. It has been prepared based upon Biffa's knowledge of the operation of similar sites elsewhere, but with the bespoke risks of the receptors and feedstock for the Brookhurst Wood MBT as its focus. Both Biffa and the Environment Agency acknowledge that the OMP will be updated and amended as appropriate if it is found to be ineffective or counter-productive in its implementation.

All staff at the Brookhurst Wood MBT are made fully aware of the need to be constantly vigilant with regard to site odour control and reporting of issues to site management immediately. Staff responsible for the operation, maintenance or repair of odour-critical plant will be suitably trained and competent.

1.4 Structure

This OMP has been developed in accordance with the Environment Agency's (EA) Horizontal Technical Guidance Note H4 – Odour Management (April 2011) and the EA's Guidance "Odour Management Plans for Waste Handling Facilities."

Section 4 of the H4 Guidance states that all OMPs should as a minimum contain the following elements:

- *an assessment of the risks of odour problems, from normal and abnormal situations, including worst case scenarios, for example of weather, temperature, or breakdowns, as well as accident scenarios;*
- *the appropriate controls (both physical and management) needed to manage those risks;*
- *suitable monitoring;*
- *actions, contingencies and responsibilities when problems arise;*
- *regular review of the effectiveness of your odour control measures; and*
- *emission limits where appropriate.*

The OMP also requires inclusion of clear statements to demonstrate that the operator understands and accepts its responsibilities. In particular, it should show that the operator Biffa:

- *either directly or through its contractors or subcontractors, will ensure that any odour control equipment is designed, operated and maintained such that it operates effectively to control odour at all times;*
- *is familiar with the characteristics of the processes and equipment on site and have identified the areas of risk of emissions from odour;*
- *will reduce or cease operations if necessary, to avoid serious odour pollution;*
- *will engage with neighbours to minimise their concerns and complaints; and*
- *will respond to complaints.*

The remainder of this OMP follows the outline below:

- Section 2 – Overview of process and location;
- Section 3 – Assessment of odour risk;
- Section 4 – Proposed management arrangements;
- Section 5 – Normal operational odour control;
- Section 6 – Routine maintenance and inspection requirements;
- Section 7 – Odour control during abnormal events / maintenance; and
- Section 8 – Monitoring, recording and reporting.

2. Overview of Processes and Location

2.1 Site Description

The MBT has been built under a 25-year contract with West Sussex County Council to provide waste treatment services for the county. The plant is designed to accept up to 327,000 tonnes of Waste per year, and process it to extract recyclables, produce biogas to fuel engines in order to generate electricity, and prepare a Refuse Derived Fuel (RDF) suitable for energy recovery by a third party. This contributes to both recycling rates and landfill diversion for West Sussex and provide green energy for export to the grid.

The MBT facility comprises of a purpose-built plant located to the south of an existing Biffa landfill site but operating completely independently of the landfill. The MBT facility operates under an Environmental Permit issued by the Environment Agency originally dated 5th July 2010, no. EPR/HP3238GW.

The plant comprises of the following principal elements:

- Waste reception
- Mechanical Pre-Treatment (MPT)
- Wet Pre-Treatment (WPT)
- Anaerobic Digestion (AD)
- Dewatering and Drying
- Energy Generation
- Proposed Waste transfer and storage area for MBT outputs.

These will be described in further detail in the following sections. The odour management controls will be described in section 4.

2.1.1 Waste Reception Area

All incoming solid waste is tipped in the reception area. The area comprises of a large flat concrete floor which is separated into two discrete sections. The section on the West side of the building receives only general waste from Household Waste Recycling Sites (HWRS) and this waste is tipped directly on to the concrete floor and stored until processed. The section to the East of the building receives residual bin waste and contains two large pits which the waste is tipped into and stored until processed. Three shredders are located in the hall, which are loaded with waste by overhead crane or mobile plant to shred the material before it is conveyed to the process area.

The reception area is fully enclosed within a building which is fully clad and roofed. The waste reception area of the building is accessed by vehicles via one of eleven automatic fast acting doors located along the southern elevation of the building. Under normal operations, vehicles will reverse straight back into the building, the door they entered through will close and then the vehicle will discharge their load either into a pit (there is a safety system that allows the pit barrier to open while the vehicle reverses in) or on to the floor in the case of the HWRS section. HWRS vehicles should be able to reverse fully into the tipping bays such that they can pull forward slightly to aid in ejecting the load but still remaining inside the building.

Doors are programmed not be open for longer than 2 minutes at a time under normal operating procedures. The site was not designed to operate with only one door open at a time. As such current door operation is correct and is considered as normal operations. Vehicles move through the process quickly and don't normally need to be parked. However, should a vehicle need to be parked, this will be on the street directly in front of the waste reception area. Parking times will be kept to a minimum to ensure that the maximum turnaround time of 20 minutes as required by our contract with WSCC is not exceeded. There is no time limit for a vehicle to be parked as long as it is suitably sheeted. However, each event will be assessed on a case-by-case basis and acted on accordingly should the parking time exceed 30 minutes. Vehicles discharging in the residual waste area will remain sheeted until fully in the building. Vehicles discharging in the HWRS area

will un-sheet outside the building to minimise the driver's working time near the shredder which is a hazardous area.

Odour and dust extraction vents are positioned at high level in the hall to remove general odour, and above the pit loading bays to extract odour generated by tipping vehicles. The air within the hall is kept under extraction to ensure no odour escapes from the building.

All waste received is weighed in over a weighbridge and the results recorded in the Biffa internal database. Reports showing the daily and annual tonnages can be extracted from this system.

Should the site be unable to receive waste for any reason, in agreement with West Sussex County Council, the waste will be diverted to the Biffa Redhill Landfill site.

Brief description of the material stored in the reception hall excluding the MSW and HWRC wastes are as follows:

Table 2-1 Waste Types Stored in Reception Hall

Waste type*	Removed	Odour type
Ferrous	Every 2 nd or 3 rd working day	General waste
Non-ferrous	Once every two weeks	General waste
Organics	Reprocessed daily and at weekends	General waste
Loose RDF	Every working day	General waste
Rejects/Grit	Every working day	General waste
Digestate	Every working day	Earthy

* Please refer to Figure 3 for location of waste in relation to the Air Extraction System.

2.1.2 Mechanical Pre-Treatment (MPT)

The mechanical pre-treatment area is located in the process building, separated from the reception area by a concrete fire wall. The mechanical pre-treatment equipment consists of screens, magnets, separators, and conveyors which are used to separate the incoming waste to extract organic fraction for AD treatment, recyclables, and RDF. The remaining residual material is sent to landfill.

Recyclables and landfill material are discharged into hook lift skips which are removed through fast acting doors in the north elevation of the building. Loose RDF will be loaded into sealed containers such as Ro-Ros or shipping containers which are then driven out of the building through fast acting doors for either immediate removal from site, or transfer to the new waste treatment and storage area. Alternatively RDF can be baled, wrapped and stored within the permitted area prior to removal. Loading of baled and plastic wrapped RDF onto curtain-sided trailers will take place either inside the MBT building or adjacent to the MBT door. Curtains will be secured prior to immediate removal from site or transfer for storage at the new waste storage and transfer area. No further handling or processing of the baled or loose RDF will take place in the new waste storage and transfer area

The organic fraction is conveyed through a fire wall into the wet pre-treatment system. A bypass line is provided to load the organic fraction into hook lift skips if wet pre-treatment is unavailable.

2.1.3 Wet Pre-Treatment (WPT)

The wet pre-treatment area is located in the northeast corner of the process building, in its own enclosed area. The purpose of WPT is to mix the incoming organic material with water to create a pumpable slurry suitable for AD treatment. This mixing takes place in four large mixers which are loaded with water and organic material and mixed with a high-speed agitator for approximately three minutes to create a homogenous slurry. Heavy material which drops to the bottom of the mixer is discharged to the Bay 15 mixer heavies skip, and the mixed substrate is pumped out to the star screen.

The star screen separates out large materials such as plastics and textiles, which are conveyed back to the mechanical pre-treatment system to be deposited into the RDF output line. The remaining liquid substrate drops into the sand trap.

The sand trap is designed to let sand, grit and glass settle out of the material. This is carried out of the base of the sand trap by large screws. Any remaining light material which floats to the top is removed with paddles and joins the star screen lights to be sent as RDF. The remaining substrate flows into a buffer tank.

From the buffer tank the substrate passes through a second hydro-cyclone to separate out any remaining fine inert material. Then the substrate is pumped through two macerators before being discharged into the hydrolysis tank.

Rejects such as sand and grit from the mixers and sand traps are deposited into hook lift skips, which are removed from the building through fast acting doors in the north elevation of the plant.

2.1.4 Anaerobic Digestion (AD)

The liquid substrate is pumped from WPT forward into the Hydrolysis Tank. This is a large 5,400m³ insulated storage tank, designed to create a homogenous mixture suitable for AD, and to start the AD process. The tank is mixed continuously by a large mechanical agitator, and key process parameters such as temperature and pH are continuously monitored by the control room personnel. See Table 6-1.

Prior to digestion, material needs to be pasteurised in order to meet Animal By-Products Regulations. Pasteurisation is carried out in two banks of three insulated tanks, each with a capacity of circa 40m³ of substrate. The substrate from hydrolysis passes through two heat exchangers to bring the temperature up to in excess of 70degC and is deposited into one of the pasteurisation tanks where it is held for an hour to ensure pathogens such as salmonella and e- coli are killed off.

Once this has been successfully achieved, substrate is discharged from the pasteurisation tank and cooled by passing through two heat exchangers into one of the five 5,400m³ insulated digesters. Residence time in the digester is around 28 days, during which time the material is broken down by bacteria in the material to generate a methane rich biogas, which is extracted from the top of the tank.

Following AD, the substrate is pumped to the aeration tank. This purpose of this tank is to aerate the material through sparge pipes located in the bottom of the tank through which air is pumped. This stops the digestion process to halt the production of biogas.

2.1.5 Dewatering and Drying

Dewatering is carried out by three centrifuge decanters located on the top floor of the dryer building. Polymer flocculation is added to the substrate to increase the moisture driven out of the solid material.

A large hot air dryer is located on the ground floor of the dryer building. Heat from the CHP engines and/or boiler is used to heat air, which is blown through the body of the dryer whilst the dewatered material is passed through it. The effect is to further dry the material. The dryer will only be used when required and can be by-passed to send dewatered material straight to the container loading station. The dryer is currently not in use.

2.1.6 Energy Generation

As biogas is generated in the digesters, the gas is forced out of the top of the digester and down a pipeline to the gas storage bag located on the gas island in the north-east corner of the site. The storage bag holds a constant pressure in the system and buffers the fluctuations in gas production, providing a steady supply of gas to the engines.

When gas is demanded by the engines, or the gas bag is full and needs to be emptied, the gas is drawn out of the gas bag, and through a gas dryer which condenses moisture out of the gas. Following this the gas is blown either to the engines, or to be flared if engines are unavailable.

The site has three CHP engines, which are fuelled by biogas and generate electricity for export to the grid. The engines generate heat through exhaust gas heat exchangers, and the engine radiators. This heat is recovered for use in the process.

2.1.7 Outputs Waste Transfer and Storage Area

The proposed new area is designed to store RDF, either loose or baled ready for future onward transport off-site for recovery in the UK or abroad, as described below:

- The site design is to manage up to 36 Haulage vehicles with sealed containers or curtain sider trailers which will be used for the onward transport of either baled or loose RDF for further processing. The trucks will be delivered to site empty, and a full trailer will be collected.
- Alternate bays will be used for the full and then empty trailers so the drivers will be informed by the weighbridge at the MBT to drop the empty trailer in bay 1 and collect the full trailer from bay 2. This way the MBT Operations and Logistics team will be able to control the trailers ensuring that there is a good rotation of the trailers.
- All trailers will either be secured curtain-siders or sealed containers such as Ro-Ros or shipping containers. All loading of container vehicles with loose RDF will take place in the MBT building as described in 3.6.6.1 of the Management and Technical Plan. Loading of baled and wrapped RDF will take in place either in or adjacent to the MBT building.
- The RDF will be stored for a maximum 72 hours (i.e. from a Saturday pm to Tuesday am following a bank holiday).
- The area where the trailers will be parked will be controlled for run off into the site lagoon. Flow from the lagoon which will be tested to ensure it can be released to the surface water system. If that is not the case, then the run-off water will be transferred to the MBT for processing.
- It is also proposed to allocate a controlled area for the storage of containerised covered CLO, this material will be a by-product of the food waste process and will be taken to land spreading within the vicinity of the site during the week, Over the weekends CLO will need to be stored ahead of transport from the site. The rainwater run-off from this area will be contained and processed at the MBT. This is shown as the area as a magenta coloured box on drawing WZD230500 (Appendix A).
- Total waste storage (daily max) is estimated at 450 tonnes of RDF and estimated 100 tonnes of digestate.
- The area will not be utilised for any waste processing activities.

2.2 Site Location and Neighbouring Facilities

The MBT facility is located approximately 1km to the north of Horsham and 1.5km north east of Warnham, with the village of Kingsfold around 2km to the north west. It occupies an area of 5.6 hectares at NGR TQ 1720 3480. The main A24 and A264 roads run approximately 800 metres from the western and southern site boundaries respectively (nearest approach) and the Horsham – Dorking railway line runs about 200 metres from the western site boundary.

The centre of the extended MBT area is located at grid reference National Grid Reference (NGR) E517105, N134659 at Brookhurst Wood, Langhurstwood, Horsham, West Sussex.

The setting is regarded as predominantly rural. In the immediate neighbourhood, there are a scattering of farmhouses and other isolated dwellings to the west of the site.

- To the east there is a former residential property, known as 'Graylands' which has been converted for office use.

- To the north there is the Broadlands Business Park, which accommodates 11,000 square metres of office development.
- To the south are older buildings from the original Warnham Brickworks and the Warnham railway station. The main Dorking to Horsham railway line runs along the western border of the landfill site and the vehicular entrance to the landfill is by the Langhurstwood Road to the east.

Residential communities within 2km of the site include Horsham, Warnham, Kingsfold and Holbrook. These are found to the south, west, north and east respectively. Horsham is the largest community in the Horsham District, with a population of approximately 45,750.

There is a scattering of farmhouses and other isolated dwellings to the north, east and west of the site. These include Graylands Lodge and Graylands Farm to the east of the site boundary, Cox Farm and Andrew's Farm to the west and Gunbarn/The Nowhere Houses to the north west. A further dwelling 'Bramblehurst' abuts the site to the south east, adjacent to the site access from Langhurstwood Road. A small row of dwellings lies to the south of this.

There are eight residential properties on the western side of Langhurstwood Road between its junction with the A246 and the site entrance and a recent converted farm building residential development on the eastern side of Langhurstwood Road.

Figure 1 shows the location of the MBT Facility:

Figure 1 Site Location Plan



3. Assessment of Odour Risk

3.1 Introduction

This section outlines the approach taken to evaluate the odour risks associated with the operation of the MBT and associated waste transfer and storage area. The impact evaluation process has made reference to the appropriate guidance within:

- Environment Agency Guidance, “*Risk Assessments for Your Environmental Permits*”;
- Environment Agency “A Practical Guide to Environmental Risk Assessment for Waste Management Facilities”;
- Environment Agency Horizontal Technical Guidance Note H4 – Odour Management- How to Comply With Your Environmental Permit (April 2011); and
- IAQM “Guidance on the Assessment of Odour for Planning”.

3.2 Odour Risk Assessment Methodology

The evaluation methodology used involves three stages:

- a. Source characterisation to identify the potential odour hazards and risks associated with the operation of the treatment and recycling plants at the site;
- b. Receptor evaluation to review the receptors that could be impacted by the odour hazards and risks from the operation of the treatment and recycling plant. This covers residential, commercial and industrial human receptors; and
- c. Risk assessment that evaluates the odour hazards and risks in terms of the probability of occurrence and the severity of the impact on the identified receptors. The odour risk assessment also summarises the odour management plan approach that will be used to mitigate the identified risks.

3.3 Source Characterisation

3.3.1 Odorous Release Areas

The potential for odour generation is inherently linked to the nature of the feedstock (type of waste, age, storage prior to arrival on site) and how it is handled and processed once received at the site.

Five primary odour release areas were originally identified for the main MBT treatment activities:

- Fugitive emissions from receipt and storage of waste in Reception Hall.
- Fugitive emissions from MPT and WPT process hall.
- Fugitive emissions from tank vents.
- Fugitive emissions from dryer building.
- Odour from stack following odour treatment

All the above potential sources of odour are directed to the stack via the bioreactors.

In addition to the above sources, the new transfer and storage area will introduce a new potential release area to the west of the main MBT area.

Referring to ‘Environment Agency Odour Guidance – Internal Guidance For Regulation Of Odour At Waste Management Facilities, July 2002, Version 3’, the relative offensive nature of an odour is based on its nature and its hedonic tone which can be assessed using:

- a. An Odour Wheel which links commonly used descriptors of odours around waste management facilities with the most likely chemical cause and/or origin(s); and
- b. Hedonic scores, which provide a score to indicate the relative pleasantness or unpleasantness of the odour as determined by the person(s) making the assessment. Odours which are more offensive will have a negative hedonic score whilst the less offensive will have a positive score.

According to Figure D1 of the above guidance the incoming wastes have the potential to have a “rotting vegetation” odour associated with the anaerobic decomposition of organic matter which may be present. The assessment of this odour type against the hedonic scores in table D2 of the above reference guidance would give a hedonic scores of -2.76 due to the likely presence of esters (e.g. Butanoates) and odours directly from volatilisation of chemicals from leaves and other organic debris (e.g. organic acids). This would make the potential odour offensiveness generated from the wastes moderate – high dependent on the contaminants present.

The application of best practice management measures, described in later sections of this OMP would, however, be capable of eliminating and minimising emissions to an acceptable level.

3.3.2 Odour Risk Potential of Site Processes

With respect to the identified odour risks these have been determined on the basis of:

- Nature/source of the incoming material;
- Nature of the potential contaminants that could be present in the incoming waste and how they are bound (e.g. how easily the odorous compounds could be volatised);
- Potential offensiveness of the contaminant should the odorous element be released;
- Size of the area of the source release; and
- Mitigations present and their effectiveness.

This approach is in line with the IAQM odour guidance and is summarised in Table 3-1 below.

Table 3-1 Source Odour Risk Potential

Odour Source Potential	Magnitude	Potential Offensiveness	Mitigation
High	<ul style="list-style-type: none"> • Area sources of thousands sqm. • Compounds involved are very odorous (e.g. mercaptans). • Where known, compounds have a very low odour detection threshold (ODT) 	<ul style="list-style-type: none"> • Process classed as 'Most offensive' in H4 Guidance; or • Compounds/odours have a neutral (0) to unpleasant (-2) hedonic score 	Open air operation with no containment, reliance solely on good management techniques and best practice
Medium	<ul style="list-style-type: none"> • Area sources of hundreds sqm • Compounds involved are moderately odorous. 	<ul style="list-style-type: none"> • Process classed as 'Moderately offensive' in H4 Guidance; or • Compounds/odours have an unpleasant (-2) to very unpleasant (-4) hedonic score 	Some mitigation measures in place but there is potential for significant odour to remain

Odour Source Potential	Magnitude	Potential Offensiveness	Mitigation
Low	<ul style="list-style-type: none"> Area sources of tens sqm. Compounds involved are mildly odorous. Where known, compounds have a relatively high odour detection threshold (ODT) 	<ul style="list-style-type: none"> Process classed as 'less offensive' in H4 Guidance; or Compounds/odours have a neutral (0) to pleasant (+4) hedonic score 	Effective, tangible mitigation measures in place leading to little or no residual odour

Taking the above into consideration, we have concluded that the odour source potential for both the MBT Treatment processes and the external waste transfer and storage area would be medium on the basis that:

- While magnitude in terms of source area (sqm) would be high the range of potential contaminants and levels present would be variable and potentially range from low to medium magnitude dependent on the age of the incoming waste;
- The potential offensiveness of the odour would be described as moderate with hedonic scores around -2.76; and
- Based on experience from the operation of the MBT facility the proposed mitigation measures would be effective leading to little or no residual odour.

3.3.3 Inventory of Odour Sources

An inventory of potential odour sources from the site treatment activities in accordance with H4 (April 2011) is provided in Table 3-2:

Table 3-2 Inventory of Odour Sources

Source Description			Likely odorous compounds	Containment/Release Point	Odour Description	Intensity at or Near Release Point	Pattern of Release	Potential Impact
Source	Type of Emission	Source Odour Risk						
Waste Acceptance	Fugitive	Medium	Non-putrescible materials in incoming wastes	Vehicles closed or covered	Odour should be marginal	No odour expected	None expected	None expected
			Odours associated with the decay of organic materials contained in incoming waste	Vehicles closed or covered	Variable depending on the composition and age of waste	Odour is expected to be noticeable only in close proximity to vehicle (<1m).	Intermittent release, near to ground level.	Only if load received contains a large proportion of rotting organic material and load is uncovered
Waste Discharge – MBT Reception Hall	Fugitive	Medium	Odours associated with decay of organic materials in incoming wastes	Vehicles discharge to the reception pit or in designated area of reception hall floor.	Variable depending on the composition and age	Difficult to characterise	During waste receipt and other waste movement activities.	None expected – reception hall equipped with fast-acting doors, negative pressure maintained and vented to odour control system.
			Non-putrescible materials in incoming wastes		Odour should be marginal	No odour expected	None expected	
Waste storage – MBT Reception Hall	Fugitive	Medium	Odours associated with decay of organic material in incoming waste. Any leachate collected and sent to MBR tank for treatment	Waste storage area.	Variable depending on the composition and age	Difficult to characterise	After excessive storage times.	Equipment failures may result in extended holding times for feedstock materials.
			Non-putrescible materials in street incoming wastes	Waste storage area	Odour should be marginal	No odour expected	None expected	None expected

Source Description			Likely odorous compounds	Containment/Release Point	Odour Description	Intensity at or Near Release Point	Pattern of Release	Potential Impact
Source	Type of Emission	Source Odour Risk						
Handling and treatment in MPT and WPT process halls	Fugitive	Medium	Odours associated with decay of organic material in incoming wastes	Waste processing line	Variable depending on the composition and age	Odour is expected to be noticeable only in close proximity to processing plant (<1m).	Intermittent release, near to ground level.	None expected – MPT/WPT halls are equipped with fast-acting doors, negative pressure maintained and vented to odour control system.
			Non-putrescible materials in incoming wastes		Odour should be marginal	No odour expected	None expected	
AD Treatment	Fugitive	Medium	Odours associated with decay of organic fraction/food waste	AD Tanks	Variable depending on the composition and age	Odour is expected to be noticeable only in close proximity to AD Tank (<1m).	Intermittent release, near to ground level.	None expected – tanks are enclosed and vented to odour control system.
MPT/WPT Treatment residue storage	Fugitive	Medium	Recyclates - metals	Storage kip/RORO	Very low	None expected	None Expected	None expected – MPT/WPT halls are equipped with fast-acting doors, negative pressure maintained and vented to odour control system.
			RDF Loose	Storage bay in treatment hall	Low – potential if some organic contaminant remains	Odour is expected to be noticeable only in close proximity to stockpile.	Intermittent release, near to ground level.	
			RDF baled	Baled storage area	Low – potential if some organic contaminant remains	Odour is expected to be noticeable only in close proximity to bales.	Intermittent release, near to ground level.	
			Heavy fraction from MPT	Storage bay in treatment hall	Low – potential if some organic contaminant remains	Odour is expected to be noticeable only in close proximity to skip.	Intermittent release, near to ground level.	
			Heavy fraction from sand trap or mixer	Storage bay in treatment hall	Low – potential if some organic contaminant remains	Odour is expected to be noticeable only in close proximity to skip.	Intermittent release, near to ground level.	

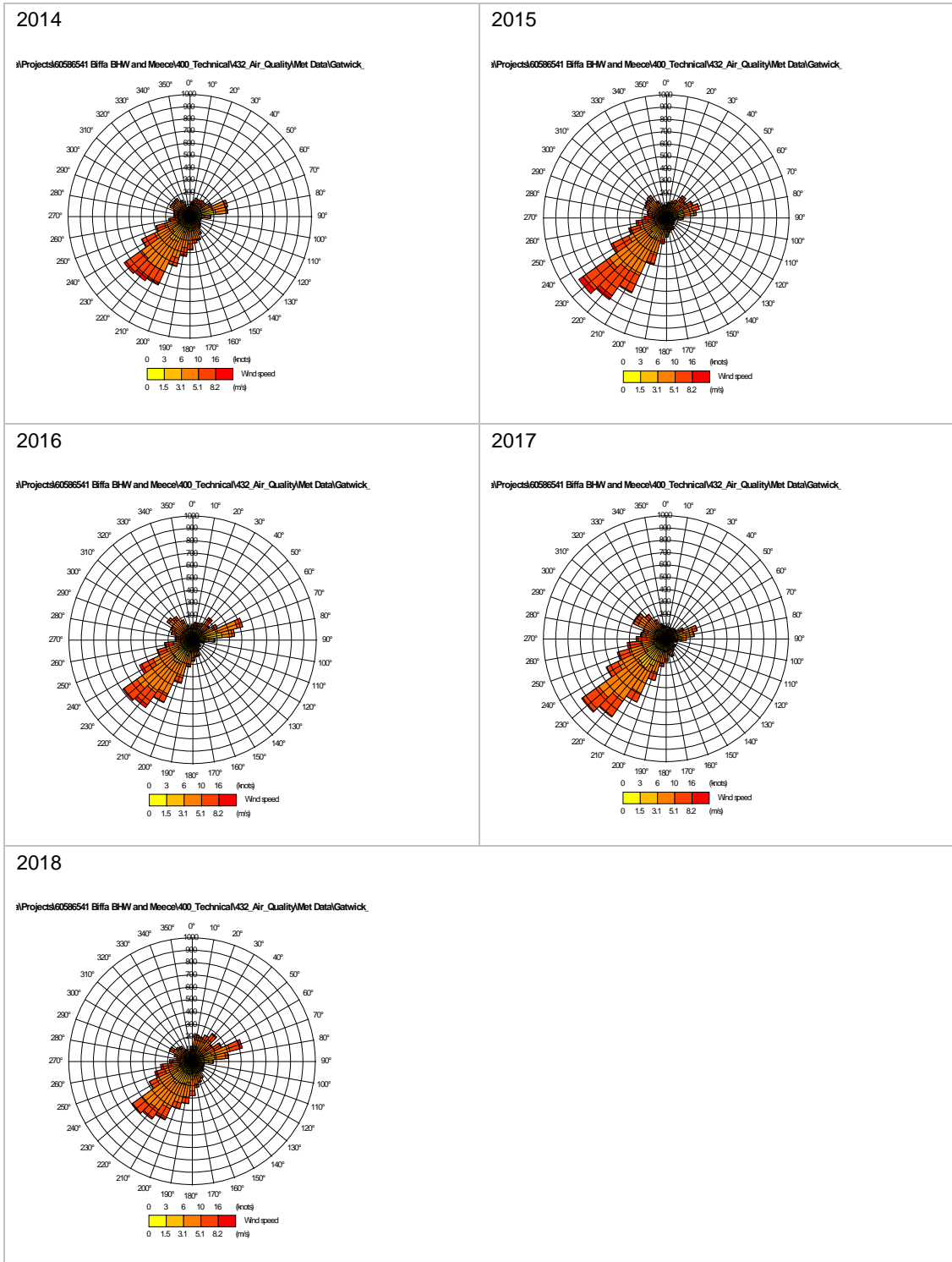
Source Description			Likely odorous compounds	Containment/Release Point	Odour Description	Intensity at or Near Release Point	Pattern of Release	Potential Impact
Source	Type of Emission	Source Odour Risk						
AD Treatment residue storage	Fugitive	Medium	Odours associated with decay of organic residues in dewatered digestate/CLO	Storage containers	Variable depending on the composition and age	Odour is expected to be noticeable only in close proximity to container (<1m).	Intermittent release, near to ground level.	None expected – open containers are stored within the enclosed MBT building and containers are covered once transferred to the external Site Ha area..
New Waste transfer and storage area	Fugitive	Medium	RDF Loose	Storage in sealed containers.	Low – potential if some organic contaminant remains	Odour is expected to be noticeable only in close proximity to wagon.	Intermittent release, near to ground level.	None expected – containers are loaded and sealed within enclosed MPT hall. Storage up to 72 hours only.
			RDF baled	Baled RDF stored on curtain sider trailer	Low – potential if some organic contaminant remains	Odour is expected to be noticeable only in close proximity to trailers.	Intermittent release, near to ground level.	None expected – trailer is loaded and sheeted in enclosed MPT hall. Storage up to 72 hours only.
			CLO from AD process	Storage containers	Variable depending on the composition and age	Odour is expected to be noticeable only in close proximity to container (<1m).	Intermittent release, near to ground level.	None expected – containers are enclosed.
Water drains and water lagoon at waste transfer and storage area.	Fugitive	Low	Odours associated leachate draining from incoming waste which is collected in the lagoon.	Water lagoon	Odour should be marginal	Odour is expected to be noticeable only in close proximity to the lagoon (<1m).	Intermittent release, near to ground level.	Lagoon water will also include collected rainwater. Water will be monitored and if significant leachate present will be treated through the SBR tank.

Source Description			Likely odorous compounds	Containment/Release Point	Odour Description	Intensity at or Near Release Point	Pattern of Release	Potential Impact
Source	Type of Emission	Source Odour Risk						
Raw material storage	Fugitive	Low	Odours associated with raw material storage and use	Raw material storage areas	Unlikely as these are mainly manufactured reagent materials with low odour potential	Odour is expected to be noticeable only in close proximity to the storage area (<0.5m).	Intermittent release, near to ground level.	Not expected

3.4 Meteorological Conditions

Windrose diagrams for 2014 to 2018 inclusive are provided for the site. All years show similar patterns with the predominant wind pattern of winds coming from the South West and heading North East. This wind Direction also shows the strongest wind speeds recorded over the 5 year period. Wind from the north east and south east occur relatively infrequently (<5% of the time).

Figure 2 Windrose



Based on the 5-year average, the percentage of time the wind blows from any single direction is presented in the Table 3-3 below.

Table 3-3 Percentage Frequency of Wind Direction

Direction Wind From	% Time Wind In Each Direction	% Time Wind is Between 0.3 – 3.5 m/s	% Time Wind is Between 3.5 – 5.5 m/s	% Time Wind is Greater Than 5.5 m/s
N	9.47	6.63	2.27	0.57
NNE	5.94	3.41	1.52	1.01
NE	4.00	3.03	0.76	0.21
ENE	3.71	2.65	0.95	0.11
E	0.74	0.32	0.30	0.12
ESE	3.35	2.65	0.38	0.32
SE	3.30	1.52	1.14	0.64
SSE	6.85	3.22	2.84	0.79
S	8.15	4.73	2.27	1.15
SSW	15.74	8.71	5.30	1.73
SW	14.20	7.20	4.92	2.08
WSW	11.41	7.39	3.41	0.61
W	4.03	3.41	0.57	0.05
WNW	1.71	1.52	0.17	0.02
NW	1.33	1.14	0.17	0.02
NNW	0.00	0.00	0.00	0.00
	93.93	57.53	26.97	9.43

Note – the percentage of days with calm winds (<0.3 m/s) is 6.07%

To assist in characterising the susceptibility of neighbouring odour sensitive receptors in relation to prevailing meteorological wind conditions, the potential risk from odour dispersal is classed as high, moderate, low or very low dependant on the length of time the receptor sits within the direction of wind blow and the distance from the site as summarised in the table below.

Table 3-4 Receptor Sensitivity Based on Meteorological Data and Distance

% Time Receptor In Wind Direction	Sensitivity Based on Distance			
	High (< 250 m)	Moderate (251 – 500m)	Low (501 – 750m)	Very Low (>750m)
Very Low (<5%)	Low	Low	Low	Very Low
Low (6 – 10%)	Moderate	Moderate	Low	Low
Moderate (11 – 15%)	High	Moderate	Moderate	Low
High (> 15%)	High	High	Moderate	Low

3.5 Sensitive Odour Receptors

Sensitive receptors are those individuals which could experience an adverse effect in relation to odour impacts and the IAQM Odour Guidance indicates the following general principles when considering sensitivity:

Table 3-5 Principles for Determining Receptor Sensitivity

Potential Sensitivity	Principles to Consider
High	<p>Surrounding land use where:</p> <ul style="list-style-type: none"> • Users can reasonably expect enjoyment of a high level of amenity; and • People would reasonably be expected to be present here continuously, or at least regularly for extended periods, as part of the normal pattern of land use. <p>As per H4/IAQM Guidance examples may include residential buildings, hospitals, schools/education, restaurants/bars and tourist/cultural.</p>

Potential Sensitivity	Principles to Consider
Moderate	Surrounding land use where: <ul style="list-style-type: none"> • Users would expect to enjoy a reasonable level of amenity but wouldn't expect to enjoy the same level of amenity as in their homes; or • People wouldn't reasonably be expected to be present here continuously, or regularly for extended periods, as part of the normal pattern of land use. As per H4/IAQM guidance examples may include places of work, commercial/retail premises, industrial premises and playing/recreation fields.
Low	Surrounding land use where: <ul style="list-style-type: none"> • Enjoyment of amenity would not reasonably be expected; or • There is transient exposure, where people would reasonably be expected to be present only for limited periods of time as part of the normal pattern of land use. As per H4/IAQM guidance examples may include farmland, footpaths and roads.

However in determining the sensitivity of any individual receptor, consideration also needs to be given to any pathway effects such as proximity to site, prevailing wind direction and the likely dispersion and/or dilution of any odour. Therefore in our assessment, consideration has been given to:

- Receptor type (e.g. residential, commercial, industrial, etc) and associated occupation rate (e.g. present for extended periods of time, present for shorter periods or transient presence);
- The proximity of the receptors to the source of the odour (i.e. site activities) – in the assessment below a sensitivity factor based on distance is given such that receptors <250m from activity would be considered at a high sensitivity, those between 251 – 500m considered moderate and those between 501 – 750m would be considered low and those greater than 750m considered very low; and
- Direction from site and whether the receptor is located upwind or downwind of the site and the percentage of time the wind direction (see table 6 above)..

Receptors which could be potentially affected by odour from the facility and their associated sensitivity are detailed in Table 3-6 below. A plan showing the location of the sensitive receptors is attached in Appendix A.

Where a receptor location has more than 1 type of receptor present (e.g. mix of residential and commercial) then the highest H4/IAQM sensitivity will be allocated.

Table 3-6 Sensitive Odour Receptors

Receptor	Type	H4 / IAQM Sensitivity	Closest Distance(m) from Site Boundary	Direction From Site	Wind Direction (% time wind blowing towards)	Sensitivity Based on Wind and Distance	Overall Sensitivity Rating	Justification
R1	Graylands Industrial Park	Commercial & Residential	619	E	4.03	Low	Moderate	Potentially moderately sensitive receptor, not in close proximity to the site, with wind blowing towards it at a moderately low frequency
R2	Graylands Lodge	Residential	309	E	4.03	Moderate	High	Potentially moderately sensitive receptor in moderate proximity to the site, with wind blowing towards it at a moderately low frequency
R3a	Graylands Farm	Farmland	527	SSE	0.00	Very Low	Low	Potentially low sensitivity receptor not in close proximity to the site, with wind blowing towards it rarely
R3b	Graylands Farm Residence	Residential			High	0.00	Very Low	
R4a	Andrews Farm	Farmland	564	SSW	5.94	Low	Low	Potentially moderately sensitive receptor not in close proximity to the site, with wind blowing towards it at a moderate frequency.
R4b	Andrews Farm Residence	Residential				High	Low	
R5a	Lower Chickens Farm	Farm	782	WSW	3.71	Very Low	Low	Potentially low sensitivity receptor not in close proximity to the site, with wind blowing towards it at a moderately low frequency
R5b	Lower Chickens Farm Residence	Residential				High	Very Low	
R6	Cox Farm Lodge	Residential	570	W	0.74	Low	Moderate	Potentially moderately sensitive receptor, in moderately close proximity to the site, with wind blowing towards it at a very low frequency
R7	Cox Farm	Farmland	338	W	0.74	Low	Low	Potentially low sensitivity receptor which although in close proximity to the site, the wind blows towards it at a very low frequency
R8	Sussex Camper Vans	Commercial	548	NE	14.20	Moderate	Moderate	Potentially moderately sensitive receptor in moderately close proximity to the site, with wind blowing towards it at a moderate frequency
R9	Orchard Lodge	Residential	605	NW	15.74	Moderate	High	Potentially higher sensitivity receptor in moderately close proximity to the site, with wind blowing towards it at a moderate frequency
R10a	Durford Hill Farm	Farmland	775	NNW	6.85	Low	Low	Potentially moderately sensitivity receptor, not in close proximity to the site, with wind blowing towards it at a moderately low frequency
R10b	Durford Hill Farm Residence	Residential				High	Low	
R11	Fisher Clinical Services	Industrial	756	N	8.15	Low	Moderate	Potentially moderately sensitive receptor not in close proximity to the site, with wind blowing towards it at a low frequency
R12	Broadlands Business Centre	Commercial	1055	NNE	15.74	Moderate	Moderate	Potentially moderately sensitive receptor, which is moderately close in proximity to the site, with wind blowing towards it at a high frequency
R13	Weinerburger Brickworks and adjacent Business Park	Industrial	281	SSE	0.00	Low	Moderate	Potentially lower sensitivity receptor in close proximity to the site, wind blows towards it rarely
R14	Warnham Railway Station	Commercial	453	S	9.47	Low	Moderate	Potentially moderately sensitive receptor, not in close proximity to the site, with wind blowing towards it for a moderate frequency
R15	South Lodge	Residential	521	NE	14.20	High	High	Potentially moderately sensitive receptor, situated in close proximity to the site, with wind blowing towards it at a high frequency
R16	Boldings Brook Academy	School	613	NW	3.30	Low	Moderate	Potentially moderately sensitive receptor, which is not in close proximity to the site, with wind blowing towards it at a moderately low frequency
R17	Langhurst Moat Cottage	Residential	341	SSE	0.00	Low	Moderate	Potentially moderately sensitive receptor, which is not in close proximity to the site, with wind blowing towards it at a very low frequency
R18	Holmwood	Commercial	1052	NNE	15.74	Low	Moderate	Potentially moderately sensitive receptor, which is not in proximity to the site, with wind blowing towards it at a high frequency
R19	Gunborn Crossing Cottages	Residential	840	N	8.15	Low	Moderate	Potentially moderately sensitive receptor, which is not in moderate proximity to the site, with wind blowing towards it at a low frequency
R20	Nowhere House	Residential	884	NNW	6.85	Low	Moderate	Potentially moderately sensitive receptor, which is not in close proximity to the site, with wind blowing towards it at a low frequency
R21	Richmond House	Residential	945	NNW	6.85	Low	Moderate	Potentially moderately sensitive receptor, which is not in close proximity to the site, with wind blowing towards it at a low frequency
R22a	Wood Farm	Farmland	1098	NNW	6.85	Low	Low	Potentially moderately sensitive receptor, which is not in close proximity to the site, with wind blowing towards it at a low frequency
R22b	Wood Farm Residence	Residential				High	Low	
R23	Upper Chickens – Houses and Pet Supply Company	Residential Commercial	1113	NNW	6.85	Low	Moderate	Potentially moderately sensitive receptor, which is not in close proximity to the site, with wind blowing towards it at a low frequency
R24	Highland House, The Mount & other residences	Residential	674	NW	3.30	Low	Moderate	Potentially moderately sensitive receptor, which is not in close proximity to the site, with wind blowing towards it at a very low frequency

Receptor		Type	H4 / IAQM Sensitivity	Closest Distance(m) from Site Boundary	Direction From Site	Wind Direction (% time wind blowing towards)	Sensitivity Based on Wind and Distance	Overall Sensitivity Rating	Justification
R25	Dog & Duck Pub	Commercial	High	895	NNW	6.85	Low	Moderate	Potentially moderately sensitive receptor, which is in moderate proximity to the site, with wind blowing towards it at a very low frequency
R26	Geerings	Residential	High	908	W	0.74	Very Low	Low	Potentially low sensitivity receptor, which is not in close proximity to the site, with wind blowing towards it at a very low frequency
R27	Police House & adjacent residences	Residential	High	869	SW	4.00	Very Low	Low	Potentially low sensitivity receptor, which is not in close proximity to the site, with wind blowing towards it at a very low frequency
R28a	Westons Farm	Farmland	Low	794	SSW	5.94	Low	Low	Potentially moderately sensitive receptor, which is not in close proximity to the site, with wind blowing towards it at a low frequency
R28b	Westons Place Residences	Residential	High			5.94	Low	Moderate	
R29	Lower Gate House	Residential	High	502	S	9.47	Moderate	High	Potentially high sensitivity receptor, which is not in close proximity to the site, with wind blowing towards it at a moderate frequency
R30a	Pondtail Farm	Farmland	Low	816	SSE	0.00	Very Low	Low	Potentially low sensitivity receptor, which is not in close proximity to the site, with wind blowing towards it at a very low frequency
R30b	Pondtail Farm Residence	Residential	High			0.00	Very Low	Low	
R31	Britaniacrest Recycling	Industrial	Moderate	103	SE	1.33	Low	Moderate	Potentially low sensitivity receptor, which is in close proximity to the site, with wind blowing towards it at a very low frequency
R32	Biffa ATRF	Industrial	Moderate	100	N	8.15	Low	Moderate	Potentially low sensitivity receptor, which is in close proximity to the site, with wind blowing towards it at a very low frequency
R33	Panel 2 Panel & Greens	Commercial	Moderate	415	S	9.47	Moderate	Moderate	Potentially moderately sensitive receptor, which is not in close proximity to the site, with wind blowing towards it at a moderate frequency
R34	Sewage Works adjacent to Farm	Industrial	Low	423	SSW	5.94	Low	Low	Potentially low sensitivity receptor not in close proximity to the site, with wind blowing towards it at a moderate frequency.
R35	Wealdon	Residential	High	395	SSE	0.00	Very Low	Low	Potentially low sensitivity receptor not in close proximity to the site, with wind blowing towards it at a moderate frequency.
R36	Denhams Auctioneers	Commercial	Moderate	590	NW	3.30	Low	Moderate	Potentially moderately sensitive receptor, which is not in close proximity to the site, with wind blowing towards it at a low frequency
R37	Sussex Health Centre	Nursing Home	High	633	NW	3.30	Low	Moderate	Potentially moderately sensitive receptor, which is not in close proximity to the site, with wind blowing towards it at a low frequency
R38	Male Journey	Commercial	Moderate	653	NW	3.30	Low	Moderate	Potentially moderately sensitive receptor, which is not in close proximity to the site, with wind blowing towards it at a low frequency
R39	White Cottage Cake Company	Commercial	Moderate	698	NW	3.30	Low	Moderate	Potentially moderately sensitive receptor, which is not in close proximity to the site, with wind blowing towards it at a low frequency
R40	Houses on Station Road	Residential	High	469	S	9.47	Moderate	Moderate	Potentially moderately sensitive receptor, which is not in close proximity to the site, with wind blowing towards it at a moderate frequency
R41	Little London Hill	Residential	High	656	W	0.74	Very Low	Low	Potentially low sensitivity receptor not in close proximity to the site, with wind blowing towards it at a negligible frequency.
R42	Vale Stud Riding School	Commercial	Moderate	1011	NNW	6.85	Low	Moderate	Potentially moderately sensitive receptor, which is not in close proximity to the site, with wind blowing towards it at a moderate frequency

3.6 Odour Risk Assessment

3.6.1 Introduction

The magnitude of odour impact depends on a number of factors and the potential for complaints varies due to the subjective nature of odour perception. Both the EA H4 Guidance and the IAQM Odour Guidance consider a technique known as FIDOR as a useful reminder of the factors that will determine the degree of odour pollution. In undertaking the risk assessment we have applied the FIDOR Approach as detailed in Table 3-7 below.

Table 3-7 Application of FIDOR

FIDOR Element		Definition	Consideration
F	Frequency	frequency with which odours are detected	Consideration of frequency, intensity and duration has been evaluated by considering: <ul style="list-style-type: none"> Nature/source of the incoming material; Nature of the potential contaminants that could be present in the incoming waste and how they are bound (e.g. how easily the odorous compounds could be volatised); Potential offensiveness of the contaminant should the odorous element be released; Size of the area of the source release; and Mitigations present and their effectiveness. The approach employed is detailed in section 3.3 above.
I	Intensity	the intensity of the odours detected;	
D	Duration	the duration of exposure to detectable odours	
O	Offensiveness	the level of pleasantness or unpleasantness of odours.	Consideration has been given to the relative offensiveness of the odour released from the key aspects of each process by considering the hedonic scores for each aspect as presented in section 3.2.2, Table 3-1 above.
R	Receptor	the sensitivity of the location where odours are detected, and/or the proximity of odour reassess to an odour sensitive location	Receptor sensitivity has been evaluated considering the IAQM principles, coupled with the direction and distance of each receptor from site and the frequency that wind blows in the direction of each receptor. This is presented in section 4.5 above.

3.6.2 Assessment of Odour Impact

Within the assessment odour emissions from the site have been assigned a risk-ranking based on:

$$\text{Effect} = \text{Impact (FIDO)} * \text{Receptor Sensitivity}$$

The key factors that will influence the effects of odours are the magnitude of the odour source (s), the effectiveness of the pathway for transporting odours, and the sensitivity of the receptor. The methodology set out in the IAQM guidance describes in detail the Source-Pathway-Receptor approach to odour risk assessment and includes tables and matrices to assist in determining the likely risk of odour effects. The IAQM methodology is outlined below and it includes an element of professional judgement. The assessment examines the source odour potential of the site and then identifies the pathway effectiveness and receptor sensitivity applied in this assessment.

Table 3-8 Composition and Characteristics of Odour Sources

Source Odour Potential	Pathways Effectiveness	Receptor Sensitivity
<p>Large Source Odour Potential:</p> <p>Large-scale odour source and/or a source with highly unpleasant odours (hedonic tone is -2 to -4); no odour control</p>	<p>Highly Effective Pathway</p> <p>Very short distance between source and receptor, receptor downwind of source relative to prevailing wind; ground level releases; no obstacle between source and receptor.</p>	<p>High Sensitivity</p> <p>Highly sensitive receptors (e.g. residential properties, schools, etc.)</p>
<p>Medium Source Odour Potential:</p> <p>Medium scale odour source and/or a source with moderately unpleasant odours (hedonic tone 0 to -2): basic control measures</p>	<p>Moderately Effective Pathway:</p> <p>Receptor is local to the source; releases are elevated; but compromised by building effects.</p>	<p>Medium Sensitivity</p> <p>Moderately sensitive receptors (e.g. commercial and retail premises, recreation area, etc.).</p>
<p>Small Source Odour Potential:</p> <p>Small-scale odour source and/or a source with pleasant odours (hedonic tone +4 -0); best practice odour controls</p>	<p>Ineffective pathway:</p> <p>Long distance between source and receptor (>500m); receptors upwind of source relative to prevailing wind, odour release from stack/high level</p>	<p>Low Sensitivity:</p> <p>Receptors not sensitive (e.g. Industrial activities or farms).</p>

The estimates of the Source Odour Potential (Table 3-1 and Table 3-8 above) along with the pathway effectiveness (Table 3-8) are considered together to predict the risk of odour exposure (impact) at the receptor location using the matrix in Table 3-9 below.

Table 3-9 Risk of Odour Exposure

Pathway Effectiveness	Source Odour Potential		
	Small	Medium	Large
Highly effective	Low	Medium	High
Moderately effective	Negligible	Low	Medium
Ineffective	Negligible	Negligible	Low

Taking this into consideration, the significance of odour impact at a specified receptor location through the interaction between sensitivity and risk can be determined using the IAQM approach as presented in Table 3-10 below.

Table 3-10 Significance of Odour Exposure

Risk of Odour Exposure	Receptor Sensitivity		
	Low	Medium	High
High	Slight	Moderate	Substantial
Medium	Negligible	Slight	Moderate

Risk of Odour Exposure	Receptor Sensitivity		
	Low	Medium	High
Low	Negligible	Negligible	Slight
Negligible	Negligible	Negligible	Negligible

Applying this to our assessment, the summary of odour effects at the existing sensitive receptors can be summarised as shown in Table 3-11 below. To ensure a worst case is considered we have completed the assessment on the highest source odour potential.

Table 3-11 Odour Impact at Sensitive Receptors

Receptor	Description	Type	Approximate Distance (m)	Direction	Overall Receptor Sensitivity	Source Odour Potential	Pathway Effectiveness	Odour Exposure Risk	Likely Odour Effect
R1	Graylands Office Centre	Residential Commercial	619	E	Moderate	Medium	Low	Negligible	Negligible
R2	Graylands Lodge	Commercial	309	E	Moderate	Medium	Low	Negligible	Negligible
R3a	Graylands Farm	Farmland	527	SSE	Low	Medium	Low	Negligible	Negligible
R3b	Graylands Farm Residence	Residential			Low	Medium	Low	Negligible	Negligible
R4a	Andrews Farm	Farmland	564	SSW	Low	Medium	Low	Negligible	Negligible
R4b	Andrews Farm Residence	Residential			Moderate	Medium	Low	Negligible	Negligible
R5a	Lower Chickens Farm	Farmland	782	WSW	Low	Medium	Low	Negligible	Negligible
R5b	Lower Chickens Farm Residence	Residential			Moderate	Medium	Low	Negligible	Negligible
R6	Cox Farm Lodge	Residential	570	W	Moderate	Medium	Moderate	Low	Negligible
R7	Cox Farm	Farmland	338	W	Low	Medium	High	Moderate	Slight
R8	Sussex Camper Vans	Commercial	548	NE	Moderate	Medium	Low	Negligible	Negligible
R9	Orchard Lodge	Residential	605	NW	High	Medium	Moderate	Low	Slight
R10a	Durford Hill Farm	Farmland	775	NNW	Low	Medium	Low	Negligible	Negligible
R10b	Durford Hill Farm Residence	Residential			Moderate	Medium	Low	Negligible	Negligible
R11	Fisher Clinical Services	Industrial	756	N	Low	Medium	Low	Negligible	Negligible
R12	Broadlands Business Centre	Commercial	1055	NNE	Moderate	Medium	Low	Negligible	Negligible
R13	Weinerburger Brickworks and adjacent Business Park	Industrial	281	SSE	Moderate	Medium	High	Moderate	Negligible
R14	Warnham Railway Station	Commercial	453	S	Moderate	Medium	Low	Negligible	Negligible
R15	South Lodge	Residential	521	NE	High	Medium	High	Moderate	Moderate
R16	Boldings Brook Academy	School	613	NW	Moderate	Medium	Low	Negligible	Negligible
R17	Langhurst Moat Cottage	Residential	341	SSE	Moderate	Medium	Low	Negligible	Negligible
R18	Holmwood	Commercial	1052	NNE	Moderate	Medium	Low	Negligible	Negligible
R19	Gunborn Crossing Cottages	Residential	840	N	Moderate	Medium	Moderate	Low	Negligible
R20	Nowhere House	Residential	884	NNW	Moderate	Medium	Moderate	Low	Negligible

Receptor	Description	Type	Approximate Distance (m)	Direction	Overall Receptor Sensitivity	Source Odour Potential	Pathway Effectiveness	Odour Exposure Risk	Likely Odour Effect
R21	Richmond House	Residential	945	NNW	Moderate	Medium	Moderate	Low	Negligible
R22a	Wood Farm	Farmland	1098	NNW	Low	Medium	Low	Negligible	Negligible
R22b	Wood Farm Residence	Residential			Moderate	Medium	Low	Negligible	Negligible
R23	Upper Chickens – Houses and Pet Supply Company	Residential	1113	NNW	Moderate	Medium	Low	Negligible	Negligible
R24	Highland House, The Mount & other residences	Residential	674	NW	Moderate	Medium	Low	Negligible	Negligible
R25	Dog & Duck Pub	Commercial	895	WNW	Moderate	Medium	Moderate	Low	Negligible
R26	Geerings	Residential	908	W	Low	Medium	Low	Negligible	Negligible
R27	Police House & adjacent residences	Residential	869	SW	Low	Medium	Low	Negligible	Negligible
R28a	Westons Farm	Farmland	794	SSW	Low	Medium	Low	Negligible	Negligible
R28b	Westons Place Residences	Residential			Moderate	Medium	Low	Negligible	Negligible
R29	Lower Gate House	Residential	502	S	High	Medium	Moderate	Low	Slight
R30a	Pondtail Farm	Farmland	816	SSE	Low	Medium	Low	Negligible	Negligible
R30b	Pondtail Farm Residence	Residential			Low	Medium	Low	Negligible	Negligible
R31	Britaniacrest Recycling	Industrial	103	SE	Moderate	Medium	Moderate	Low	Negligible
R32	Biffa ATRF	Industrial	100	N	Moderate	Medium	Moderate	Low	Negligible
R33	Panel 2 Panel & Green	Commercial	415	S	Moderate	Medium	Moderate	Low	Negligible
R34	Sewage Works adjacent to Farm	Industrial	423	SSW	Low	Medium	Low	Negligible	Negligible
R35	Wealdon	Residential	395	SSE	Low	Medium	Low	Negligible	Negligible
R36	Denhams Auctioneers	Commercial	590	NW	Moderate	Medium	Low	Negligible	Negligible
R37	Sussex Health Centre	Nursing Home	633	NW	Moderate	Medium	Low	Negligible	Negligible
R38	Male Journey	Commercial	653	NW	Moderate	Medium	Low	Negligible	Negligible
R39	White Cottage Cake Company	Commercial	698	NW	Moderate	Medium	Low	Negligible	Negligible
R40	Houses on Station Road	Residential	469	S	Moderate	Medium	Moderate	Low	Negligible
R41	Little London Hill	Residential	656	W	Low	Medium	Low	Negligible	Negligible
R42	Vale Stud Riding School	Commercial	1011	NNW	Moderate	Medium	Low	Negligible	Negligible

3.7 Predicted Offsite Odour Impact

3.7.1 Current Main MBT Processes

The original permit application for the current Facility was accompanied by an Air Quality Assessment that considered impacts from a number of pollutants including odour. Using ADMS (Atmospheric Dispersion Modelling System) the highest modelled concentration at the selected receptors during normal plant operations is predicted to occur in the area around the Graylands Lodge receptor. The predicted 98th percentile odour concentration is less than 1.0 OUE m³ in all meteorological data years. This is below the selected assessment criteria of the H4 guidance of 1.5.0 OUE m³.

The contour plot appended to the Air Quality Assessment shows that the 98th percentile odour concentration is less than 1.0 OUE m⁻³, including areas within, or in very close proximity to the installation boundary. It is therefore considered that odour complaints from the closest residential properties, due to emissions from the main stack, would be unlikely.

3.7.2 New Waste Transfer and Storage Area

3.7.2.1 Introduction

The new transfer and storage area was subject to a qualitative assessment in respect of mitigation and management of the potential odour risks associated with the proposed new site activities. The assessment has been summarised and is presented in a risk matrix attached in Appendix B. The matrix uses a scoring mechanism, whereby scores are assigned to:

- The probability of the odour hazard occurring without the use of protective measures;
- The consequences of the odour hazard to the environment or human health without mitigation of control in place.

Multiplying these scores together provided an indication to the acceptability of the activity without the control/mitigation measures being employed.

$$\text{Risk Factor} = \text{probability} \times \text{consequence}$$

The control and mitigations being employed are then detailed and a score for the expected effectiveness of the controls is given. A mitigated risk factor is determined:

$$\text{Mitigated Risk Factor} = \text{Risk factor} / \text{mitigation factor.}$$

The lower the mitigated risk, then the more effective the controls and mitigations employed are expected to be.

3.7.2.2 Scoring Mechanism

The risk assessment methodology has been developed

The scoring system used for the assessment is shown in Table 3-12 below.

Table 3-12 Risk Assessment Scoring Mechanism

FREQUENCY OF OCCURRENCE		
Frequency	Comment	Score
Never	Incident occurs once every 100 to 10,000 years	1
Very Unlikely	Incident occurs once every 10 to 100 years	2
Unlikely	Incident occurs once every 1 to 10 years	3
Somewhat Unlikely	Incident occurs at least once per year	4
Fairly Probable	Incident occurs at least once per month	5
Probable	Incident occurs at least once per week	6

CONSEQUENCE OF HAZARD TO ENVIRONMENT OR TO HUMAN HEALTH		
Consequence	Comment	Score
Minor	<ul style="list-style-type: none"> • Vary faint odour • Intermittent release • Onsite nuisance only no outside complaint • No breach of permit 	1
Noticeable	<ul style="list-style-type: none"> • Faint odour • Odour may be noticeable but not unpleasant • Odour unlikely to be strong enough or of sufficient duration to identify or characterise the odour. 	2
Significant	<ul style="list-style-type: none"> • Distinct Odour • Intermittent release • Nuisance may be noticeable off-site • Potential for 1 – 2 complaints • Reportable breach of permit 	3
Severe	<ul style="list-style-type: none"> • Strong odour • Likely to generate off-site complaints • Severe sustained nuisance • Numerous public complaints • Reportable breach of permit 	4
Major	<ul style="list-style-type: none"> • Very strong odour • May be offensive enough to prevent working or playing outside • Dependant of source partial plant shutdown may be required • Replacement of part of plant may be required • Major breach of environmental permit • Regulator (EA/HSE) involved 	5
Catastrophic	<ul style="list-style-type: none"> • Extremely strong odour • Odour capable of causing nausea or headaches so highly objectionable • Full plant shut-down potentially required • Regulatory prosecution likely 	6
EFFECTIVENESS OF MITIGATION		
Mitigation Factor	Comment	Score
Non-existent	<ul style="list-style-type: none"> • No mitigation in place 	1
Ineffective	<ul style="list-style-type: none"> • Some minor controls in place but mitigation not achieved 	2
Partly effective	<ul style="list-style-type: none"> • Basic controls in place and hazard partly mitigated but significant residual risk remains 	3
Effective	<ul style="list-style-type: none"> • Basic controls in place and hazard mitigated to an acceptable level although moderate level of residual risk may exist 	4
Very effective	<ul style="list-style-type: none"> • Processes fully controlled (basic/advanced) and hazard mitigated to recognised standard. Some minor residual risk may remain 	5
Entirely effective	<ul style="list-style-type: none"> • Processes fully controlled to level in excess of recognised standards. Hazard mitigation entirely effective and no residual risk remains 	6

4. Management Arrangements

4.1 Management Responsibilities and Review

The Plant Manager, or nominated deputy, has responsibility for ensuring that nuisances and hazards arising from the proposed facility due to odour are controlled and minimised.

Every weekday morning the site management team meets to discuss operational issues, and odour management forms part of the agenda for those discussions. This will identify planned site operations that have the potential to increase odour emissions, and to agree preventative methods that are suitable. The identified actions are recorded on the Morning Meeting Spreadsheet which is accessible to all relevant staff. Works planned for weekends are discussed on the Friday afternoon before. Also, the Plant Manager or nominated deputy will also phone in to site on Saturday and Sunday to discuss any issues. Should any odour monitoring or assessment process found to be deficient or not suitable for Biffa's requirements, then this will be reviewed at the time by site management, and significant amendment will be discussed with the Environment Agency prior to implementation. An annual review will also take place to ensure that all processes are still relevant and appropriate.

This OMP forms part of the management system for the site. Any amendments to the OMP will be communicated to all staff who hold responsibilities for management of the process on site.

The inclusion of the OMP within the site management system ensures that it is being accorded with. Checklists that include the OMP's requirements will be prepared and maintained by the Plant Manager. These checklists are: Reception Hall Check Form v1, Pre Starts – P O's v1, Post Ops & Monthly Lists – P O's v 1, Shift Supervisors Environmental Walk Around v3. Appendix 2 shows the daily Odour Check form that will be record odour assessments undertaken.

4.2 Technical Competence

A technically competent person will be available on site in accordance with the regulatory attendance requirements. In his absence a nominated deputy will be available. The technically competent person, or nominated deputy, will be responsible for the control of incoming and outgoing vehicles, checking Duty of Care documentation, inspecting waste to ensure compliance with permit conditions, keeping and maintaining all records. The technically competent person, or nominated deputy, will have overall responsibility for ensuring high standards of housekeeping and odour control are maintained throughout the site as a whole.

4.3 Training Provision

All staff will receive instruction and training, both verbal and documented, in all relevant aspects of operational procedures, permit requirements in relation to operations and the environment, health and safety and general requirements of the site management plan. A copy of the permit and approved site management plan will be kept available on site for reference when required by all site staff carrying out work under the requirements of the permit.

Wherever possible, training will be delivered in the workplace by internal training staff or by managers, although formal training courses will be employed were required.

In relation to odour management, this will be incorporated into the general site operational training and will cover odour awareness in relation to normal, abnormal and maintenance situations and include management of odour complaints.

4.3.1 New Starters

Each position at the site will be covered by a general job description detailing key skills, responsibilities and reporting structure. It will be standard procedure for new process operators to be given comprehensive "on the job" training before they take full responsibility for their post. Supervision will be provided for as

long as is necessary to ensure that the required skills have been imparted. In addition, specific full training on key tasks will be given to both new and experienced operators as necessary.

4.3.2 Contractors

Site rules will be provided to all contractors using or visiting the site. These rules will describe basic safety and operational precautions to be observed while at the site.

Instances of drivers or contractors not following site rules or behaving inappropriately will result in warnings. If necessary, requests to leave site and/or barring from future visits to the site will be implemented.

4.4 Management System

Biffa operates an integrated management system which meets the requirements of:

- BS EN ISO 9001:2015– Quality Management Systems
- BS EN ISO 14001:2015 – Environmental Management Systems
- BS EN ISO 45001– Occupational Health and Safety Management Systems

5. Normal Operational Odour Control

5.1 General Controls

5.1.1 Odour Controls – Waste Transportation

Biffa are not solely responsible directly for the transportation of waste into or from the site, some of which is carried out by third-party contractors on behalf of West Sussex County Council. However, Biffa ensure that all vehicles arriving on site are sheeted, and provide adequate space to remove the sheeting, and put it back in place following tipping of waste. All tipping of vehicles is carried out in an enclosed building with doors closed. There are also other waste processing sites adjacent to the MBT and waste transportation in and out of their sites falls solely under their responsibility.

5.1.2 Waste Acceptance Procedures

At the weighbridge, the operator will evaluate the incoming waste load in accordance with site procedures. Providing the incoming waste is acceptable, the driver will be provided with the correct discharge code and will be directed to the relevant discharge area for the MBT. In the event that waste does not meet the conditions specified in the Environmental Permit, or is particularly odorous, the load(s) will be rejected in accordance with site procedures.

The vehicle, quantity, type and origin of the waste will be recorded in accordance with the Environmental Permit.

5.1.3 Waste Composition

The Operator retains the right to reject any waste which is deemed to jeopardise the ability to manage the site and prevent the emission of unacceptable odours. Rejected waste will be diverted straight to an appropriate landfill or treatment facility.

In the event that malodorous waste is identified by the site operators during load discharge/offloading, then the waste will be segregated into an isolation area and then diverted off site as soon as possible for final disposal or further treatment. Controls such as suppression, deodorising sprays or covering of such material will be employed during the period when the material is in quarantine.

5.1.4 Housekeeping

Daily housekeeping routines are maintained to include the clearance of waste spillages manually or by use of the site road sweeper. As part of Animal by-products Regulations, procedures are in place to ensure that the reception hall floor is free from spillages. The weighbridge operator maintains a daily housekeeping checklist for the reception hall – Reception Hall Check Form - - which is held as a hard copy on the weighbridge. The rest of the plant is monitored using Pre-Starts Checklists- Shift Supervisors Environmental Walk Around -. Hard copies are held by the shift supervisor. Any issues are recorded on the Hazards Reporting Tracker – this is reviewed by management weekly. The waste in the pits is rotated from one pit to the other every six months to allow for one pit to be emptied at a time. This is done to facilitate the inspection of the condition of the pits and to check for liquid. A visual inspection is conducted from outside as it is too dangerous to allow anyone to enter the pit.

There is generally no liquid as the waste absorbs this. However, should the liquid be greater than 50cm from the base of the pit, then a specialist contractor will be employed to remove the liquid within 5 working days. The liquid will be processed on site.

5.1.5 De-odourising Units

Two mobile de-odourising units are on site for rapid deployment should they be needed to ensure fugitive odours are minimised. The shift supervisor is responsible for ensuring that deployment is done. The maintenance and inspection of these pieces of equipment are held on the Computerised Maintenance Management System (CMMS).

5.2 MBT Treatment Plant

5.2.1 Odour Controls – Management of Waste Stock

Municipal solid waste is stored on site in two large pits, measuring approximately 30m long, 8m wide and 10m deep. Vehicles tip waste directly into these pits, and the pits are capable of receiving 2 days' worth of projected daily tonnage. The MBT plant operates 6 days per week, Monday to Saturday. The operations team ensure that waste is removed from the pits and processed as soon as possible following delivery taking seasonal highs and lows into account, to ensure as far as is practicable that the pit levels stay constant.

In order to prevent old waste building up in the bottom of the pits and causing elevated levels of odour, the crane operators will spend time after the day's operations turning the pits over – that is digging down to the bottom of the pit in one area and piling up in another. Then this pile is loaded into the plant at the start of the next working day. This ensures that material is not left to accumulate at the bottom of the pits for long periods of time.

At the end of each day, the floors are cleared of debris. A deep clean of all areas is conducted once a week.

Biffa have no control over the length of time it takes from collection of waste from homes to delivery to the MBT. Waste can therefore at times be more odorous when delivered. When this happens, a light misting system is used to reduce odours. As the spray is directed over the pits, it does not interfere with visibility. The moisture content of the incoming waste is +/- 40%, and the amount of moisture added by the misting system is below 0.5% and would thus not make a significant difference to microbial growth.

No unprocessed waste is stored outside any building on site at any time. The only processed waste that is stored outside are wrapped bales under the following circumstances:

- being loaded on to trailers for immediate transport to a third part contractor
- temporarily being stored within the permitted area directly to the left of the bale hatch. These bales will not be stored for more than one day.

5.2.2 Odour Controls – Process Building

Air is extracted from the three main processing areas within the Process Building: the reception hall, the mechanical pre-treatment area, and the wet pre-treatment area. This is done via large steel ducts installed at roof level which draw in the air through a series of grills. Highly odorous areas such as over screens and at the interchange of conveyor belts have hoods installed which are connected directly to the main extract ducts to provide localised extraction.

In the wet pre-treatment area sludge mixing tanks and settlement tanks are also connected directly into the extraction system to allow for air extraction from the head spaces.

All operational doors in the process building which are used for the deposit or collection of waste materials are fast acting, rapid rise doors linked to infra-red sensors. This ensures the doors only open when a vehicle approaches them, and close once the vehicle has entered the building, or has completed the collection of a skip. This minimises the time the doors are open during deliveries and collections, reducing the opportunity for odour to escape the building. Operation of the doors is carried out by the weighbridge operator. They have a screen showing the status of all the doors on site and combined with CCTV this allows them to check all doors are shut unless they are being used.

5.2.3 Odour Controls – Dryer Building

The dryer building contains a hot air dryer which is able to use heat from the CHP engine exhaust to heat air which in turn is used to dry the dewatered digestate. Air is extracted from odorous areas around the dryer building and ducted through an extract fan, through heating elements, and into the dryer. A separate

fan extracts air from the dryer and blows it through to the bioreactors to join the air stream from the process building.

In addition, specific pieces of equipment which may give rise to particularly strong odour such as the decanters and screw conveyors are fitted with exhaust hoods linked directly with the extraction system.

The four digestate offload bays in the dryer building are also equipped with fast acting rapid rise doors to reduce the opportunity for odorous air to escape whilst skips are being removed.

5.2.4 Odour Controls – AD Area

In the AD area there are a number of atmospheric storage tanks that are kept under air extraction.

The exhaust air pipework from these tanks joins into a common duct, and passes through the scrubber, before joining the air stream from the process building and passing through the bioreactors.

5.3 Odour Abatement Equipment

5.3.1 Introduction

The nature of waste treatment operations means that odour will always be present and will need to be contained and treated in order to minimise the impact of the plant on surrounding neighbours. The plant has a number of different mechanisms designed to contain, control, and treat the odour generated on site to ensure that no offensive odour is detectable at the boundary of the facility. These various systems are described below.

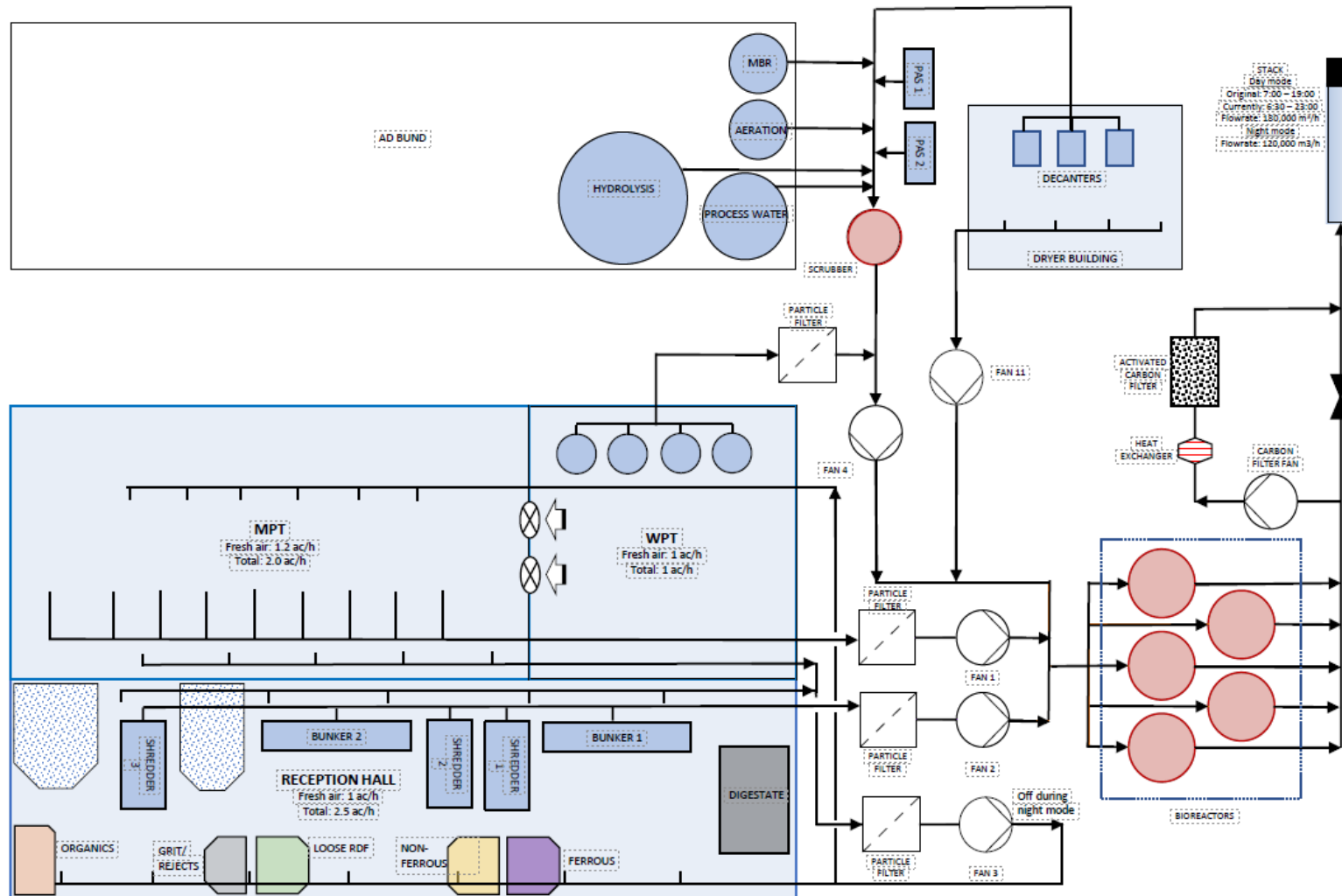
5.3.2 Air Extraction System

Air is extracted from the process building, dryer building and required tanks using a network of ducts and fans. A schematic of the extraction system is shown in Figure 3. The extraction system uses four fans to draw air from different areas of the plant: fan 1 from MPT and WPT, fan 2 from the reception hall, fan 4 from the tank farm, fans 4 and 11 from the dryer building. Fan 3 draws air from the reception hall, through a filter, and recirculates this air back into the reception hall as well as into MPT. Air from the process building is passed through dust filters to remove particulates before passing on to the odour treatment system.

The air flows within extraction ducts in a building will be maintained through an annual SLA with specialist service provider to ensure that negative pressure is maintained and then the actual extraction and flow rates will be rebalanced as necessary.

After treatment the resulting air is vented to atmosphere via a 24m high stack. The design based on the Environment Agency requirement that there should be no noticeable odour at the boundary of the site, the odour units should not be greater than 1000 ouE at the stack. The stack has a sample point accessed by a platform at approximately 15m to allow emissions tests to be carried out. This sample point is identified on the site Environmental Permit.

Figure 3 Schematic of Air Extraction System



5.3.3 Caustic Scrubber

Odorous air from the storage tanks is treated through a caustic scrubber. Exhaust air is blown up through the scrubber whilst dilute caustic solution is percolated down through layers of packing. The recirculated liquor removes odorous compounds from the air stream. The caustic concentration is maintained by a dosing system controlled by SCADA to maintain the desired pH between 7.5 and 9 under automatic control.

5.3.4 Biofilters

The extract air from the reception hall, MPT, WPT, dryer building and the residual air from the scrubber is split to pass through five biofilters. The biofilters are cylindrical stainless-steel towers 3.5m in diameter and around 11m high. These are single packed columns, each of which contains random plastic packing media, which encourages the growth of bacteria which feed on the odorous elements of the air stream. The residence time is 6.4s based on flow of 36,000m³/h per bioreactor (assuming all 5 bioreactors are in operation). A mixture of water and nutrient is trickled through the biofilter to irrigate the media and 'feed' the bacteria to maintain them.

The open areas on the media are large enough to ensure that biofilm does not grow over and impede performance. The pressure differential is checked constantly via the SCADA system at inlet and outlet to monitor this. However, in the unlikely event that an issue is detected, the media can be cleaned using a caustic soda wash. The entire affected bioreactor would be taken offline and flushed through. This will be brought back online as a new bioreactor and reseeded from one of the existing bioreactors.

The pH of 7.5 in the biofilters is controlled to ensure optimum performance, and caustic soda is used to control the biological activity.

5.3.5 Carbon Filter

As a final polishing step an activated carbon filter is installed after the bioreactors. Air is passed through a column filled with granules of activated carbon. The carbon absorbs odour from the air stream, further reducing the odour level emitted to atmosphere.

Daily monitoring of the concentration of Volatile Organic Compounds (VOCs) is carried out by a laboratory technician at the sample point on the stack. The Process Engineers carefully review these results together with the daily odour monitoring sheets and will advise when the carbon is nearing the end of its life. The Plant Manager, or Operations Manager in his absence, will decide when it should be changed. In the event of 3 consecutive days with VOC greater than 6ppm, the site will change the carbon at the earliest opportunity.

5.4 Odour Controls – External Waste Transfer and Storage Area

5.4.1 RDF Storage

RDF storage in the newly proposed waste transfer and storage area will be facilitated by storing loose RDF in sealed containers or plastic-wrapped, baled RDF on curtain sided trailers so odour release will be minimal.

Alternate bays will be used for the full and then empty trailers, the drivers will be informed by the weighbridge at the MBT to drop the empty trailer in Bay 1 and collect the full trailer from Bay 2 and so forth, ensuring a good rotation of trailers by the MBT operations and Logistics team controlling their movement. The RDF will be stored in a worst case scenario of 72 hours (i.e. from a Saturday pm to Tuesday am following a bank holiday).

Hauliers are responsible for ensuring the containers are cleaned out following tipping of any load at its end destination so that material does not build up in the body of the wagon.

5.4.2 CLO Storage

The allocated controlled area for the storage of CLO will facilitate the storage of CLO in enclosed/sealed containers/ROROs which are transferred from the MBT area so odour release will be minimal. The area will have its own dedicated sealed drainage to contain potential leachate – this will be monitored and will be emptied by bowser and transferred to the SBR tank at the MBT treatment area if necessary.

CLO Containers/ROROs are checked once empty and cleaned as necessary.

Trailers and skips will remain covered when outside, unless in an emergency situation where waste needs to be checked. All loading and unloading will take place inside the MBT building.

6. Maintenance

6.1 Routine Maintenance

Maintenance is managed site wide using an online Computerised Maintenance Management System (CMMS). This system records all routine maintenance tasks as specified in the equipment manufacturers Operation and Maintenance (O&M) manual, and schedules them to be carried out. When the date for a routine maintenance activity comes up, a work order is generated by the CMMS and printed out by the maintenance manager for one of the engineering team to carry out. Using the CMMS ensures that all equipment on site is maintained as per the manufacturer's instructions, and that tasks do not get missed or carried out late.

All equipment which contributes towards the control of odorous emissions around the site are included in the CMMS, ensuring it is kept operational and functioning correctly.

A quarterly inspection of the process building skin is on the CMMS system. Any issues will be logged on the Hazards Reporting Tracker - and a work order raised in the CMMS system.

Plant that is involved in loading of the vehicles are subject to pre-use checks and planned preventative maintenance as detailed in the Management and Technical Plan is undertaken. The new waste storage and transfer area is subject to daily inspection and any defects with surfacing, bays and drainage will be logged and maintenance arranged via the CMMS.

6.2 Unplanned Maintenance

The facility is operational 24 hours per day, and is manned at all times as a minimum by:

- Production operators
- SCADA operator
- Mechanical engineer
- Electrical engineer
- Shift supervisor

Therefore, if any issues arise with the odour abatement equipment, fast acting doors, or any other associated equipment, it is quickly identified by either the SCADA operator in the control room or another member of staff walking around the facility.

In addition, the facility has a comprehensive CCTV system which allows staff in the control room to monitor most areas of the site remotely. This can provide indicators of any issues such as damage to duct work or other components.

Biffa engineering department keep critical mechanical spares that will allow them to fix most breakdowns without outside assistance. For the few specialist items that we cannot reasonably tackle e.g. fast-acting doors, agreements are in place to ensure emergency callouts. This information is held on the - site's Emergency Response Plan.

For more complex failures Biffa have Service Level Agreements (SLAs) with many of the critical equipment suppliers. The SLA will have an agreed call out procedure ensuring that any equipment failure is rectified in a timely manner. The suppliers will also keep a stock of essential spares to reduce ordering lead times. Contingency arrangements are put in place to minimise the chance of the failure causing an odour nuisance. Further details of contingency arrangements on site are described in 7.

A list of current abatement equipment and the trigger for action is presented in

Table 6-1 below.

Table 6-1: Abatement Equipment

Equipment	Who	What	Parameter	Frequency	Action trigger	Action
Carbon pack	SCADA	Temperature Pressure	25 to 35 °C 8-12 mbar	Continuous	As per SCADA alarm limits	Shift supervisor to investigate
Carbon pack	Laboratory technician	VOCs	0 to 6 ppm	Daily	When VOCs are predicted to be greater than 6ppm as indicated by trend for more than 3 days	Process engineers will review and investigate as necessary
Bioreactors	SCADA	Temperature Pressure pH	Ambient 30-50 mbar 7.5 - 8	Continuous	As per SCADA alarm limits	Shift supervisor to investigate
Bioreactors	Laboratory technician	VOCs	Uncontrolled	Daily	For management information only	Process engineers will review and investigate as necessary
Caustic scrubber	SCADA	Temperature pH	Ambient 7.5 to 9	Continuous	As per SCADA alarm limits	Shift supervisor to investigate

The shift supervisor will be trained to assess compliance to our environmental permit and will notify management if they believe that a breach may have occurred. Site management, once informed, will decide whether a verbal notification to the local officer/Schedule 6 is required.

7. Odour Control During Abnormal Operations

This section outlines a summary of foreseeable situations which may compromise the operator's ability to control and / or minimise odorous emissions and summarises the actions to be taken to minimise the impact.

Should any part of the abatement system be non-functional for any reason for more than one day, then this will be discussed with the local Environment Agency office regarding what further actions might be necessary.

Abnormal operations are those that do not comply with current standard operating procedures. The EA will be notified should any operation cause abnormal emissions as defined by the operating permit and Emergency Response Plan.

7.1 Driver Non-Compliance

Drivers are required to have a level of expertise that will enable them to utilise the site properly. All drivers are inducted before being permitted on site and will be aware that doors should be shut during discharge. However, there may be instances where this may not happen due to driver ability or vehicle breakdown. Should this happen, the driver will be instructed again on the correct discharge procedure and their managers will also be informed. Should this reoccur, the offending driver will be banned from site.

These, as well as any other abnormal events will be recorded on the Near Miss Hazard -Tracker.

7.2 Power Failure

In the event of power failure, the facility has a standby generator which will automatically start up if power loss is detected. This standby generator does not have the capacity to run the whole plant, and so only operationally critical items are kept powered up. These include the SCADA system, fast acting doors, gas handling system, and water pumps.

The main odour abatement system is shut down during a power outage. The fast-acting doors will still be in operation which will limit fugitive emissions to atmosphere. However, there is no air extraction from the buildings or tanks, and no odour treatment.

In order to mitigate against the impact of this, the facility keeps a mobile odour suppressing misting system on site at all times. The unit runs on its own diesel engine and uses a fan with an atomising diffuser to spray a scented mist into the air. This mist will go some way to scrubbing the odorous air, trapping organic particles, and the scent will mask the smell of the waste. The unit can be positioned and directed to spray in any required direction.

In the event of power outage this trailer mounted unit will be moved to a location which is considered to be a primary source of odour and set up downwind of it to reduce the impact of any odours to the surrounding receptors. Biffa have a number of suppliers set up who will supply additional misting units on hire, to allow more to be brought in at short notice if required.

The circumstances will be evaluated by the Plant Manager in each event to determine how much waste could still be accepted.

7.3 Fast Acting Door (failure of)

The fast-acting doors are designed to stay open for the minimum amount of time possible (usually around 2 minutes) to allow vehicles to enter the building, and to reduce the chance of fugitive odours escaping from the building during the process. The doors are robust and designed for a long service life.

In the event of failure of a fast-acting door in the open position the first priority is to return the door to its closed position to prevent the escape of odorous air. The first action following a failure is for the fault to be investigated by the electrical technician on site. If the issue is a failure of an electrical component, the

electrical technician will often be able to fix it there and then, using spare parts held on site. They will normally be able to manually return the door to its closed position.

If the electrical technician on shift cannot fix the door, Biffa hold an agreement with the manufacturer of the doors which ensures a response following a call. The service engineer will attend site with a comprehensive holding of spare parts and will normally be able to repair the door on the call out visit. In the event that the door is more seriously damaged and requires additional spare parts to be ordered in, the door will be closed manually and secured until it can be repaired.

Equipment stockholding/criticality rating is shown on CMMS.

If the door cannot be closed immediately following failure, the mobile odour suppressant unit described in 7.2 above is moved to the opening and turned on to mask any odour escaping from the building until a tarpaulin can be placed over the doorway. If the electrician cannot bring the door down, then the tarpaulin will be placed over the doorway within an hour.

7.4 Odour Control Plant Failure

The odour control system is made up of many components, and it is unlikely that the failure of a single component will impact on the performance of the system as a whole. However, there are some items such as fans which will reduce the effectiveness of the system in the event of failure.

Biffa hold many critical spares on site, and a mechanical and electrical technician is on site at all times. Therefore, if a critical component fails, the majority of the time the required spare part will be held in stock and can be fitted immediately to restore the system to operation again.

In the event that a critical spare is not held in stock, Biffa have the manufacturers set up as suppliers on the system which will allow spares to be ordered at the time and delivered to site within a reasonable period. As this covers a large variety of stock, a reasonable period could mean from 24 hours for something such as a cable to several weeks for more complex items such as gearboxes.

Equipment stockholding/criticality rating is shown on CMMS.

Failure of ductwork, pipes, and pressure release valves, etc would be viewed as abnormal occurrences and would be investigated should an issue arise.

7.5 Fire & Emergency

In the event of fire or other emergency, the first priority is to ensure all staff, contractors and visitors on site are evacuated and safe. The site has an Emergency Response Team (ERT) made up of plant managers, supervisors and engineers who remain in the control room to coordinate the emergency response and ensure that the incident is dealt with as effectively as possible. The ERT will take the instructions from the emergency services attending the incident regarding how the plant should be operated.

In the event of fire, the fire service may ask that doors are opened to allow smoke to clear. In this case fugitive odours may escape from the building and could be perceptible beyond the site boundary. In these instances, the site team will work to ensure this is done for the shortest time possible, and the site can be returned to normal as soon as the emergency services allow.

If damage is done to the doors, building skin or part of the odour treatment system which cannot immediately be rectified using spares held on site, a temporary repair will be made to ensure the building is contained to prevent the release of fugitive odour. A permanent repair will be made as soon as possible. All repairs are logged in the CMMS system which is managed by the Technically Competent Manager. In addition, the mobile odour suppressant misting system will be set up within an hour of discovery close to any odour release points. Tarpaulins will also be deployed to cover any breaches within an hour of inability to bring door down manually, to mitigate the effect of any leaks. Further mobile misting units may be hired in as required to reduce the impact of any damage to the odour abatement system.

8. Monitoring, Recording and Reporting

8.1 Routine Odour Control System Monitoring

The SCADA system measures flow rates and pressures at various points as per the P&ID. VOCs are measured daily at the stack and logged on the VOC spread sheet.

8.1.1 Caustic Scrubber Monitoring - optional step

The operation of the caustic scrubber is monitored from the site wide SCADA control system. This allows the plant operators to check on the operating parameters of the system to ensure it is performing as designed. Figure 8-1 provides a screen shot of the SCADA page showing the scrubber operation page.

The SCADA page shows a number of operating parameters such as which pumps are running, temperatures of various components in the system, flow rate of recirculated liquor through the system and levels in storage and blowdown tanks. If any of these values move outside of a pre- set margin of error, it will be highlighted on screen and the plant operator will be able to alert an engineer to investigate the issue.

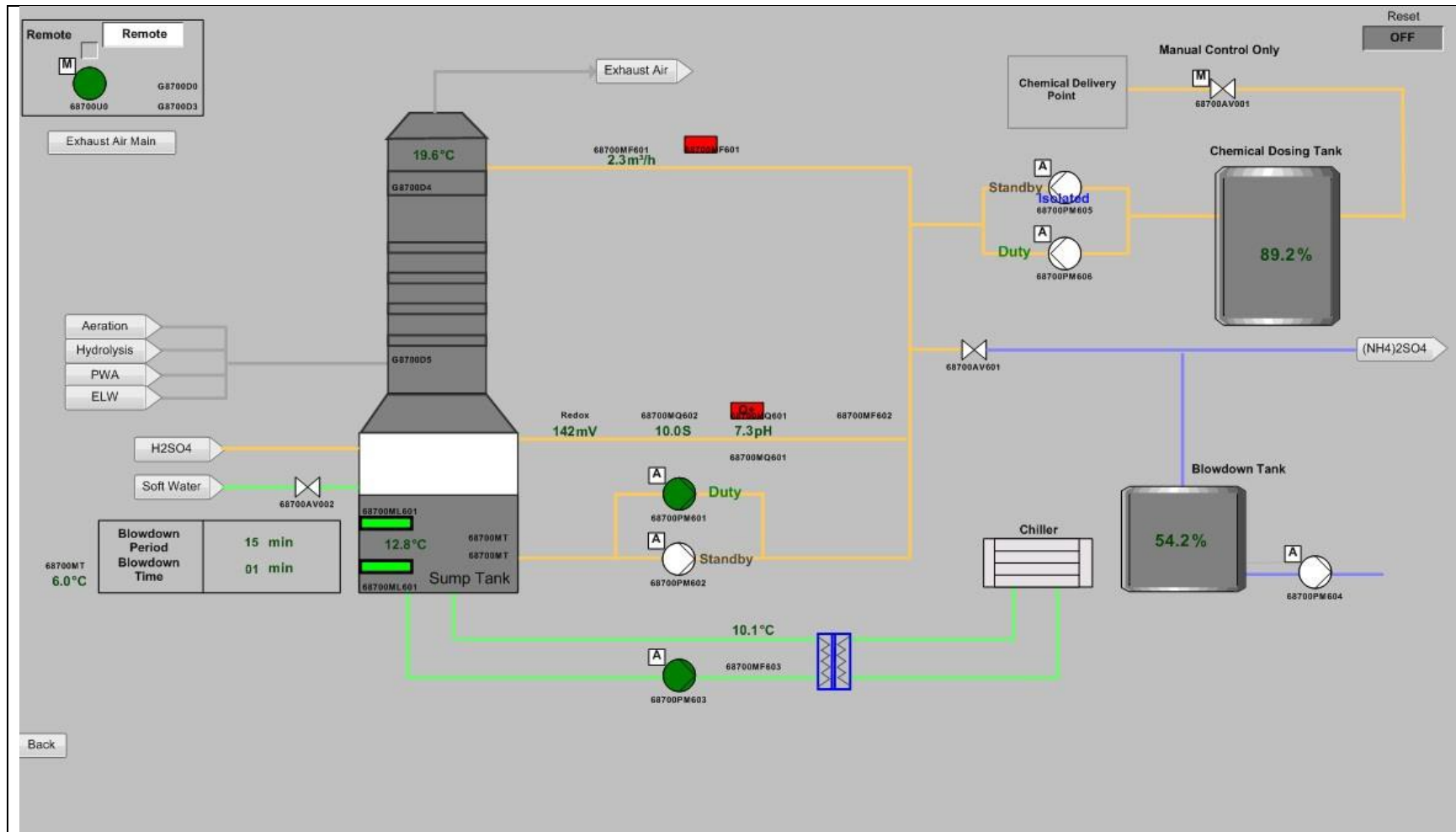


Figure 8-1: SCADA screenshot of caustic scrubber system

8.1.2 Bioreactors

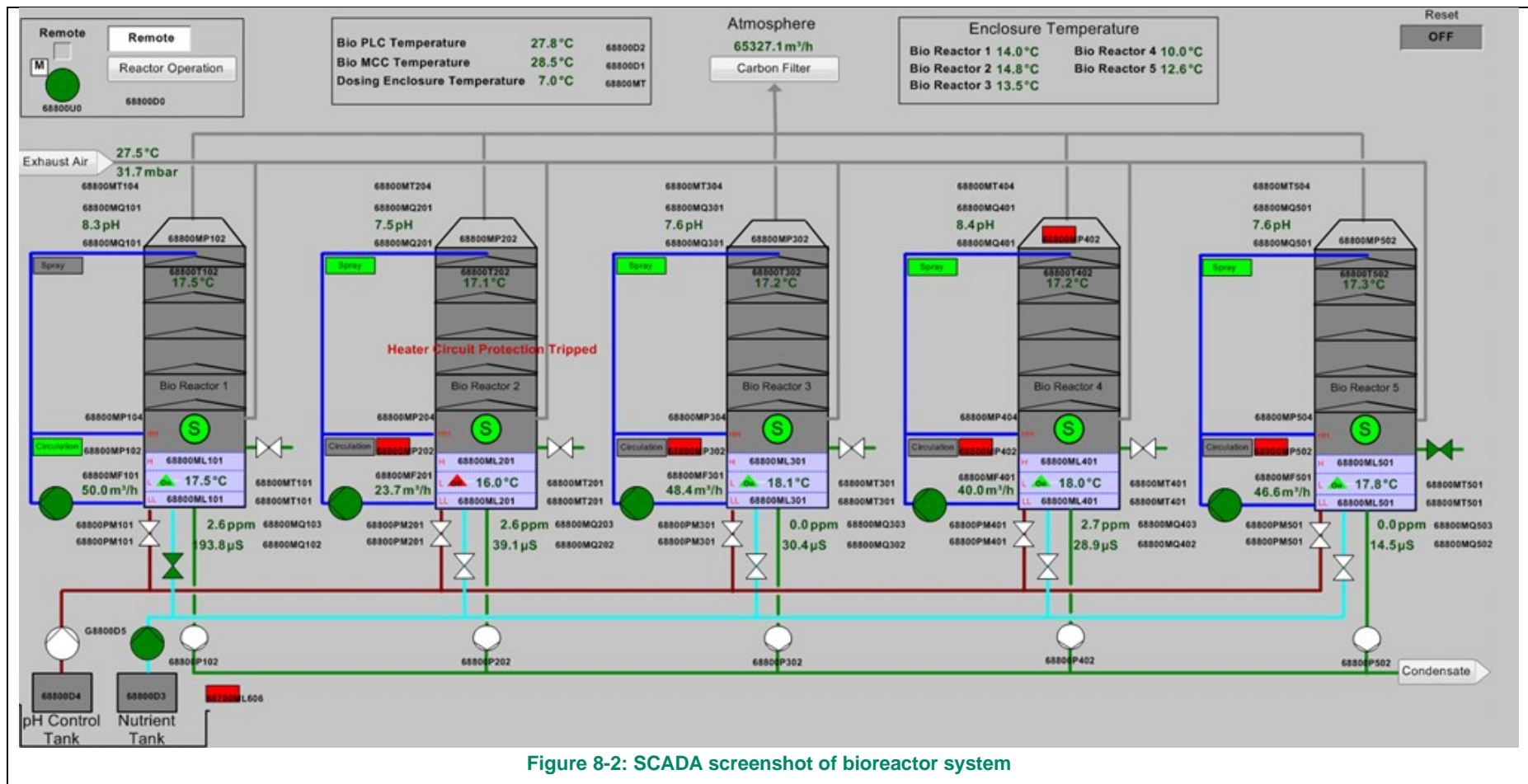
The operation of the bioreactors is also monitored from the site wide SCADA control system. This allows the plant operators to check on the operating parameters (see

Table 6-1) of the system to ensure it is performing as designed. Figure 8-2 provides a screen shot from the SCADA system showing the bioreactor operation page.

The crucial elements which are monitored are pH, flow, and temperature. If these are all within working parameters, the bioreactors should function correctly.

On a weekly basis the airflow into each bioreactor and out of the stack is sampled and analysed for VOC's using a PID analyser. This will provide a measure of the VOC drop across the bioreactors as a whole and indicate the effectiveness of the system. If the drop is not as high as expected (see

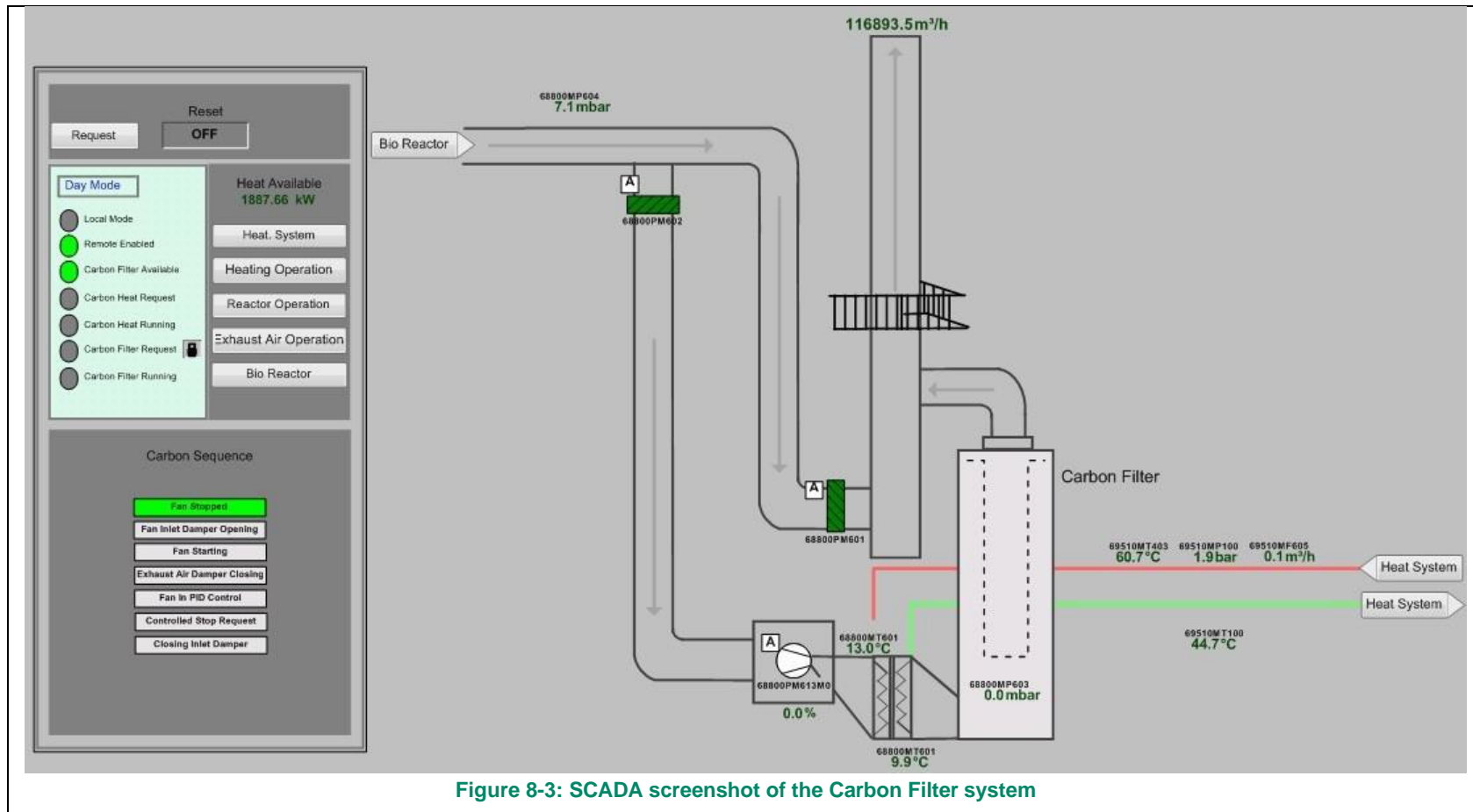
Table 6-1), the system will be investigated to check for defects and areas where performance can be improved.



8.1.3 Carbon Filter

The operating performance of the carbon filter is monitored via SCADA in the same way as the caustic scrubber and the biofilters. Figure 8-3 shows a screen shot from the SCADA system illustrating the carbon filter system. This allows the operation of the system to be monitored and the temperatures, flows and pressures around the system to be logged.

Airflow from the inlet and outlet of the system is sampled and analysed daily by the laboratory technician for VOCs using a PID analyser, to monitor the effectiveness of the system in reducing VOCs. The data is tracked by the process engineering team on the VOC monitoring spread sheet.



8.2 Leak Detection and Repair (LDAR) Plan

The main MBT site comprises an anaerobic digestion process with associated combustion of the produced gas in gas engines. The Operator is currently preparing an LDAR plan to meet the requirements of a new Improvement Condition identified during the recent BAT Regulation 61 review for the existing MBT processes.

As the site does not accept wastes with the potential to release diffuse organic compounds no LDAR programme is required for the new Waste Transfer and Storage Area.

8.3 Annual Monitoring

The sites Environmental Permit (EPR/HP3138GW) stipulates that emissions from the plant are monitored on an annual basis to ensure compliance with the limits set out in the permit. Components of emissions monitored are:

- Oxides of Nitrogen
- Carbon Monoxide
- Sulphur Dioxide
- Particulate Matter

Annual monitoring is carried out in accordance with Environment Agency guidelines by MCerts accredited organisations. Samples are taken for analysis from the sample points on the main exhaust stack as identified in the permit. Further details of emissions limits are contained in the permit.

8.4 Routine Perimeter Olfactory Monitoring

8.4.1 Sniff Testing

Biffa use an Environmental Monitoring Schedule to record all of the monitoring required by the facility in order to comply with its Environmental Permit. Included in this is ambient air monitoring. This consists of a daily walk-around carried out by a lab technician, site supervisor or other suitably experienced person. At least fourteen locations around the site and outside the site boundary have been identified and marked on a plan (see appendix C). The operator carrying out the monitoring will make their way to each of the locations in turn and spend a minute sniffing the ambient air and assessing it against five key criteria:

- Character: e.g. landfill gas, agricultural, compost, leachate etc.
- Intensity: on a scale of 0 (not detectable) to 6 (very strong odour)
- Extent: on a scale of 0 (if no odour) to 4 (persistent widespread odour)

The operator carrying out the monitoring will record their assessment of the odour against the above criteria on an Odour Monitoring Form. In addition to the above they will note the suspected source of any odour they perceive and the weather conditions at the time of testing. Full details of the odour test criteria and log sheet are included in appendix D.

The facility has a weather station on site which records a number of weather factors such as wind speed and direction, rainfall, temperature etc. Data is taken from the weather station in order to populate the odour testing log sheet.

A more general and less-detailed check is also done by asking visitors, such as members of tour groups, whether they detected any odour on route to site and asking them to describe any odours perceived and at which locations these were perceived. Taking GDPR into consideration, this information is held in a generic format.

During odour checks post-complaint, a colleague from the other Biffa site operations may be requested to accompany the shift supervisor to provide an additional input.

8.4.2 Dynamic Dilution Olfactometry

Dynamic dilution olfactometry (DDO) is not used routinely on site. However, means for taking grab samples is provided via the platform and sample point on the side of the stack. During site acceptance testing the practice was used to prove the effectiveness of the odour abatement system and passed the requirements of the contract. If specific odour complaints are received to which a cause cannot be easily assigned, then DDO may be used to gather data on stack emissions and establish odour levels using a more scientific approach.

8.5 Additional Reactive Odour Monitoring

In the event of odorous release from the plant, additional reactive odour monitoring is carried out. This will involve the usual sniff testing being carried out multiple times during the day. Further sniff test locations may be added around site and beyond the boundary to establish the full extents of the odour issue.

The local weather patterns are also monitored in correlation to odour complaints.

8.6 Community Liaison

The facility employs a full time Community Liaison Officer . The role of the Community Liaison Officer is to provide an interface between the plant and the local community, as well as educating the residents of West Sussex in how their waste is treated at the plant. The Community Liaison Officer receives all complaints, queries and comments relating to the site and investigates the issues as required. The Community Liaison Officer will respond directly to the originator of the complaint at critical points: confirmation of receipt of complaint, update on investigation, and conclusion.

A community liaison group has been established consisting of local residents, council members, staff from the facility and landfill site, and other interested parties. A group meeting is held at the facility, or on a video conferencing call in exceptional circumstances, every quarter, during which group members are brought up to date on operations at the MBT facility and landfill site, briefed on any relevant Environment Agency issues, and given the opportunity to ask questions and lodge any queries or complaints. Minutes are kept of these meetings and distributed to all members of the group.

The Community Liaison Officer conducts tours of the facility for local schools and colleges, community groups and any other interested groups. This educates members of the public on how the plant operates and what process steps are in place to ensure the plant has as little impact on the local community as possible.

Should an abnormal event occur, which might impact the local residents, then an e-mail will be sent to the residents to inform them. Estimated times of abnormal operation will be provided as well.

8.7 Complaints Procedure

The facility has a complaints handling plan, agreed with West Sussex County Council. A copy of this is included in Appendix E. In the event that a complaint is received about odour or any other nuisance activity, an investigation is launched immediately as described in the complaints handling plan.

The first priority of the team on site is to locate the source of the odour and to stop it, if the MBT is the cause of the odour. An investigation follows on how the odour pathway was established, and how to prevent re-occurrence in the future.

If a complaint is submitted from an area that is Red-carded, i.e. the operator does not feel safe to enter the location wherefrom a complaint is submitted, then they may perform the sniff test at a safe distance. This will be noted on the odour monitoring form.

To take potential olfactory desensitisation into account, the shift supervisor may request that a colleague from other Biffa site operations accompany them, if they are available, on the odour check post complaint. This will be noted on the odour monitoring form. Biffa will also ask available local residents whether they can detect any odour and their responses will be logged on the odour monitoring form. Any additional observations such as open windows should also be logged on the odour monitoring form.

During odour checks post-complaint, a colleague from the nearby landfill site is requested to accompany the shift supervisor to provide an additional input.

8.8 Recording Results, Reporting and Actions

8.8.1 Recording Results and Reporting

Records of all odour monitoring undertaken, as described in this OMP, will be maintained by Biffa. Records will be retained as stipulated in the Environmental Permit.

8.8.2 Reporting

Biffa will report monitoring results as stipulated by the Environmental Permit. Odour complaint reports will be reported to the EA in line with permit requirements.

Records will be retained for a minimum of 6 years.

8.8.3 Actions in the Event of Abnormal Emissions

In the event that daily odour monitoring indicates abnormal emissions from the facility are occurring, the site management team will implement the following actions:

- Check relevant items of odour control equipment in order to identify likely cause of abnormal emission;
- If possible, take immediate steps to eliminate the cause of the abnormal situation including contacting the maintenance operative if necessary - to obtain telephone support / advice or to request attendance on site; and
- Record response to abnormal emission and remedial action taken.

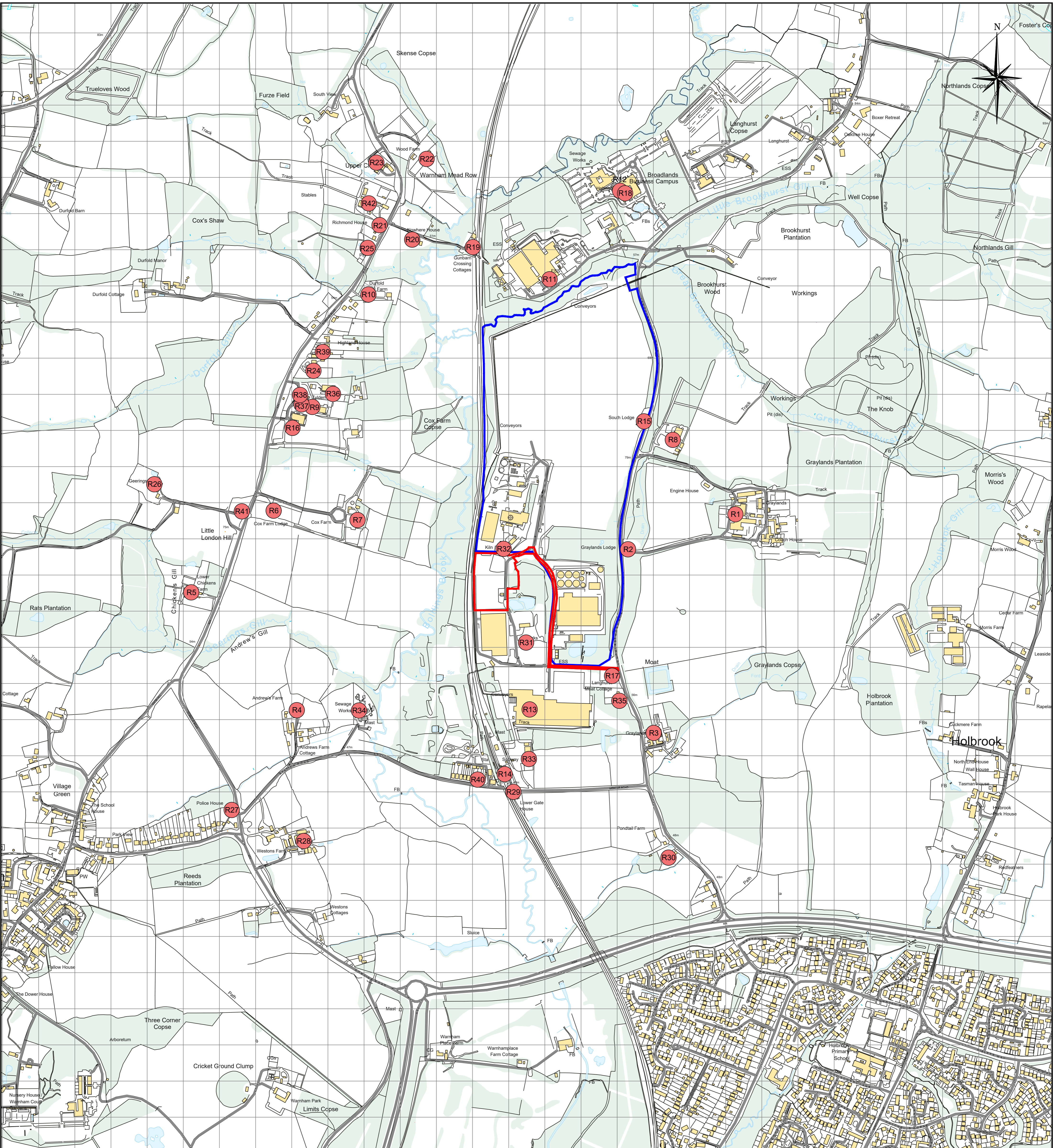
Details of the trigger parameters and associated contingency actions for odour control are presented in Appendix I.

8.9 Odour Management Plan Review

The effectiveness of the OMP will generally be reviewed at least once per annum based on a review of the odour complaints recorded and upheld during the previous 12 months. The review of the OMP may be undertaken at a frequency of less than 1 year in the event of:

- A sustained period of justified odour complaints; or
- Following the introduction of new treatment processes or changes to existing processes; or
- Acceptance of waste from new sources where the pre-acceptance checks indicate that that additional odour controls may be necessary based pre-acceptance checks.

Appendix A Drawings and Plans



KEY
 — DEVELOPMENT PROPOSALS SUBJECT TO THIS PLANNING APPLICATION
 — LAND IN BIFFA CONTROL

SENSITIVE HUMAN RECEPTORS

- R1 Greylands Industrial Park
- R2 Greylands Lodge
- R3 Greylands Farm
- R4 Andrews Farm
- R5 Lower Chickens Farm
- R6 Cox Farm Lodge
- R7 Cox Farm
- R8 Sussex Camper Vans
- R9 Orchard Lodge
- R10 Durlford Hill Farm
- R11 Fisher Clinical Services
- R12 Broadlands Business Centre
- R13 Weinberger Brickworks and adjacent Business Park
- R14 Warnham Railway Station
- R15 South Lodge
- R16 Boldings Brook Academy
- R17 Langhurst Moat Cottage
- R18 Holmwood
- R19 Gunbom Crossing Cottages
- R20 Nowhere House
- R21 Richmond House
- R22 Wood Farm
- R23 Upper Chickens - Houses and Pet Supply Company
- R24 Highland House, The Mount & other residences
- R25 Dog & Duck Pub
- R26 Geerings
- R27 Police House and other adjacent residences
- R28 Westons Farm & Westons Place Residential Properties
- R29 Lower Gate House
- R30 Pondtail Farm
- R31 Britanniacrest Recycling
- R32 Biffa ATRF
- R33 Panel 2 Panel & Greens
- R34 Sewage Works adjacent to Farm
- R35 Wealdon
- R36 Denhams Auctioneers
- R37 Sussex Health Centre
- R38 Male Journey
- R39 White Cottage Cake Company
- R40 Houses on Station Road
- R41 Little London Hill
- R42 Vale Stud Riding School

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REV.	DATE	DRAWN	DESCRIPTION

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PROJECT	MATERIALS WASHING AND RECYCLING FACILITY	DRAWN	AAO
LOCATION	BROOKHURSTWOOD LANDFILL SITE	DATE	01/23
DRAWING TITLE	ODOUR RECEPTOR PLAN	SCALE(S)	1:500 @ A1
DRAWING No.	WZD230800	COMPUTER REF.	

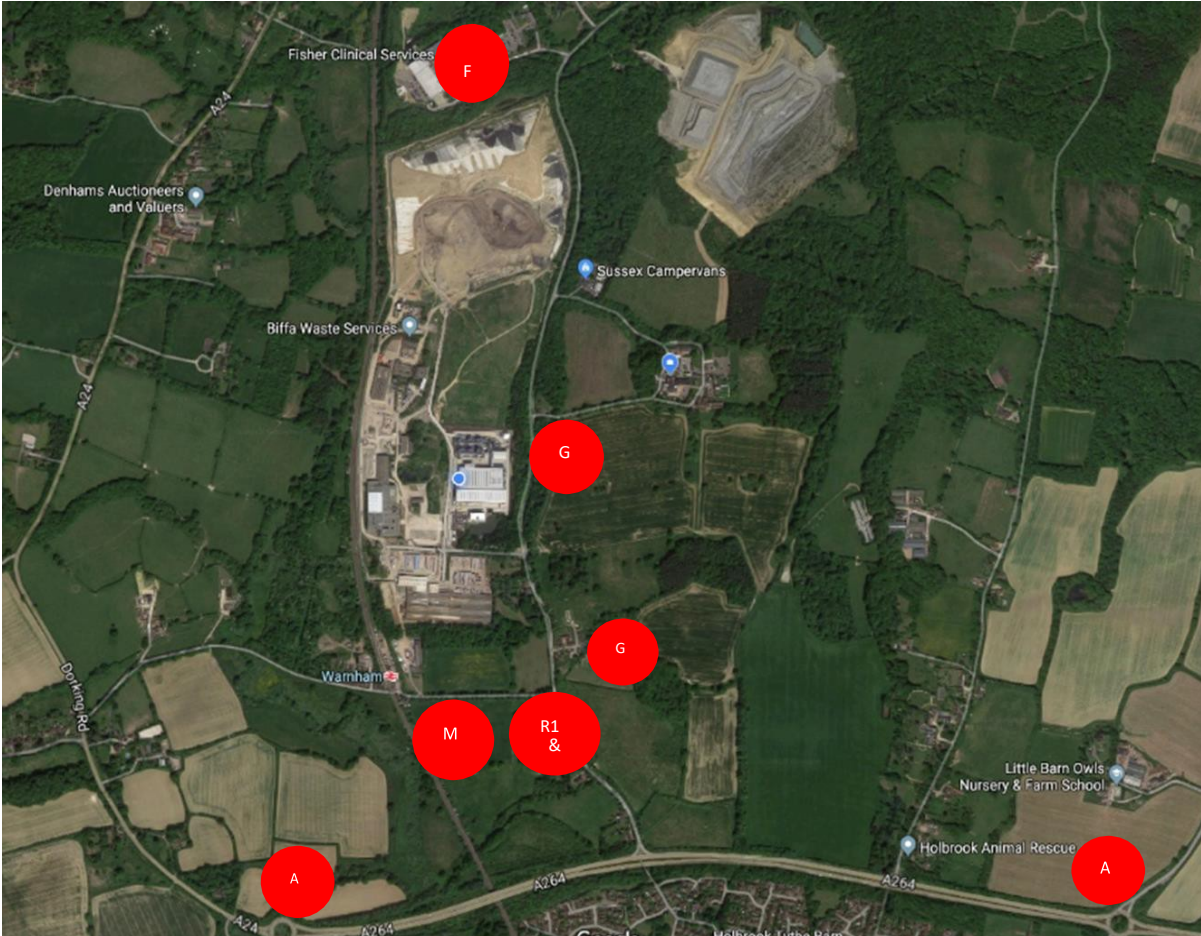
Appendix B Risk and Mitigation Matrix for Waste Transfer and Storage Area

Operating Status	Odour Source	Most Sensitive Receptors	Likelihood			Control Measures	Mitigation Factor	Residual Risk	Action if odour causes problem	Responsibility
			Probability	Consequence	Risk					
Normal Operations	Storage of Loose RDF	R2, R9, R15 and R29	6	3	18	<ul style="list-style-type: none"> Loose RDF will be loaded into sealed containers inside the MBT building and closed before wagon leaves the building. Containers of loose RDF will be stored for a maximum of 72 hours Hauliers are responsible for ensuring the container body is completely cleared of waste when they tip at the end destination. 	5	3.6	<ul style="list-style-type: none"> Review handling procedures. 	Operator to ensure loading, handling, and storage procedures are adhered to.
	Storage of Baled RDF	R2, R9, R15 and R29	6	3	18	<ul style="list-style-type: none"> Baled RDF will be loaded onto curtain sided trailers inside or adjacent to the MBT building and curtain secured before leaving the MBT area.. Trailers will be stored for a maximum of 72 hours 	5	3.6	<ul style="list-style-type: none"> Review handling procedures. 	Operator to ensure loading, handling, and storage procedures are adhered to.
	CLO Residue Storage	R2, R9, R15 and R29	6	3	18	<ul style="list-style-type: none"> Dewatered digestate/CLO will be loaded into enclosed containers at the MBT plant. CLO will be stored for a maximum of 72 hours. CLO containers/RORO are subject to inspection when empty and will be cleaned if inspection identifies waste accumulation in the container. 	5	3.6	<ul style="list-style-type: none"> Review housekeeping procedures. Review handling procedures. 	Operator to ensure loading, handling, and storage procedures are adhered to.
	Storage of run-off water	R2, R9, R15 and R29	6	2	12	<ul style="list-style-type: none"> Good housekeeping standards will ensure that the site external areas are kept clean to prevent build-up of spillage waste. Surface run off will be directed to new water lagoon which is connected to wider surface water management network. Water will be sampled before discharge and if necessary will be taken to the SBR tank at the MBT area. 	5	2.4	<ul style="list-style-type: none"> Increased removal of water by road tanker. 	Competent person to decide if increased removal of water is required.
	Management of potential leachate from CLO	R2, R9, R15 and R29	6	2	12	<ul style="list-style-type: none"> CLO area has enclosed, dedicated drainage. Leachate will collect within the site drainage system and be directed to the SBR tank at the MBT area for treatment. 	5	2.4	<ul style="list-style-type: none"> Increased removal of water off-site by road tanker or to foul sewer via the SBR tank 	Competent person to decide if increased removal of water is required.
Abnormal Conditions	Large volume of material received from the MBT plant over a short period of time	R2, R9, R15 and R29	2	4	8	<p>Biffa will exercise the following with regards to their waste suppliers:</p> <ul style="list-style-type: none"> Define maximum tonnages that can be accepted on a daily basis; Agree delivery schedule with consideration of public holidays; Stipulate the remit for the rejection of wastes if the facility is over supplied and daily recording of quantity of waste accepted into facility; 	5	1.6	<ul style="list-style-type: none"> Rejection of wastes and implementation of contingency plan. 	Management team to negotiate supplier policy and contingency plan Weighbridge operator to record quantity of waste accepted daily. Competent person to decide if waste should be rejected and whether it should be returned to supplier, sent to another licensed waste facility or disposed of direct to landfill.

Operating Status	Odour Source	Most Sensitive Receptors	Likelihood			Control Measures	Mitigation Factor	Residual Risk	Action if odour causes problem	Responsibility
			Probability	Consequence	Risk					
						<ul style="list-style-type: none"> Contingency plan for management of over-supply of waste, including possible diversion to other facilities to accept rejected loads and options to return to supplier. 				
	Malodorous waste	R2, R9, R15 and R29	3	5	15	<ul style="list-style-type: none"> Weighbridge operative to identify malodorous waste on the incoming waste streams. Load to be rejected. Plant operative to identify if RDF or CLO being transferred to the waste transfer and storage area is malodorous waste. Malodorous waste to be loaded onto delivery vehicle and prioritised for onward transport to disposal facility. 	5	3	<ul style="list-style-type: none"> Waste rejected at the weighbridge. Waste isolated and prioritised for onward transport to disposal facility. 	Competent persons as weighbridge operator and plant operative.
	Unusual weather conditions e.g. extreme atmospheric temperature, extreme wind turbulence	R2, R9, R15 and R29	3	5	15	<ul style="list-style-type: none"> Meteorological information / forecasts received from the Met Office. Job planning to mitigate the impact of unusual weather conditions. 	5	3	<ul style="list-style-type: none"> Monitor odour emissions using site procedures. Review site procedures in relation to weather conditions to establish if modification will mitigate odour emissions. 	Competent person to ensure meteorological information / forecast is reviewed daily. Competent person to exercise monitoring procedures.
	Closure of landfill or treatment facility preventing transfer of organic fraction waste from facility	R2, R9, R15 and R29	1	4	4	Alternative disposal sites to be identified and used when necessary. If no alternative site available waste acceptance will be ceased.	4	1	Use alternative disposal sites	Competent person to identify and authorise the use of alternative disposal sites.

Appendix C Sniff Test Locations

Offsite Locations



Site and Environs Showing Sniff Locations

On Site Key		Off Site Key	
1	Bio-scrubber	R1	Bramblehurst Cottages
2	Dryer Building	R2	Wealdon Cottages
3	Gas Bubble	GB	Graylands Barns
4	Street 1 (East)	A1	A264 E Great Daux Roundabout
5	AD Bund	A2	A264 W Towards Little Haven
6	Street 1 (West)	GL	Graylands Lodge
7	Street 2 (West)	FC	Fisher Clinical
8	Street 3 (West)	MR	Mercer Road
9	Door 5 Street 3		
10	Weighbridge 2		
11	Weinerberger Entrance		
12	Waste Storage & Transfer Area (Northwest)		
13	Waste Storage & Transfer Area (Northeast)		
14	Waste Storage & Transfer Area (Southeast)		
15	Waste Storage & Transfer Area (Southwest)		

Appendix D Odour Survey Log Sheet



Odour Monitoring Form

DATE:		ASSESSED BY:	
WEATHER CONDITIONS:		WIND DIRECTION:	
TEMP (°C):		WIND SPEED (mph):	
BAROMETRIC PRESSURE (mbar):		TIME OF ASSESSMENT:	

COMPLAINT RECEIVED:	YES / NO	COMPLAINT RECEIVED BY:
DETAILS OF COMPLAINT:		

LOCATION OF ASSESSMENT	WASTE ODOUR PARAMETERS			SUSPECTED SOURCE	ACTION REQUIRED
	ODOUR DESCRIPTION	INTENSITY 0-6	EXTENT 0-4		
7001	Bio-scrubber				
7002	Dryer Building				
7003	Gas Bubble				
7004	Street 1 (East)				
7005	AD Bund				
7006	Street 1 (West)				
7007	Street 2 (West)				
7008	Street 3 (West)				
7009	Door 5 Street 3				
7010	Weighbridge 2				
7011	Wienerberger Entrance (Railway)				
7012	Langhurstwood Road (R1)				
7013	Langhurstwood Road (R2)				
	A264 (W) to Littlehaven				
	A264 (E) to Great Daux				
7014	Graylands Lodge GL1				
A	Graylands Barns				
D	Fisher Clinical Entrance				
B	Mercer Road				
C	ARTF – Sweepings Rig (If Complaint)				

Classification of waste odour parameters

Figure	Intensity
0	No detectable Waste odour
1	Very faint waste odour (barely detectable, need to stand still and inhale facing into the wind)
2	Faint waste odour (detectable, need to stand still and inhale facing into the wind)
3	Distinct waste odour (waste odour easily detected while walking and breathing normally)
4	Strong waste odour (bearable but offensive waste odour – has potential to cause lingering odour on clothes and hair)
5	Very strong waste odour (which makes the location unpleasant to work in)
6	Extremely strong waste odour (people feeling nauseating from the odour)

Figure	Extent
0	No detectable Waste odour
1	Only detected during brief periods when the wind drops and blows
2	Generally persistent but fairly localised
3	Persistent
4	Persistent and widespread

ODOUR DESCRIPTION
Fresh Waste
Rotting Waste (Musty Waste)
Rotten Eggs/Sulphurous
Ammonia (Digestate)
Pas
Bio-Gas
Chemical
Condensate
Compost
Farmyard Manure

Comments:

Appendix E Complaints Handling Procedure



West Sussex County Council

MRMC

Service Delivery Plan

SDP07 – Complaints Handling System

Revision History

Issue	Date	Revision Notes	Revised By
1	May 2010	Contract Issue	-
2	October 2015	Revised to reflect development of Site Ha, MBT Facility as built, and current Facility operations	A Griffiths
3	November 2016	Revised to remove reference to Site HA and general revision	A Griffiths
4	2018	General revision – see change history	D Dodsworth
5	03/09/2021	General revision – see change history	D Dodsworth

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1. *Executive Summary*

This document provides a summary of the Contractor's approach to the handling of complaints which may arise during the term of the MRMC. The Complaints Handling System applies to all elements of the Service, including the main MBT Facility and Landfill Site and the Ancillary Infrastructure to be constructed on Site Ha.

This Complaints Handling System document provides further details with regard to:

- Potential sources of complaints.
- Relevant timescales for complaint resolution.
- Complaint receipt and handling processes.
- Complaint recording, investigation, and communication processes; and
- Reporting of complaints to the Authority.

Throughout the Contract term, the Contractor and the Authority will jointly review this approach to the handling of complaints on an annual basis to ensure continued alignment with the relevant policies and procedures of the Authority.

2. Introduction

The Contractor recognises the status of the MRMC within West Sussex, the impact it will have within the County and the variety of stakeholders that will be influenced by the Service.

The efficient handling of complaints is critical to maintaining the reputation of the Service and supporting a positive and open relationship with stakeholders and the community.

When considering complaints management, it is important to recognise the range of sources from which complaints may be received and the potential causes or different types of complaints which may include:

- Local neighbours to the Facility (residents, Parish Councils, Elected Ward Members, and local businesses) will be concerned with operational practices and their impact on the local community.
- Authorised Users (WCAs, WCA Parties, the Reclaim Contractor and WSCC Officers) utilising the Service on a daily basis will be concerned with service delivery and operational efficiency including any potential impact on their own responsibilities.
- Other Stakeholders, such as members of the public, WSCC / District & Borough Council Officers and Elected Members, will have an interest in the performance and perception of the MRMC; and
- The Environment Agency will be responsible for the enforcement of environmental controls for the waste processing facilities.

The Contractor's Complaints Handling System as detailed below accounts for the varying nature and source of complaints.

The Contractor recognises that it is representing the Authority through the provision of Services and as such will continue to ensure that complaints are handled in a manner that, as a minimum, adopts the Authority's Complaints Handling Procedure. This Complaints Handling Procedure is contained in Appendix 1 to this document. The Authority's complaints guidance includes the following key targets for response to complainants set out in table 2-1.

Changes to the Authority's Complaints Handling Procedure, specifically changes relating to targets for response to complaints, will be reviewed on an annual basis by the Authority, and the Contractor's Complaints Handling System updated as necessary to reflect any changes.

The Contractor will ensure that receipt of a complaint is acknowledged to the Authority within two (2) Business Days. Complaints will be routinely investigated and reported to the Authority within eight (8) Business Days unless alternative arrangements are agreed with the Authority.

Table 2-1: Authority Complaints Guidance – Key Targets

	Acknowledgement	Full Reply	Full Reply Extension Period (following notification within 10 days)
Stage 1	3 Business Days	10 Business Days	20 Business Days
Stage 2	3 Business Days	10 Business Days	20 Business Days
Stage 3	3 Business Days	10 Business Days	20 Business Days

The Contractor shall also record complaints, queries and comments referred by the Authority. If a complaint cannot be satisfactorily resolved, the Authority shall be notified within two (2) Business Days and, after consideration of all the relevant facts, the Authority shall make a recommendation to the Contractor which may be accepted or referred to the Dispute Resolution Procedure. The complaint records shall form part of the annual review of the Service.

All complaints received are recorded in a compliance database which is available for review by the Contractor and the Authority at any time. This will allow the Authority to access any information required regarding any complaints or requests for information (e.g. Freedom of Information requests) in relation to the Services at the Facility.

3. Complaints Handling System

3.1 Overview

The Contractor’s Complaints Handling System detailed below adopts four key principles:

- All complaints will be recorded and made available for review by the Authority. On receipt of a complaint, all efforts will be made to resolve the issue informally and minimise the involvement of employees not directly concerned with the matter.
- To provide considerate responses to complaints when first aired. This often leads to swift and satisfactory resolution, preventing lengthy enquiries. Therefore, complaints are handled in a positive and timely manner.
- To offer an open and accessible complaints procedure not only to encourage trust and transparency but also to prompt the resolution of problems at the first stage; and
- To keep accurate records and regularly review complaints, investigation, action, and feedback. This feedback is used to inform future Service operations to prevent reoccurrence of the complaint. This is crucial for continued improvement.

3.2 Complaint Receipt and Handling

All Contractor and Contractor Party personnel who are involved in the receipt and handling of complaints receive training to ensure that whatever the environment or situation, they are

prepared professionally to initially handle the complaint. This training will reflect the approach laid out in the Authority’s Complaints Handling Procedure to ensure that the Service is consistent with other Authority practises. For further details see the Authority’s Complaints Handling Procedure in Appendix 1.

In relation to the MRMC, complaints may be received through a number of sources and in a number of formats, outlined below in Table 3-1.

Table 3-1: Potential Sources and Forms of Complaint

Possible Complaint Source	Forms of Complaint – Applicable to All
1. WSCC Contact Centre	<ul style="list-style-type: none"> • In Person • In Writing • By Phone • Via WSCC website • By Fax • By Email • Recorded in Site Diary
2. WSCC Officers / Members	
3. District & Borough Officers / Members	
4. Environment Agency	
5. Parish Council	
6. County, District & Borough Contractors	
7. The Reclaim Contractor	
8. <i>Direct from public</i>	
9. <i>MRMC Office / Staff</i>	
10. <i>Biffa Head Office</i>	
11. <i>Biffa Press Office</i>	
12. <i>Local Community Liaison Group</i>	
13. <i>Site users / visitors</i>	

Complaint sources highlighted above in italics (channels 8 – 13) are those that the Contractor will receive directly.

A Site Diary is maintained on Site. This is updated at the end of every shift by the shift supervisor and distributed to the Contractor’s management team by e-mail. The Site Diary is used to record the operational performance of the Facility during the shift, and to note a summary of the day’s events. The Site Diary includes a specific line to record the receipt of any complaints to ensure it is brought to the attention of the Contractor’s management team. The Site Diary is saved in electronic form on the Contractor’s local server and archived.

The Site Diary will be kept in a format approved by the Authority prior to the commencement of the Start-Up Services and shall be available for inspection at all reasonable hours. The relevant information shall be extracted from the Site Diary and summarised in the complaints section of the Monthly Service Report.

3.3 Complaint Recording

Irrespective of the source, to ensure complaints handling is efficient and consistent it is crucial that relevant information is recorded.

To do this the Contractor has provided an online form, available on the West Sussex Recycles website [Brookhurst Wood MBT feedback form - West Sussex County Council](#) . A copy of this form is shown in Appendix 2. This form is available to anyone viewing the Project Website and requires the complainant to fill out a number of fields including their location, contact details, and the nature, date, and time of the incident. Once this form is submitted it is automatically sent by email to the Brookhurst Wood email mailbox. This mailbox is monitored daily by the Community Liaison Officer and is accessible by the General Manager and Compliance Manager.

The Community Liaison Officer will assess the complaint and will enter it onto Biffa Waste Services Limited's company-wide compliance database. The compliance database is managed centrally by the Biffa Waste Services Safety, Health, Environment and Quality (SHEQ) team. This allows visibility of all complaints currently active by all members of Biffa Waste Service's senior management, as well as the Contractor's management team. Upon logging the complaint, the compliance database will generate a unique reference number which is emailed back to the person logging it and allows simple tracking of the complaint. An example of the form template is shown in Appendix 3.

Should a complainant not wish to use the automatic form on the Project Website, a number of alternative contact methods are available for registering the complaint including email, telephone and in writing by post. These details can be found on the Project Website. In the event that a complaint is received via another route, it will be added to the compliance database by the Community Liaison Officer as soon as possible. In the event that the Community Liaison Officer is not on Site the complaint can be logged by a number of other staff members including the Compliance Manager, Plant Manager or Operations Manager.

The compliance database will form the basis of complaints monitoring (for the Contractor and the Authority), providing a full audit trail and the information summarised in the complaints section of the Monthly Service Report.

Upon receipt of a complaint the Contractor will inform the Authority within two (2) Business Days, providing details of the nature of the complaint and the date and time at which it was received.

3.4 Complaints Investigation

Once a complaint has been logged on the compliance database, an investigation will be launched. The investigation will be initiated as soon as practical, and in any event no later than two (2) Business Days following on the day of receipt of the complaint, and as much data as possible on the operation of the Facility at the time of the complaint will be gathered. Some of the investigation analysis tools available on Site are listed below. Note that this list is not exhaustive, and any tools utilised, if required, will be dependent on the nature of the complaint:

- Weather Station Data – a weather station mounted on the roof of the MBT Facility, and at the Landfill Site, records a number of weather parameters including wind strength and direction, temperature, humidity, rainfall etc.
- Noise readings – A portable hand-held noise meter is available to be used at any location on Site, around the boundary or further afield to measure the noise generated by components, equipment and/or machinery on Site.

- Odour checks – experienced staff members used to carrying out odour checks can take readings around the Site boundary and further afield to monitor the odour levels.
- Litter checks – regular litter checks are carried out around the Site boundary and Site entrance to identify any areas in which litter can escape from the MBT Facility and Landfill Site and accumulate. This can be increased in frequency should specific complaints be received; and
- Vehicle movements – all waste delivery vehicles entering and leaving Site are logged over the weighbridges, with the vehicle details, operator, waste type being carried and exact time into and out of Site recorded.
- CCTV – The site is constantly monitored by CCTV, and footage recorded for a period of time. This can be reviewed to check on site operations at the time of a complaint.

Complaints relating to the landfill operation, relevant to the MRMC, will be investigated in consultation with the manager of the Landfill Site.

3.5 Complaints Recording and Communication

Following the investigation of the complaint, the manager carrying out the investigation will log into the compliance database and update the form (see Appendix 3), describing the steps taken in the investigation, the findings of the investigation, and the action taken to mitigate the issue. The Community Liaison Officer will then contact the complainant using the contact details provided to update them on the resolution. In the absence of the Community Liaison Officer the Compliance Manager, Plant Manager or Operations Manager may undertake this task.

In addition, the Authority will be informed of the results of the investigation and measures taken to resolve the issue within eight (8) Business Days of the complaint being received.

On an annual basis, the Contractor will prepare a review of all comments / complaints along with details of the actions taken in response to comments / complaints (“the Complaints Handling Report”) and this will be summarised in the Annual Service Report. Reference will be made to the relevant Performance Standard, if any, which has been breached or which is the subject of the relevant complaint.

The Contractor will inform the Authority as soon as practicable of any incidents involving damage to third party property. The Contractor will inform the Authority within two (2) hours of any incident involving personal injury to persons not employed by the Contractor. They will also brief the Authority on the likelihood of any formal proceedings arising from disputes or complaints.

4. Feedback and Lessons Learnt

The Contractor is committed to continuous improvement, and any complaints received are reviewed on a case-by-case basis to analyse what might have occurred to cause the complaint to be made. This review takes place at the monthly Safety Improvement Team (SIT) meeting, which is led by the Site Health and Safety Leader and is attended by management and Site team

representatives. The causes of the complaint will be discussed, and Site operations in the area reviewed to evaluate if processes and practises could be improved to prevent reoccurrence of the issue. In addition, the investigation and general handling of the complaint will be considered to ensure it has been carried out thoroughly and communicated effectively to all stakeholders.

5. *Appendices*

5.1 Appendix 1 – Authority Complaints Handling Procedure

To be inserted when available.

5.2 Appendix 2 – West Sussex Recycles Feedback Form



[Find out about recycling in West Sussex](#)

LAST UPDATED:
2 August 2021

Share this



Brookhurst Wood MBT feedback form

Use this form to send any feedback about the Brookhurst Wood facility to us.

This form will take approximately 5 minutes to complete.

Please allow yourself enough time to complete this form in one session as there is not an option to save and come back to it later.

The questions marked with an asterisk (*) are mandatory and require an answer. You do not have to answer all of the other questions, but it would help us if you do.

Your data privacy

Before completing this form please read our [general Privacy Policy \(opens in a new window\)](#).

This explains why we ask for your data, what we do with it and how long we will keep it. It also explains how you can find out what data we hold about you and how you can ask us to delete it.

Please note that your enquiry and details will be passed on to Biffa. Please see [Biffa's privacy policy \(opens in a new window\)](#).

Your details

First name *

Enter your first name.

Last name *

Enter your last name.

Email address *

Enter an email address where we can write to you.

Phone number

Enter a daytime phone number that we can ring you on. This can be a mobile or landline number.

Your enquiry

What would you like to ask? *

Enter details of your enquiry.

Weather conditions (if applicable)

If you are reporting an incident, please describe the weather conditions.

Date and time of incident (if applicable)

If you are reporting an incident, please provide the date and time of the incident.

Submitting your form

Click the submit button **only once**.

Please be patient as it will take a few moments to process your form and redirect you to our confirmation page.

Submit

5.3 Appendix 3 – Screenshot from BWSL Compliance Database

BiffaNET **Compliance EA Report**
BiffaNET » Location Index » Location » Unit » Report

Form 853*2*33 - West Sussex MBT entered by on

Biffa - West Sussex MBT **LANDFILL DIVISION COMPLAINTS FORM**
SECTION 1 - TO BE COMPLETED FOR ALL COMPLAINTS

COMPLAINANTS NAME

Address: Telephone:

PostCode: Email:

Company/Organisation of Complainant:

Date of Complaint: 12 / 05 / 2015 Time:

Complainants Relationship to Biffa: **Select One**

Date of Incident/Problem: / / Time: Weather Conditions: **Select One**

Method of Complaint: Telephone Email Letter Fax In Person

Via 0800 number Via Head Office Website

Preferred Method of Contact: **Select One** Date Acknowledged: / /

Complaint Received by Inputter

Status: **Select One**

COMPLAINTS INVESTIGATION

Items considered when reviewing the complaint

Weather Conditions

Comments from other sources

Previous complaints by complainant

Operations at time of problem

Previous similar complaints

Findings

Feedback to Complainant

Date of Feedback: / / Time: Method: **Select One**

Actions taken (at the time or subsequently)

Investigated by **Date** / /

[Save Form](#)

[Click to Upload Documents](#)

For View Version [Click here](#)

Complaints Forms:

To View/Edit Complaint Form **Select One**

HOME	Noticeboard	People & Places	BI Office	Chemical Treatment	Collection	Containers	SEARCH
	Drivers	E & EA	SHEQ	Finance	Fleet	Gas to Energy Projects	
	HR	Insurance	IT Department	Marketing	Municipal	Training	
	Procurement & Property	Reporting	RR & L	Sales Toolbox	Teamrooms		

