

DRAFT

Pembrokeshire County Council Waste Transfer Station



Odour Management Plan

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Contents

- 1.0 Introduction3**
 - 1.1 OMP Objectives 4
 - 1.2 OMP Approach and Structure 4
- 2.0 Sources, Releases and Impacts.....5**
 - 2.1 Description of Operations 5
 - 2.2 Potential Odour Sources 5
 - 2.3 Received Wastes..... 6
 - 2.4 Stored Wastes 8
 - 2.5 Exported Wastes..... 8
 - 2.6 Release Points / Potential Odour Generation Sources 8
 - 2.7 Pathways 9
 - 2.8 Receptors..... 9
- 3.0 Odour Control Measures – Normal Operation11**
 - 3.1 Unit 41, 29 and 29A 11
 - 3.2 Waste Acceptance Procedures 12
 - 3.3 Waste Storage & Transfer Control..... 12
 - 3.4 Unit Floor Cleaning 12
 - 3.5 Mitigation of Community Impacts..... 12
- 4.0 Monitoring and Maintenance.....13**
 - 4.1 Monitoring Potential Odour Sources 13
 - 4.2 Odour Containment Monitoring 13
 - 4.3 Monitoring Ambient Odour..... 13
 - 4.4 Complaint Logging 14
 - 4.5 Monitoring Meteorological Conditions 14
 - 4.6 Recording of Results and Reporting 14
 - 4.7 Notifying the NRW 15
- 5.0 Contingencies16**
 - 5.1 Unit 141, 29 and 29A Over-Capacity 16
 - 5.2 Receipt of Particularly Odorous Wastes 16
 - 5.3 Compromised Odour Containment 16
 - 5.4 Abnormal Meteorological Conditions..... 17
 - 5.5 Detection of odour at the site boundary or off-site during routine odour surveys or response to complaints..... 17
 - 5.6 Out of Hours Contact Details 17
 - 5.7 Receipt of an Odour Complaint 17
 - 5.7.1 Complaint Logging..... 17
 - 5.7.2 Complaint Investigation 18
- 6.0 Emergency Plans19**
 - 6.1 Prolonged Plant Failure 19
 - 6.2 Fire 19
 - 6.2.1 Explosion 19
 - 6.3 Major Spillage / Leak..... 19
 - 6.4 Flooding 19
 - 6.5 Power Failure 20
 - 6.6 Staff Absence 20
 - 6.7 Summary of Emergency Control Measures..... 20
- 7.0 Document Updates and Reviews / Management.....21**
 - 7.1 Responsible Staff 21
 - 7.2 General Procedures for Training and Competency of Staff 21
 - 7.3 Odour Management Plan Review 21
- Appendix A: Drawings22**

Appendix B: Odour Assessment Form	25
Appendix C: Odour Complains Reporting Form.....	28
Appendix D: Odour Survey Methodology	31

Figures

Figure 2-1 Milford Haven Meteorological Station, 2014-2018	9
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Tables

Table 2-1: List of Wastes.....	6
Table 2-2: Wastes – Odour Potential	7
Table 2-3: Odour Generation Sources	8
Table 6-1: Emergency Control Measures	20

Acknowledgements

The content of this Report has been based upon information provided by WRAP Cymru and Pembrokeshire County Council.

1.0 Introduction

The Odour Management Plan (OMP) has been prepared to support the Environmental Permit (EP) variation application for Pembrokeshire County Council's (PCC) Waste Transfer Station (WTS) at The Dockyard, Pembroke Dock, Pembrokeshire, SA72 6TD, hereafter referred to as 'the Site'.

There are a number of potential odour sources from permitted facilities in the vicinity of the WTS. They include Jenson's Metals, a metal recycling facility and Pembroke Dock Waste Water Treatment Works (WwTW). Jenson's Metals operates five days a week, Monday to Friday, recycling scrap metal and dismantling vehicles and is not considered to be a significant source of odour.

Pembroke Dock WwTW is operated by Welsh Water and treats the wastewater for Pembroke Dock and, as detailed in the Odour Impact Assessment for the WTS (Ref: 416.00798.00037), odours from the WwTW have been detected within the WTS site and surrounding area. PCC currently records odour events associated with the WwTW in the Site diary, which is provided to the Council's Environmental Health Team. In the event that any further developments (currently there are proposals for a Refuse Derived Fuel (RDF) storage facility) with associated odour emissions are permitted in the vicinity of the WTS, any odour events will also be recorded in the Site diary and reported back the Council.

PCC are undertaking a service change from comingled to kerbside sort recycling collections. The EP Variation seeks to extend the permit boundary of the existing Site, which is permitted under an EP (Ref EPR/PB3490HV). The permit boundary would extend to the west of Unit 41, encompassing Units 29, 29A and 35. As such, Units 29 and 29A would become operational to allow for expansion of the permitted waste types accepted at the Site. In addition, there are proposals to reduce operations at another part of the Site, this will be formalised with a permit surrender. At present the Site accepts residual black bag, orange bag waste containing Dry Mixed Recycling (DRM) in addition to separate food and glass waste. The expansion would accommodate wastes such as separated paper, glass, plastic, mixed cans and plastic, mixed card, Absorbent Hygiene Products (AHPs) and household batteries.

PCC will require a variation to their existing EP to be issued by Natural Resources Wales (NRW) before it can amend its operations. As part of the EP variation, PCC is required to prepare an Odour Management Plan (OMP) in line with NRW *H4 Odour Management*¹ guidance (hereafter referred to as 'H4 Odour Guidance'). The H4 Odour Guidance describes how the IPPC Directive includes odour in the definition of pollution and requires that "[...] *all the appropriate preventive measures are taken against pollution [...]*". This Directive has been transposed in the UK by the Environmental Permitting Regulations (EPR) and sites encompassed within these Regulations will have the following odour condition included within their permit:

Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of Natural Resources Wales, unless the operator has used appropriate measures, including, but not limited to, those specified in an approved odour management plan, to prevent or where that is not practicable to minimise the odour.

PCC as the Operator must therefore employ the appropriate measures necessary to prevent odour pollution or minimise it when prevention is not practicable. The measures that are

¹ Natural Resources Wales (NRW). *Horizontal Guidance – How to comply with your environmental permit; Additional guidance for: H4 Odour Management. Version 2.0, October 2014.*

appropriate depend on the industry sector and the site-specific circumstances of the WTS taking into account costs and benefits.

1.1 OMP Objectives

As defined within the H4 Odour Guidance, the objectives of an OMP should be to:

- identify potentially significant odour sources at the facility and any foreseeable situations which may compromise the operator's ability to prevent and / or minimise odour releases from the proposed Site activities;
- identify and employ appropriate methods, including monitoring and contingencies, to control and minimise odour pollution;
- identify and employ appropriate control measures and actions that the operator will take to minimise the impact in the event that odour incidents occur;
- prevent unacceptable odour pollution at all times;
- reduce the risk of odour releasing accidents or incidents by anticipating them and planning accordingly; and
- provide a working document for on-site staff

1.2 OMP Approach and Structure

The methodologies presented take full account of NRW H4 Odour Guidance. According to NRW guidelines an OMP should contain the following elements:

- an assessment of the risks of odour problems, from normal and abnormal situations, 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 odour control measures; and
- emission limits (where appropriate).

The OMP is also required to include clear statements to demonstrate that the operator understands and accepts its responsibilities. In particular, it should show:

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

2.0 Sources, Releases and Impacts

This section provides an inventory of potential odour sources, release points, pathways and receptors relevant to the WTS.

2.1 Description of Operations

The WTS is currently permitted to collect and store 74,000 tonnes per annum (tpa) of non-hazardous household, commercial and industrial waste, which will not increase with the EP variation. The Site is permitted to carry out treatment activities including manual and/or mechanical shredding, screening, metal removal (magnets and/or eddy current), compaction, baling or wrapping of permitted wastes for the purposes of disposal or recovery. However, the permit variation will remove manual and mechanical shredding, screening, metal removal, compaction and wrapping from the permitting activities. The Site will only be used for baling and bulking prior to recover and disposal elsewhere.

As part of the EP variation incoming waste into Unit 41 will comprise paper, card, glass, cans, tetras and plastic, and household batteries which has been separated at kerbside and therefore does not require sorting or treatment at the Site. Unit 41 will include a baler located in the southern extent of the building. This plant will be utilised for baling mixed cans, plastics and tetras and cardboard for export off-site. Waste will be transferred into the relevant bay for storage ready for collection and transportation off-site. Biodegradable food and would remain within Unit 41. This waste will be temporarily stored in containers that are sealed at the bottom and sides and located within the building, before being transported to a suitably permitted facility. Outgoing loads will be sheeted, with waste collected 4-5 times per week depending on tonnages.

Incoming waste Unit 29 and 29A will comprise residual black bag, mixed recycling, orange bag waste and AHPs. This waste will be transferred to storage bays ready for collection, before being transported off-site for treatment. The AHPs will be tipped on the floor and they will be moved to skips as soon as is practicable. The AHP skips will remain on site for no longer than 7 days.

The Site will continue to operate between 07:30 and 19:30 Monday to Saturday and occasionally between 09:00 and 16:00 on Sundays and Public Holidays. Operating hours are to be revised in line with the planning application.

2.2 Potential Odour Sources

The application of good working practices and process control is of fundamental importance in eliminating and minimising the quantities of odours formed on-site and their subsequent release to atmosphere. This section provides an inventory of all potential odour sources under the full range of normal operating conditions.

The overall aim in the operation of the WTS is to apply Best Available Techniques (BAT) at all stages of the waste treatment processes undertaken on-site. For this reason, the WTS is operated and managed in accordance with the accepted hierarchy of preferred controls, that is:

1. prevent the formation or emission of odorous compounds in the first place;
2. where this is not practicable, minimise the release of odour;
3. abate excessive emissions; then
4. dilute any residual odour by effective dispersion in the atmosphere.

There are two primary potential odour sources associated with the WTS.

- wastes as transported to site (i.e. vehicles); and
- fugitive releases from the buildings.

The release of odour from vehicles using the public highway are typically outside the control of the Operator, although they can be given 'advice' where necessary. Waste will be received in covered / sheeted or otherwise contained vehicles. Notification will be given to the relevant party if particularly odorous wastes are received. On this basis, odour from vehicles using the public highway are outside the scope of this document.

There will be no treatment of waste, only baling. Baling does not increase the odour potential of waste, with the exception of baler juice and any fluids building up around the baler. This will be controlled via use of a sweeper.

2.3 Received Wastes

As described above, the WTS is a waste management facility which will treat up to 74,000tpa of non-hazardous household, commercial and industrial wastes.

Waste transfer is an inherently odorous process; however, with the correct controls and working practices in place, odours can be contained and reduced appropriately. The sources of potential odour generation are:

- delivery, storage and treatment of incoming waste;
- handling; and
- transfer of waste offsite.

The European Waste Codes (EWC) permitted to be received and processed on-site are detailed in Table 2.1.

Table 2-1: List of Wastes

EWC	Description
15	WASTES PACKAGING, ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHONG NOT OTHERWISE SPECIFIED
15 01	packaging (including separately collected municipal packaging waste)
15 01 01	paper and cardboard packaging
15 01 02	plastic packaging
15 01 04	metallic packaging
15 01 05	composite packaging
15 01 06	mixed packaging
15 01 07	glass packaging
16	WASTES NOT OTHERWISE SPECIFIED IN THE LIST
16 02	Wastes from electrical and electronic equipment
16 02 14	discarded equipment other than those mentioned in 16 02 09 to 16 02 13
16 02 16	components removed from discarded equipment other than those mentioned in 16 02 15
16 06	Batteries and accumulators
16 06 04	alkaline batteries (except 16 06 03)
16 06 05	other batteries and accumulators
19	WASTES FROM WASTE MANAGERMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE

EWC	Description
19 12	wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified
19 12 01	paper and cardboard
19 12 02	ferrous metal
19 02 03	non-ferrous metal
19 12 04	plastic and rubber
19 12 05	Glass
19 12 08	Textiles
19 12 12	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11
20	MUNICIPAL WASTES AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES INCLUDING SEPARATELY COLLECTED FRACTIONS
20 01	separately collected fractions (except 15 01)
20 01 01	paper and cardboard
20 01 02	glass
20 01 08	biodegradable kitchen and canteen waste
20 01 10	clothes
20 01 11	textiles
20 01 34	batteries and accumulators other than those mentioned in 20 01 33
20 01 36	discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35
20 01 39	plastics
20 01 40	Metals
20 01 99	Separately collected fractions of municipal waste (AHPs comprising nappies and AHPs)
20 03	other municipal wastes
20 03 01*	mixed municipal waste
20 03 01	mixed municipal waste (consisting of general 'black bin' waste or Household Waste Recycling Centre residual waste only)
20 03 03	street-cleaning residues
20 03 07	bulky waste

An assessment of the odour potential associated with wastes types received at the Site are detailed in Table 2 2.

Table 2-2: Wastes – Odour Potential ²

Waste	Descriptive Terms	Odour Potential
Plastic, metallic, glass, textiles, paper and cardboard	Collected either separately or as Dry Mixed Recyclables (DMR) from household and commercial sources. Likely to contain small amounts of putrescible material.	Low Typically clean waste and with reception controls, baling and wrapping odour potential is low. .
Mixed material from mechanical treatment of waste	Mixed waste types including material from mechanical treatment of mixed waste. Likely to contain putrescible material.	Medium Material is highly odorous but with reception controls, baling and wrapping and through the use of a sweeper to clean around the baler, odour potential is reduced to medium.

² Applied Environmental Research Centre Ltd, Guidance Manual for Landfill Managers on the Assessment and Control of Landfill Odours (October 2000)

Waste	Descriptive Terms	Odour Potential
Mixed municipal waste (residual black bag)	Mixed municipal solid waste. Likely to contain high levels of putrescible material and high moisture content.	Medium Material is highly odorous but with reception controls, baling and wrapping odour potential is reduced to medium.
Bulky waste	Collected separately from household and commercial sources. Contains high levels of putrescible material and high moisture content.	Very Low Material is highly odorous but with reception controls, baling and wrapping odour potential is reduced to medium.

2.4 Stored Wastes

Waste will be processed and stored on an impermeable surface with sealed drainage to foul sewer. Material will be processed as soon as practicably possible and within 72hrs of receipt, except for AHP, which may be stored for a maximum of 7 days within a suitably sealed container.

Storage will take place inside a building. Storage time of wastes within the building will be minimised as much as possible. This has the advantage of reducing the time for the putrescible fraction of the waste to be degraded and generate odours. Storage bays will be cleaned down regularly to avoid older materials building up thus degrading and potentially releasing odours.

An existing exemption (S2: Storing waste in a secure place) is in place on-site and will remain following this variation. Glass will be tipped within a designated bay within Unit 41. Glass from commercial collections will be tipped outside in a container and will be limited to approximately 2 tips per day.

2.5 Exported Wastes

Cardboard and mixed cans, plastics and tetras will be baled with baling wire sent from site baled and glass and paper are sold loose.

2.6 Release Points / Potential Odour Generation Sources

The release points for the odour sources detailed above are described in Table 2-3. The release points consider all unintentional non-emergency releases that may occur. Release occurrences considered an emergency are addressed in Section 5.0.

Table 2-3: Odour Generation Sources

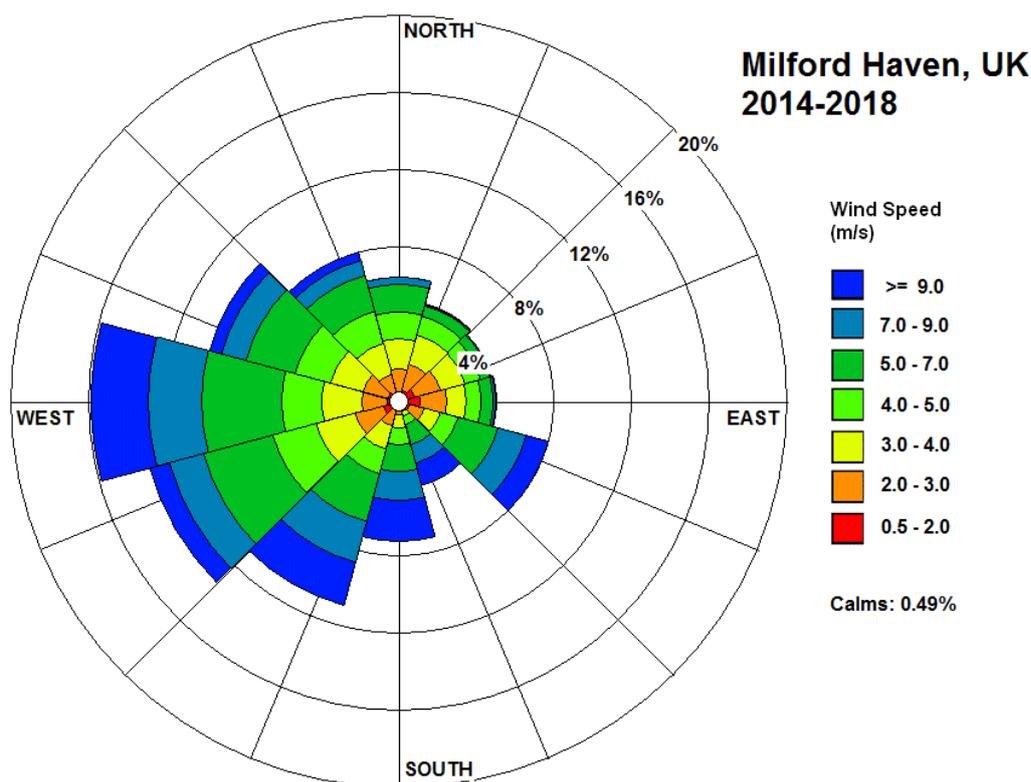
Odour Generation Activity	Location	Factors affecting Source	Odour Risk
Delivery of waste ingress / egress	Unit 41, Unit 29 and Unit 29A	State of decomposition on arrival at facility; Number of doors open at any one time.	Medium
Waste Storage	Unit 41, Unit 29, Unit 29A, Storage Bays	State of decomposition on arrival at facility;	Medium
Waste Processing	Unit 41, Unit 29 and Unit 29A	State of decomposition on arrival at facility;	Medium

Odour Generation Activity	Location	Factors affecting Source	Odour Risk
		Number of doors open at any one time.	
Export of bales/loose waste from site	Unit41, Unit 29, Unit 29A, Storage Bays	State of decomposition on arrival at facility; Storage time	Medium

2.7 Pathways

The pathway by which odours may impact upon receptor locations is a result of atmospheric dispersion. In general, high wind speeds lead to emitted odour being rapidly dispersed and diluted due to turbulence, and conversely low wind speeds inhibit the dilution of odours. Prevailing wind directions are considered in assessing the likelihood and management of emission risks. Wind speed and direction data for the Site location is presented in Figure 2-1, based upon a 2014 – 2018 (inclusive) 5-year period. It shows the prevailing wind are from the southwestern and western sectors. As a result, the potential impact of emissions is likely to be greater in northeastern and eastern sectors of the Site.

Figure 2-1
Milford Haven Meteorological Station, 2014-2018



2.8 Receptors

The likelihood and frequency of exposure to odour arising from the facility is determined by the magnitude of release, the prevailing meteorological conditions, and the distance and direction of receptors in relation to the facility.

Potentially sensitive receptor locations for odour are typically defined as locations where people spend time and expect a reasonable level of amenity. Therefore, residential properties are generally regarded as the most potentially sensitive locations and recreational areas being of medium sensitivity.

A review of the local area surrounding the Site indicates that, in the majority, the Site is bounded by industrial units to the north and east, Pembroke Dock WwTW situated to the west and South Pembrokeshire Hospital approximately 60m south. The closest residential dwellings to the Site are located approximately 120m to the south-west on Martello Road and 170m south on Saint Patricks Hill, beyond the hospital. The hospital and residential dwellings are elevated and positioned on an incline overlooking Pembroke Dock.

3.0 Odour Control Measures – Normal Operation

The overall aim of the OMP is to ensure that *All Appropriate Measures* are applied; therefore, the facility would be operated and managed in accordance with the accepted hierarchy of preferred controls, that is:

1. prevent the formation or emission of odorous compounds in the first place; and
2. where this is not practicable, minimise the release of odour.

3.1 Unit 41, 29 and 29A

The material destined to be processed in Unit 41 would comprise paper, card, glass, cans, tetras and plastic, which has been separated at kerbside and therefore does not require sorting or treatment at the Site. Plastic, metallic, glass, textiles, paper and cardboard are not generally considered inherently odorous. Waste streams such as electrical items and batteries are also generally considered to have a very low odour potential. Similarly, mixed recyclables, such as Dry Mixed Recycling (DMR) are not generally considered odorous given the waste is predominantly clean, uncontaminated and dry. This waste will be transferred into the relevant bay for storage ready for collection and transportation off-site.

Unit 41 will also store biodegradable food and any other waste with a high moisture content. Biodegradable food has the potential to be highly odorous with its unpleasantness based on variable constituents, but generally controlled by its level of degradation and onset of anaerobic conditions. This waste will remain within bulk trailers reducing the potential for odour, before being transported to a suitably permitted facility. Outgoing loads will be sheeted, with waste collected 4-5 times per week depending on tonnages.

The material destined to be processed in Unit 29 and 29A would comprise residual black bag, mixed recycling, orange bag waste and AHPs. AHPs, including disposable nappies and adult incontinence, have the potential to be highly odorous but are generally controlled if contained within sealed bags or containers, as proposed for Unit 29 and 29A. Mixed Municipal Waste (residual black bag) waste also has the potential to be odorous due to high levels of contamination from other waste with potentially higher levels of putrescible material and a high moisture content. PCC WTS will not treat this waste which will remain in bags. Therefore, additional emissions as a result of processing will not occur.

The following measures will be put in place to control odour at Units 41, 29 and 29A:

- Waste is delivered to the Site in covered or sealed vehicles;
- Material will be processed as soon as practicably possible and within 72hrs of receipt, except for AHP, which may be stored for a maximum of 7 days within a suitably sealed container. Stockpiled waste material shall not exceed 570 tonnes;
- Offending feedstock is segregated and isolated from other waste. Following which it will be removed from Site in an enclosed container for disposal on the same day;
- Only 1 door will be open at any one time in order to prevent a through-draft, to further minimise any fugitive odour escaping the facility;
- The building is cleaned thoroughly on a daily basis;
- The majority of odorous waste (i.e. black/orange bag waste) is stored at the units (29 and 29A) furthest from sensitive receptors, notably the hospital located south of the Site; and
- Biodegradable food waste will be stored in containers that are sealed at the bottom and sides and located in the northern extent of Unit 41.

3.2 Waste Acceptance Procedures

The Site will follow strict waste acceptance and rejection procedures to ensure that no non-conforming waste is accepted on-site. The procedure to be adopted by all Site operatives is included in the Environmental Management System (EMS). The procedure includes the following key points:

- Each incoming load will be also visually inspected as it is deposited. Particular attention will be given to the identification of batteries and non-conforming waste;
- If safe to do so, non-conforming waste will be moved to a quarantine area. The Site management will be informed and, if required, a specialist contractor will be contacted to remove the waste from Site within 24 hours;
- Any non-conforming waste deemed to be unsafe to move to a quarantine area will be cordoned off and Site operations/traffic movements in that area will be suspended. 1000 litre bins will be available for non-conforming waste; and
- All details will be recorded in the Site diary and an incident report form is completed.

3.3 Waste Storage & Transfer Control

During peak operational periods, once the anticipated tonnage has been accepted for the facility for that day, the facility will only accept additional wastes following an evaluation of likely tonnages over the coming days to ensure that a backlog of waste in storage in the buildings does not occur.

It will be considered unacceptable by the Site Manager for wastes to be accepted into the storage areas that are likely to be stored for periods that would result in increased decomposition and therefore odour generation potential. The maximum amount of time for waste to be stored prior to transportation off-site will be 72 hours except for AHP, which may be stored for a maximum of 7 days within a suitably sealed container. Stockpiled waste material shall not exceed 570 tonnes.

An inspection of stored waste for pest infestations will be carried out on a daily basis by the Site supervisor and is recorded in the Site diary. The incident and the remedial action shall be recorded in the Site diary.

3.4 Unit Floor Cleaning

Vehicles will reverse into the building storage bays to deposit their load, waste will also be tipped onto the floor for inspection prior to being transferred to the storage bays. There may also be occasions where driver error leads to waste falling onto the floor of the tipping area. The tipping floors will be cleaned using sweepers as required. Cleaning will take place during off-peak periods to minimise interruption to waste deliveries.

3.5 Mitigation of Community Impacts

The following measures have been adopted to ensure a 'good neighbour' approach to local residents:

- engagement with local residents and stakeholders, methods of engagement with the wider public will consider use of use of newsletters or forums on a case by case basis;
- a telephone number will be made available for residents to contact the company;
- engagement with local residents should odour problems be anticipated to keep the public informed of progress, remedial measures and timescales;
- responding to odour complaints promptly and keeping complainant informed of outcome of investigation. This will include recording odour incidences originating from neighbouring permitting activities in the Site diary; and
- meetings to be held with local residents if required in discussion with NRW.

4.0 Monitoring and Maintenance

Monitoring of process controls, odour containment, odorous releases, and dispersion pathways are as described in the sections below.

4.1 Monitoring Potential Odour Sources

The waste as received and stored will be monitored in the following ways:

- the waste will be subject to document checks at the weighbridge to ensure it conforms to the permitted waste detailed in the EMS;
- the waste will be subject to visual inspection as part of the waste reception protocols to ensure all wastes conform;
- the shift manager and mobile plant operative will be responsible for visually monitoring and noting the placement of received waste to ensure older waste is processed as a priority;
- the shift manager and mobile plant operative monitor, via sniff-test, will determine whether there is a requirement for odour neutralising sprays (these may also be operated to control dust); and
- the shift manager and mobile plant operative monitor, via sniff-test, will determine whether particularly malodorous loads require quarantine or rejection.

4.2 Odour Containment Monitoring

Odour containment is key to minimising emissions and will be monitored through routine maintenance checks on door use and building structural integrity. Olfactory observations are also an important monitoring measure and are addressed in Section 4.3.

The effectiveness of the containment measures will be monitored through annual visual inspection of the structural integrity of the building and plant fabric.

4.3 Monitoring Ambient Odour

Monitoring ambient odour provides a broad indication of the effectiveness of the odour management as a whole, i.e. odour minimisation, containment and dispersion. This is a reactive process and should be considered as a final indicator of odour control effectiveness.

The assessment is “sensory” in that the human nose is used as the detector – a sound approach considering that no analytical instrument can give unified measure of a complex mixture of compounds in the same way that a human experiences odour.

Sniff testing is employed for the following reasons:

- as part of a survey at the Site boundary during normal operations, to confirm the effective performance of odour management measures in place;
- at the Site boundary during periods of adverse meteorological conditions, breakdowns or during other abnormal events to evaluate the effectiveness of the control measures in place and the likelihood that odour complaints will be received; and
- in the event that complaints are received, at the locations of sensitive receptors as part of the complaint investigation procedure outlined in the complaints form in Appendix C.

‘Sniff tests’ will follow the procedure detailed within Appendix D and be undertaken:

- daily checks by trained Site management of any odour incidences, including any associated with neighbouring permitting activities with records kept in the Site diary and reported back to the Council’s Environmental Health Team;
- weekly by trained Site management with any issues recorded in the Site log book; and
- on a monthly basis by a team member (not reception building based team member) accompanying the Site Manager and results recorded.

4.4 Complaint Logging

A phone number for members of the public to contact the Operator with any complaints will be visible on the Site board at the entrance. Following the receipt of a complaint the Operator will endeavour to contact the complainant to provide feedback on actions taken to both assess the event and convey any remedial actions.

All complaints will be recorded on an Odour Complaint Form such as that presented in Appendix C and forwarded onto the Site's NRW Officer. Information that will be recorded will include the following:

- date and time of odour complaint and odour detection;
- location / address of complainant (where provided); and
- a description of the odour from the complainant.

Following an odour complaint, a trained member of staff will undertake a sniff test recording the results on an Odour Monitoring Form (Appendix B). Where possible the sniff test will be undertaken by a member of staff that does not routinely work within the reception building and would not therefore be accustomed to any malodours. If an odour is encountered, the source will be investigated by Site management and the outcome recorded.

Investigations will include the likely source and cause of the odour and a review of the meteorological data. Suitable remedial action will be instigated, where required. The complainant will be informed of any action taken and all actions will be recorded. Should no odour be observed, a record of the monitoring round will be taken and the meteorological conditions checked and a report provided to the NRW with suitable feedback provided to the complainant.

4.5 Monitoring Meteorological Conditions

The Site Manager or other designated responsible person will record daily weather conditions in the Site Diary from publicly available data sources. The recording of meteorological data is an effective, management tool used for the following reasons:

- during routine operations, to plan where boundary monitoring should be focussed to assess odour impacts;
- at the time of abnormal events to predict where odour impacts could potentially occur; and
- in the investigation of odour complaints or to verify community observations.

4.6 Recording of Results and Reporting

Daily records will be maintained and include the following details (where applicable):

- results of inspections and any olfactory monitoring carried out by Site personnel;
- weather conditions;
- operational problems including date, time, duration and cause of problem;
- complaints received including address (if available); and
- details of corrective actions taken and any subsequent changes to operational procedures.

The weekly sniff tests undertaken will be made on the Odour Monitoring Form presented in Appendix B which will be filed and kept on-site for inspection by the NRW as and when required.

In the event that odour is detected at the Site boundary, this will be noted in the Site diary and the Site Manager will be informed to allow for appropriate steps to be taken to mitigate the odour. The results of the daily odour monitoring will not be reported to NRW unless required by the Permit, however it will be commented on in the Annual Monitoring Report.

4.7 Notifying the NRW

In the event that an accident or incident occurs, the Operator will notify the NRW as soon as practicably possible using the emergency 24hr phone line (0300 065 3000). The Site Manager for the facility will also notify the Regulatory Officer should any complaints be received directly to the Site and advise what remedial measures have been undertaken. Copies of any complaints will be made available for NRW to review.

5.0 Contingencies

In accordance with the NRW's Guidance on OMPs, contingency plans have been defined to react to situations where monitoring indicates that a potential odour source is not completely under control, or that adverse impact has occurred.

This includes accidents (or incidents) which would result in the loss of control of odorous substances and have the potential to cause an unacceptable short-term impact on the local community, but are not considered an emergency situation.

5.1 Unit 141, 29 and 29A Over-Capacity

Breakdown of plant equipment may lead to reductions in the rate of processing and consequently the build-up of waste. Trained and experienced Fitters are available to cope with standard equipment breakdowns and the on-site operatives to deal with standard maintenance.

Each day a review will be carried out of the stock in comparison to expected incoming waste, as well as expected processing. This will determine the available capacity and the ability to receive waste.

In the event that the building is not considered to have sufficient capacity, the Site Manager will consider the option for diverting incoming material to other waste management facilities to prevent build-up of waste beyond capacity.

5.2 Receipt of Particularly Odorous Wastes

With the containment measures in place it is considered unlikely that any waste received would be of sufficient magnitude to cause unacceptable odour impacts outside the Site boundary and particularly odorous waste would be passed for priority treatment.

However, should any particularly odorous wastes be received, these will be isolated and promptly removed from Site, if not rejected before being deposited.

Where unacceptable odour exposure is traced back to a particular waste received, acceptance of further consignments of this waste category from that particular waste producer will be addressed with further investigations and identification of a solution.

5.3 Compromised Odour Containment

Odour containment may be compromised by damage to the building fabric and to the building doors. If the building fabric and doors are damaged, then the following contingency measures will be implemented:

- arrangements made to re-establish containment;
- requirement for more odorous activities reviewed and suspended as appropriate e.g. loading/unloading, or screening; and
- minimise the presence of odorous materials e.g. processing existing waste and transferring off-site as soon as practicable.

Odour surveys will be undertaken 3 times a day until an effective fix is implemented. If odour detected during surveys is considered likely to lead to unacceptable impacts then consideration will be given to ceasing waste acceptance if this would alleviate the problem. The NRW and neighbours will be notified of the investigations and actions being taken.

5.4 Abnormal Meteorological Conditions

Extreme meteorological conditions that promote the generation of odour and inhibit its effective dispersion, specifically high temperatures and stable conditions, may result in increased risk of impact at receptor locations.

Contingency measures to minimise the risk of unacceptable odour exposure at receptor locations during these conditions, will include but not be limited to consideration of:

- reviewing requirements for undertaking activities known to increase odour control and reduce activities if practicable; and
- reviewing requirements for activities that involve building door opening and reduce frequency and duration of door opening if practicable.

5.5 Detection of odour at the site boundary or off-site during routine odour surveys or response to complaints

The olfactory survey (as detailed in Appendix D) will be followed and the odour source or sources identified by determining the sources of greatest odour intensity, contingency actions will be implemented as identified above.

The first assessment of an odour at the Site boundary will be whether the odour has or is likely to disperse from the Site with sufficient magnitude as to cause an unacceptable impact. If this is not the case, the cause of the nuisance shall be remedied to prevent continuation of odour emissions, but no further action will be taken. All information regarding the action taken will be recorded on the external odour assessment sheet.

If an odour, at a level which is likely to cause pollution, beyond the Site boundary, the Site Manager or representative will be notified immediately.

The olfactory survey will be repeated on consecutive days after initiation of corrective actions, until odour has reduced to an acceptable level.

The NRW will be informed in line with Permit requirements.

5.6 Out of Hours Contact Details

During abnormal events or during out of hours operations, the Site Manager will have will be available to undertake immediate attendance on-site. An Emergency Duty Standby Number will be made available which will always be answered in the event of an emergency.

5.7 Receipt of an Odour Complaint

5.7.1 Complaint Logging

A phone number for members of the public to contact the Operator with any complaints will be visible on the Site board at the entrance. Following the receipt of a complaint the Operator will endeavour to contact the complainant to provide feedback on actions taken to both assess the event and convey any remedial actions.

All complaints will be recorded on an Odour Complaint Form, such as that presented in Appendix C, and forwarded onto the Site's NRW Officer. Information recorded will include the following:

- date and time of odour complaint and odour detection;
- location / address of complainant (where provided); and
- a description of the odour from the complainant.

Following an odour complaint, a trained member of staff will undertake a sniff-test recording the results on an Odour Monitoring Form (Appendix B). Where possible the sniff test will be undertaken by a member of staff that does not routinely work within the reception building and would not therefore be accustomed to any malodours. If an odour is encountered, the source will be investigated by Site management and the outcome recorded.

Investigations will include the likely source and cause of the odour and a review of the meteorological data. Suitable remedial action will be instigated, where required. The complainant will be informed of any action taken and all actions will be recorded. Should no odour be observed, a record of the monitoring round will be taken, the meteorological conditions checked, and a report provided to the NRW with suitable feedback provided to the complainant.

5.7.2 Complaint Investigation

The following actions will be taken on receipt of an odour complaint:

1. The Site Manager will be informed of the odour complaint as soon as possible, including the location, time and date (if reported) of the complaint being lodged;
2. The Site Manager (or any appointed representative) will undertake the following assessment process:
 - review of potential odour to ascertain whether it is associated with a neighbouring permitted activity. In the event the odour complain is not associated with WTS log the incident in the Site diary and report it to Council's Environmental Health Team;
 - In the event the odour complain is associated with WTS operation review Site operations and control systems prior to and at the time of the complaint to include:
 - determine the source (ie Unit41, 29 or 29A);
 - determine if waste was received in the buildings at the time of the complaint;
 - determine if highly odorous waste was being treated at the time of the complaint;
 - determine if any abnormal operating conditions occurring;
 - determine if any accidents or incidents requiring contingency actions were being undertaken;
 - determine if any emergency situations existed at the time.
 - review of the meteorological conditions (wind speed) prior to and at the time of the complaint – to establish whether a pathway can be established between the Site and the complainant; and / or
 - review the previous history of complaints at the location identified.

The Site Manager (or appointed representative) will visit the complaint location as soon as is possible in order to subjectively determine odour presence / absence and, if present, odour characteristics and intensity in accordance with the procedure detailed in Appendix D and complete the complaint form (reproduced in Appendix C).

The NRW will be informed in line with Permit requirements.

6.0 Emergency Plans

This section details the emergency actions that would be undertaken in case of accidents (or incidents) which would result in the loss of control of odorous substances and could have an unacceptable short-term impact on the local community.

The section considers the emergency scenarios, measures taken to minimise their occurrence and short-term measures to minimise impacts.

6.1 Prolonged Plant Failure

In the unforeseeable event of complete plant failure for a prolonged period (greater than the agreed retention time in the buildings) consideration will be given to the diversion of incoming waste to alternative permitted facilities.

6.2 Fire

Emergency Action Plans are detailed within the Site's approved Fire Prevention and Mitigation Plan (FPMP) that provides procedures for handling fires.

With regard to management of odour impact, the key principles are prompt responses that contain the fire and attempt to extinguish it, minimise damage to containment and extraction infrastructure.

The NRW would be informed of any such an occurrence, information would be made available to local residents if requested by the NRW with regard to the measures being taken and the timescale to completion.

6.2.1 Explosion

The risk of the explosion is considered to be extremely unlikely.

6.3 Major Spillage / Leak

Details of emergency procedures to be initiated in case of a failure of containment and major spillage / leaks are detailed in the Site's EMS.

The NRW would be informed of any such an occurrence, information would be made available to local residents if requested by the NRW with regard to the measures being taken and the timescale to completion.

6.4 Flooding

The risk of flooding is considered to be extremely unlikely due to the Site location and drainage arrangements on the Site. If the Site becomes flooded, this would inhibit effective reception and processing of delivered waste. Material will either be rapidly processed; or where not possible, removed from Site.

Widespread flooding of the Site may also prevent the operation of key electrical equipment and vehicular access. Under such extreme conditions no further operations would be undertaken (i.e. opening of doors) and no further waste would be received. It is likely that the NRW would be involved in supervision of any clean-up operation. Waterlogged material will be removed from Site.

Widespread flooding may prevent access to Site. In such a situation no further waste would be able to access the Site and priority would be given to ensuring the ongoing effective processing of waste.

6.5 Power Failure

The Site contains its own back-up power generation facility which will be sufficient to ensure operations can continue in the event of an external power cut.

6.6 Staff Absence

Short-term staff shortages (such as a few days illness) will not affect the ability of the Site to operate effectively as other staff members can be reassigned to critical operations. In the event of prolonged absence of staff members, temporary staff will be recruited and appropriately trained to fulfil non-critical roles whilst other more experienced staff members are reassigned.

If widespread illness occurs amongst staff members e.g. food poisoning, the delivery of waste to the Site will be suspended until sufficient staff are present to operate the Site. If prolonged, widespread absence occurs, alternative suitably permitted facilities will be contacted for emergency assistance.

6.7 Summary of Emergency Control Measures

To ensure adequate mitigation measures are in place to address all possible odour emission scenarios, the various scenarios and their response measures are presented in Table 6 1.

Table 6-1: Emergency Control Measures

Scenario	Location	Likely effect on emissions inventory	Contingency/Control Measures
Prolonged plant breakdown	All operational locations	Risk of increased impact from area of Site where normal operations are affected during and after breakdown	Critical plant items such as the baler have full repair and maintenance package. However, if unavailable, the relevant operations would be suspended if necessary. Contingency arrangement for diversion of feedstock implemented if required.
Fire	Reception building	Risk of impact from any area of the Site affected by fire	Fire risk procedures adopted, if required operations will cease in building until all plant restored.
			Further receipt of waste will be reduced or suspended until fire is under control and Site has been deemed safe and operation is restored.
Flood	All operational locations	Risk of increased impact from area of Site where normal operations are affected during and after flood	Risk of flooding regarded to be low. If it should occur and waste is submerged, there is a high likelihood of rapid onset of degradation and anaerobic conditions. Waste requires immediate removal off-site
Transfer failure	Reception building	Increased emissions during storage over 72 hours	Operating procedures in place to prevent breach of waste retention timescales operating first in first out principle during normal operations. In an emergency situation the Site would liaise with the NRW and agree an action plan.

7.0 Document Updates and Reviews / Management

7.1 Responsible Staff

The Site has a well-defined and formally documented management structure for managing the impacts. It is the responsibility of every manager, with the support of the environmental professionals, to identify environmental risks that are relevant to the Site and determine if a particular activity or service is environmentally significant.

Once identified, it is the responsibility of the manager to highlight the significant aspects to all relevant employees and contractors. The manager is also responsible for monitoring and managing all activities under the Company's control to improve environmental performance.

Managers must complete the appropriate register to identify all activities or services that are relevant to Site operations and provide an indication of potential impacts.

Work instructions, job descriptions and procedures exist for critical areas of the Company's activity and have been issued to or made available to personnel responsible for undertaking these tasks.

Further information on the role of staff members and responsibility for odour management is detailed within the Site's specific EMS.

7.2 General Procedures for Training and Competency of Staff

Staff competency and the need for training is continually assessed by Site management and supervisors and under all circumstances will be reviewed (at least) annually and formally recorded within the EMS.

7.3 Odour Management Plan Review

This OMP is a controlled document, and forms part of the EMS. A comprehensive record of the results of the monitoring and inspection programme contained within this OMP will also form part of the EMS.

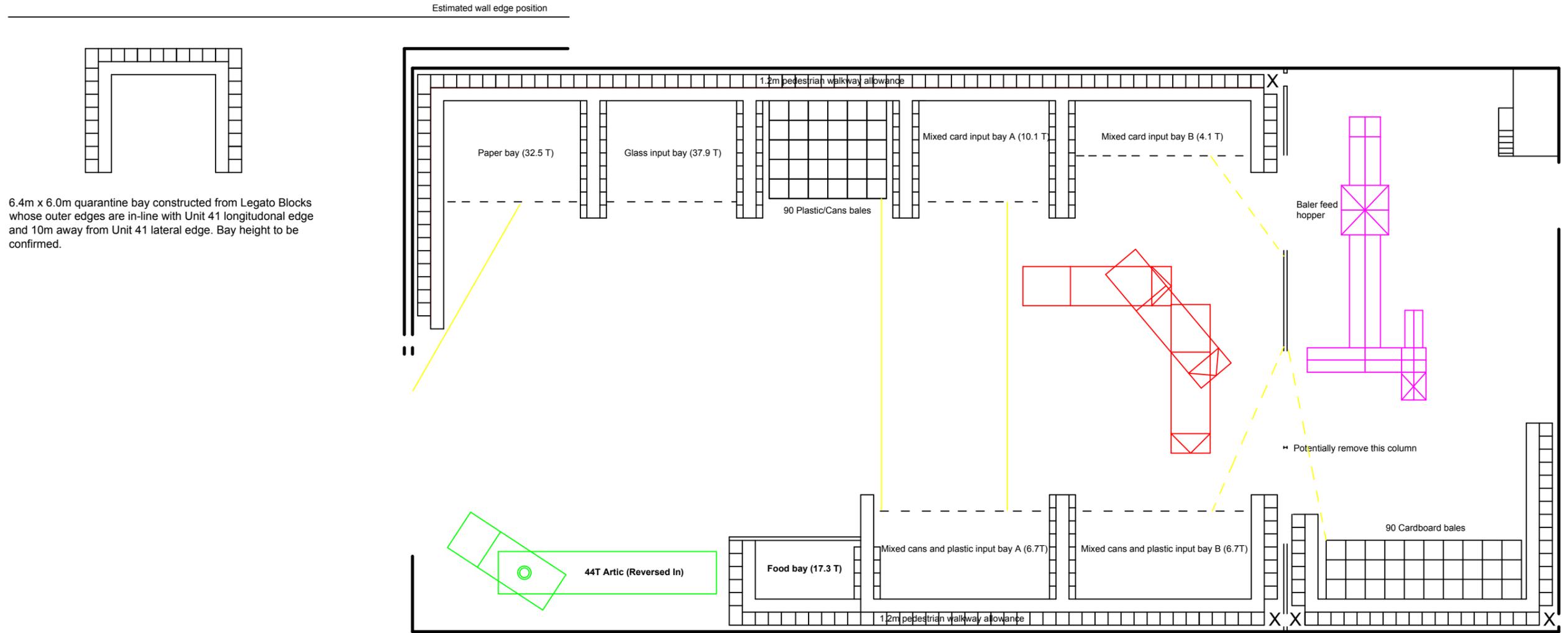
The specification for the periodic review and update of the OMP will be set out within the EMS. In line with the recommendations of the NRW's H4 Odour Management guidance, this takes place on an annual basis, as a minimum.

However, the OMP is intended to be a live document which serves as a reference during daily operations, and as such would be updated on a more frequent basis should the following occur:

- significant changes are made to the plant or operational practices;
- there is a change to the management structure, designation of responsibility or training provision;
- the NRW requests that the OMP is updated, in their role as regulator; or
- complaints are received, which on subsequent investigation result in the identification of further control measures or remedial action, in addition to those set out within this OMP.

Appendix A: Drawings

All work produced will contain a disclaimer outlining that WRAP has produced layouts and designs in support of operational efficiency and does not accept liability for the accuracy of drawings and the authority should satisfy themselves of their adequacy to meet their own and regulatory requirements.



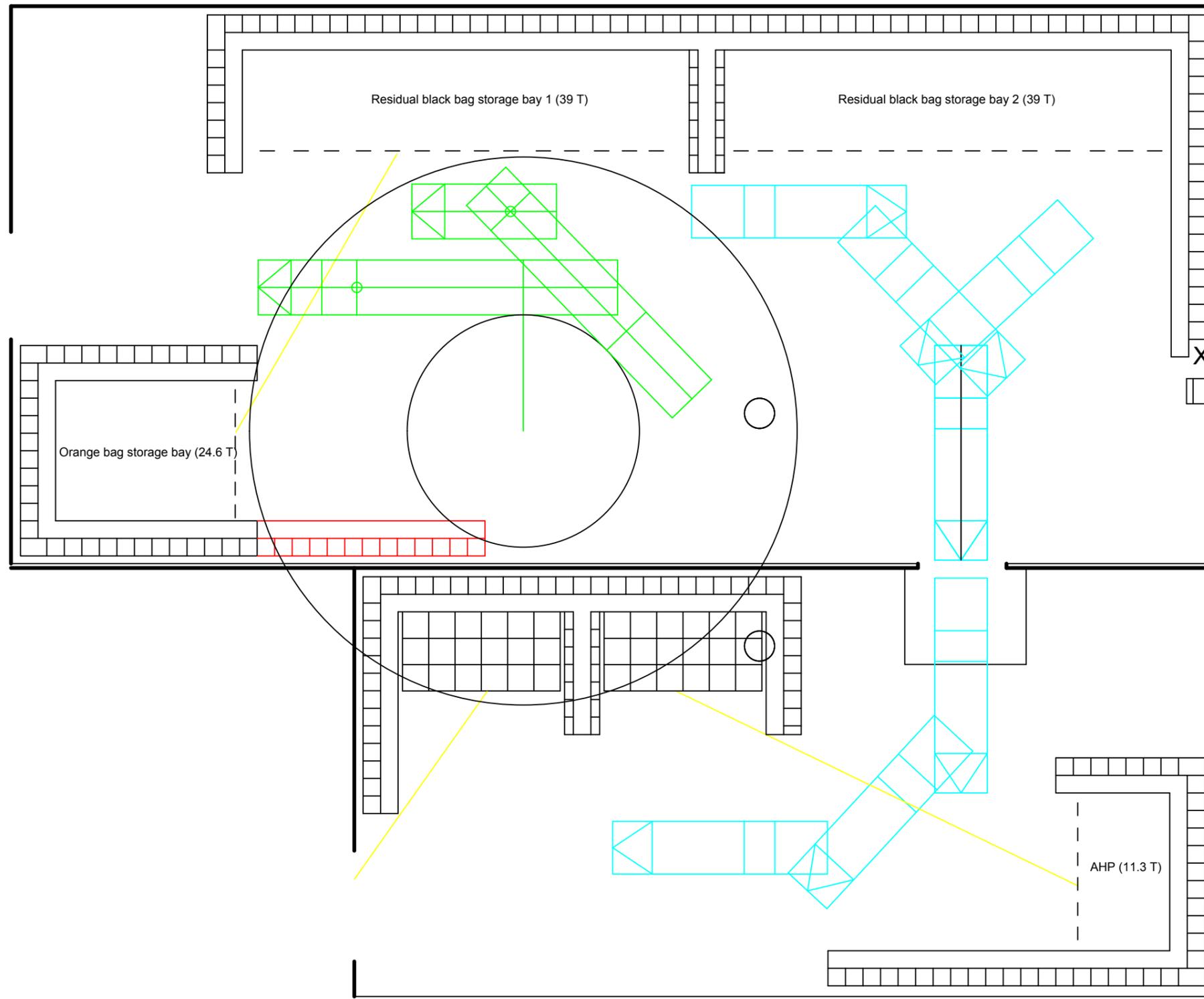
6.4m x 6.0m quarantine bay constructed from Legato Blocks whose outer edges are in-line with Unit 41 longitudinal edge and 10m away from Unit 41 lateral edge. Bay height to be confirmed.

- Notes**
- This layout must be verified with a practical on-site trial using actual RRV's and 44T tractor/trailer to confirm access and egress.
 - 5m Standard Romaquip 9.19m x 2.45m with tightest turning circle (wall to wall diameter) taken as 16.8m
 - Storage bay tonnage derived from assumed material densities.
 - Material height in storage bays 3m sloping to bay opening with 1m freeboard. Food bay assumed gated height 1.5m.
 - ASSUMED. Trailer 13.5 x 2.5 and 25m outer turning circle. Final position requires site trial verification.
 - Bale Size 1.2m wide x 1.2m deep x 0.75m high stored three high.
 - Location of material storage bays and equipment positions would need verification and approval by the appropriate Regulators in terms of fire prevention and mitigation.
 - Loading materials and bales out may need to be undertaken externally.
 - Worst case fire distance utilised in FP&MP consideration with dotted yellow line requiring discussion with NRW.
 - Legato storage bay wall thickness 0.8m with pedestrian access over the 0.8m high base blocks. Lagato to confirm block layout within the building before blocks are purchased. No Legato base blocks at points 'X' to allow ground level access through existing doorways. Steps required onto base blocks which will need a walkway surface.
 - Thickness from Unit 41 internal wall to external cladding has been estimated.

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Title Pembroke Dock - Recycling Material Unit 41 Layout October 2019
 Scale As scale indicator
 Date 11th January 2019
 Drg No WRML - PDOCK37N
 Client WRAP Cymru

All work produced will contain a disclaimer outlining that WRAP has produced layouts and designs in support of operational efficiency and does not accept liability for the accuracy of drawings and the authority should satisfy themselves of their adequacy to meet their own and regulatory requirements



Notes

This layout must be verified with a practical on-site trial using actual RCV's to confirm RCV access and access.

— 26T RCV 9.86m x 2.46m with turning circle dimensions provided by WRAP.

Storage bay tonnage derived from assumed material densities.

Material height in storage bays 3m sloping to bay opening with 1m freeboard.

Location of material storage bays would need verification and approval by the appropriate Regulators in terms of fire prevention and mitigation.

Loading out from storage bays may need to be undertaken externally.

— Worst case fire distance utilised in FP&MP consideration.

Bale size taken as 1.2 x 1.2 x 0.7h high. Stored three high.

Legato storage bay wall thickness 0.8m with pedestrian access over the 0.8m high base blocks. Legato to confirm block layout within the building before blocks are purchased. No Legato base blocks at points 'X' to allow ground level access. Steps required onto base blocks which will need a walkway surface.

WAITE Resource Management Ltd

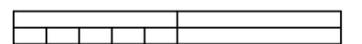
Title P. Dock - Residual Bulking Unit 29 & 29A Layout October 2019

Scale As scale indicator

Date 31st October 2018

Drg No WRML - PDOCK34F

Client WRAP Cymru



0m

10m

Appendix B: Odour Assessment Form

Background Information			
Person Undertaking Survey (& Position)			
Date		Time	
Description of Wind Strength (i.e. strong, gusty)			
Wind Direction			
Weather (i.e. sunny, overcast)			
Temperature (degree Celsius)			

Survey Results			
Location	Intensity (1-6) (see below)	Persistence (A-E) (see below)	Characteristic (see below)
Northern boundary			
Eastern boundary			
Southern Boundary			
Western Boundary			
Closest Property			
If odour is strong / persistent additional information to be detailed below			

Intensity	
1	No detectable odour
2	Faint odour (barely noticeable)
3	Moderate odour (odour easily detected)
4	Strong odour (bearable but offensive)
5	Very strong odour (instinct to walk way)
6	Extremely strong odour highly likely to cause annoyance (May induce nausea)

Persistence		
A	Occasional	Less than 10% of the time
B	Intermittent	10-30% of the time
C	Frequent	30-50% of the time
D	Persistent	50-75% of the time
E	Constant	>75% of the time

10		
If during the survey the odour is strong or persistent at any location on the site boundary, the following information requires completion regarding plant operation.		
Waste Delivery	Has waste recently been delivered to site?	
	If yes, were the correct procedures followed?	

Appendix C: Odour Complains Reporting Form

Installation to which complaint relates:	Date recorded:
Name and address of caller:	
Tel No. of caller:	
Location of caller in relation to installation:	
Time and date of complaint:	
Date, time and duration of offending odour:	
Caller's description of odour, e.g. comparison with other odours, strong/weak, continuous, fluctuating:	
Has the caller any other comments about the offending odour?	
Weather conditions (e.g. dry, rain fog, snow):	
Wind strength and direction (e.g. light, steady, strong, gusting):	
Any previous complaints relating to this odour?	
Any other relevant information:	
Potential odour sources that could give rise to the complaint:	
Operating conditions at the time offending odour occurred – e.g. removing waste from bays, deliveries, exchanging food waste skip:	
Follow up	
Date and time caller contacted:	
Action taken:	
Amendment required to Odour Management Plan:	
Form completed by:	Signed:

Appendix D: Odour Survey Methodology

The exact locations for off-site monitoring are selected based on the prevailing wind direction and proximity to receptors.

The monitoring will be extended to the surrounding locality if odour likely to cause annoyance is detected at the site boundary.

At each location observations shall be made concerning odour intensity, persistence and character, time, date, weather conditions and any 'abnormal' site operating conditions at the time of the survey. Surveys shall be carried out in accordance with the monitoring protocol contained within the NRW H4 Odour Guidance.

The odour assessor should not be subject to significant site odour in the 30-minutes prior to the assessment. This is to ensure that monitors are not suffering from odour fatigue and will be sensitive to site odours. Furthermore the following exclusions shall apply:

- staff members that are regularly exposed to site odours for longer than 30 minutes; and
- any staff members known or suspected of having a very poor sense of smell should not be used for odour monitoring routinely.

The inspections shall be undertaken as follows:

1. The person should walk slowly and breathe normally and begin their assessment at areas of expected low odour concentration, i.e. upwind of the site, and should move to areas of high odour concentration. If odour is detected while walking, the intensity should be recorded as at least 3 (distinct), or higher.
2. If an odour cannot be detected whilst walking, the person should periodically stand still and inhale deeply facing upwind. If odour is then detected, but can only be detected in this manner, the odour 'intensity' should be recorded as 2 (faint).
3. Following detection of any odour of intensity 3 or above at the site boundary during an odour inspection, the following measures will be taken:
 - the olfactory survey will deviate to determine the extent of plume downwind (at or above an intensity level 3) and at potential receptors affected. Contingency measures outlined in Section 5.0 will be followed; and
 - an on-site inspection shall be carried out seeking to trace any observed odour back to source so that the appropriate corrective and/or preventative action can be taken (with regard to Contingency Measures detailed in Section 5.0).

On-site inspections would be undertaken by continuing the olfactory survey methodology onto the site to inspect all potential odour sources.

The site Manager shall be notified immediately of any detected odours that are considered to have the potential to give rise to significant off-site odour impact (intensity 3 at a receptor location). The contingency measures detailed within Section 5.0 should be followed.

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