H & H Waste Management

Odour Management Plan

Aylesbury Transfer Station
Corrib Industrial Park
Off Griffin Lane
Aylesbury
Buckinghamshire
HP19 8BP

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1. Introduction

1. The purpose of this management plan is to identify potential odour emissions from waste treatment and transfer operations. Plan, monitor and implement mitigation measures to prevent the generation of odour at source.

1.1 The management plan should be read in conjunction with the site Environmental Management System (EMS) and should be reviewed no less than 6 monthly to ensure its effectiveness is maintained.

1.2 Odour generation at source is most likely from old waste and from the treatment process, such as shredding and mechanical sorting. Hot and humid conditions promote the degradation of degradable waste therefore it follows that a general review of this management plan should ensue before the onset of traditionally warm weather to ensure its content and procedures reflect the current operations at the site, and ameliorating measures are identified

1.3 The management plan seeks to identify incoming waste streams having the potential to generate odour when tipped. Evaluate through process mapping the path of specific waste streams as they progress through the various treatment processes and note at each point the potential to generate odour and suggest mitigating measures.

1.4 Following evaluation of the treatment process and potential for odour generation, creation of a list of measures and suitable equipment to control odour generation at source, prevent airborne passage beyond the site boundary.

1.5 Identify immediate sensitive receptors and amenities and align physical barriers at the site boundary to disrupt emissions.

2. Operations Overview

2.1 The application site is centred on SP 80554 14233 and is located within the Corrib Industrial Estate Aylesbury, which is itself located centrally within the town of Aylesbury. The immediate area is predominantly industrial and commercial premises and further afield residential properties and social amenities.

2.2 The site is accessed from Griffin Lane and forms part of the wider industrial estate. The facility incorporates a range of buildings designed to facilitate the acceptance, treatment and sorting of the various waste streams allowed under the site permit. There is also a fully functional workshop available for the service and repair of site plant.

2.3 The operations at the facility may be briefly summarised as follows:

Acceptance of non-hazardous industrial commercial, construction demolition and inert wastes brought to site by third-party operators from within the general catchment area of Aylesbury. The waste is treated by sorting and segregation into different components in preparation for further, off site treatment and recovery.

2.4 The hours of operation, including heavy goods vehicle movements to and from the site, are carried out between the hours of **0600-1900hrs Monday to Friday and 0600 – 1500hrs** on Saturdays. The site shall not be opened on Sundays, Bank or Public Holidays.

2.5 Waste deliveries to site are undertaken by various types of vehicles, ranging from heavy bulkers to small vans. Vehicles are sheeted or carry enclosed containers to gain entry to site otherwise the vehicle would be rejected. Details of site rules are passed to prospective customers at the account enquiry stage and set out expectations for waste deliveries procedures. Failure of the waste carrier to meet the expectations of the site, possibly due to inadequate containment or sheeting, will be contacted by a member of staff and informed of the issue and given the opportunity to rectify the matter before the next delivery.

2.6 The table below illustrates the general waste types entering the site and likely composition of the load.

Table 1.

Waste Type	EWC	Containment Type	Typical Composition	Potential for Odour	Quantity Av M3
Builders Rubble	17 09 04	Variety of skip sizes	Soil, hardcore,	Unlikely	$6m^3$ to $26.8m^3$
General Waste	20 03 01	Small vans	Bulky items, house clearance	Unlikely	$3m^3$ average
General Waste	20 03 01	Large bulkers and variety of skips	Wood, metal, plastics, paper, plasterboard and card	Unlikely	$26.8m^3$ to $110m^3$
Commercial	20 03 01	Bulkers / REL's	Card, paper, plastic film	Potential to contain food matter and aged waste	$12m^3$ to $26.8m^3$
Green Waste	20 02 01	Skips	Garden and Park Waste	Potentially	$6.1m^3$ to $15m^3$
Soil and Stone	17 05 04	Skips	Soils, brick	Unlikely	$6.1m^3$ to $26.8m^3$
Shredded Waste	19 12 12	Bulkers / Articulated vehicles	Mixed waste from transfer stations often shredded	Likely	$26.8m^3$ to $110m^3$
Off spec compost	19 05 03	Netted skip	Shrub waste too large to conform to compost specification	Likely	$11.2m^3$

2.7 Table 2 list the types of waste leaving the site.

Table 2.

Waste Type	EWC	Containment Type	Typical Composition	Potential for Odour
General Waste	19 12 12	Heavy bulker, articulated vehicle	Plastics, film, textiles, bulky items and non-recyclables	Likely
Wood	19 12 07	Heavy bulker	Various sized wood	Unlikely
Metals	19 12 03	Heavy bulker	Non-ferrous metals	No
Metals	19 12 02	Heavy bulker	Ferrous metals	No
Hardcore	19 12 12	Heavy bulker	Brick, ceramics and concrete	No
Soil	19 12 12	Heavy bulker	Soil	Potentially
Card and plastics	19 12 01	Articulated vehicle	Light plastic and cardboard	Unlikely
Fines	12 12 12	Heavy bulker	Soil type material	Potentially
Green Waste	19 12 12	Heavy bulker	Tree and shrub	Potentially if shredded and left on site for long periods

2.8 Potential odorous waste from incoming streams shall be identified at source if possible, prior discussions with the waste producer / haulier and details pertaining to previous treatment process be ascertained to alert the site to potentially odorous material before it arrives.

To ensure a concerted approach to pre-acceptance charactorisation is adopted liaison between the commercial departed and the site operational team must ensue at regular intervals to discuss and evaluate current and potential waste streams having the potential to generate odour when received, treated and stored on site.

2.9 Regular liaison between site and the producer shall be encouraged to avoid the possibility of “rogue” odorous loads arriving on site and lines of communication maintained between all parties to promote free flow of information regarding the suitability of waste streams intended for Aylesbury Transfer Station.

2.10 The exchange of information between the site and producer should include the age of waste, treatment process applied and period in transit.
A firm commitment should be gained from all parties stating what is considered an acceptable duration, commencing with the original collection of the waste to final delivery to Aylesbury Transfer Station. Waste streams falling outside of the acceptable time frame should not be accepted to site.

2.11 Having identified waste streams having the potential to generate odour when stored or treated on site, measures shall be in pace to mitigate / control odour emissions beyond the boundary of the site.

- Weighbridge checker shall inform the site supervisor by radio of the arrival of potentially odour generating waste, such as pre-treated transfer station waste having the EWC code 19 12 12.
- A visual and olfactory evaluation of the waste at the point of tipping to determine if the waste is odorous and if confirmed, the waste is reloaded onto the vehicle and the producer informed
- Waste found to be odorous or having the potential to be so after deposit shall not be treated but reloaded at the earliest opportunity and removed from site. The site operator shall endeavour to achieve this within one day of receipt of the waste

Table 3 gives the quantity of waste stored on site, type and duration.

Table 3

Material	Length (m)	Width (m)	Height (m)	Max Volume (m3)	Pile Quantity
Commercial & Industrial	**11**	**10**	**4**	**300**	**1**
SRF/RDF	**5**	**5.5**	**4**	**110**	**1**
Construction & demolition	**6.1**	**2.5**	**2.4**	**30**	**2**
Cardboard	**6.1**	**2.4**	**2.4**	**30**	**2**
Plastic	**6.1**	**2.4**	**2.4**	**30**	**2**
Metal	**6.1**	**2.4**	**2.4**	**30**	**2**
Wood	**8**	**8.85**	**4**	**107**	**1**

3. Overview of Waste Processing and Odour Controls

3.1 Waste treatment, sorting and separation activities are conducted in the following manner.

Main Reception Building and Annex Processing

- Deposit of general waste at the main waste reception building
- Placement of waste onto the conveyer belt feeding the screener and manual sorting / picking line
- Waste dropping from the picking line into segregations bays located beneath the sorting line
- Loading of segregated materials onto waiting transport for off-site disposal and treatment
- Fine material falling from the screener and then transferred to the fines "clean-up" plant and finally loaded to waiting transport for off-site disposal
- Segregated plastic and cardboard stockpiles
- Stockpiling and eventual loading of materials onto an articulated vehicles
- Segregated wood, metals and bricks are collected by shovel and transferred to bays located externally of the processing building
- Deposit, sorting, treatment and storage of category C waste shall only take place within the covered building

Delivery of Pe-Segregated Materials

- Waste delivery vehicles traverse the site to deposit waste into bays designated by waste type
- Manual sorting of inert soils and building rubble with individual waste types transferred to segregation bays elsewhere on site
- Segregated materials, including green waste, are loaded onto waiting transport for off-site disposal and treatment

Small Vehicles

- Small vans / tippers deposit bulking waste separately in dedicated bays located within the main processing building
- Bulky waste is transferred by shovel within the main waste reception building and incorporated into the processes as stated above

4. Odour Management

4.1 The overall responsibility to implement the odour management plan falls to the senior management team and in particular the Operations Director. This currently is *Andy Wright*

Responsibilities may be disseminated to the site supervisor or senior member of the site team with reporting lines leading back to the management team. Review of the performance of the odour management plan is the overall responsibility of the senior management team.

4.2 Site meetings shall be convened at a frequency no less than monthly, less during dry conditions, to determine the effectiveness of the odour suppression equipment and control measures and identify actions for betterment if required.

4.3 Contingency plans shall be in place to take account of plant and equipment failure which shall extend to ordering / hiring of replacement equipment, reorganisation of activities affected by the loss of equipment.

4.4 The site manager / supervisor shall monitor the amount of waste held on site at any one time to ascertain that continual through put is maintained and the maximum desired residence time for waste is not exceeded. The site manager / supervisor shall call upon external transport to remove excess waste should the situation approach saturation point.

4.5 Treatment of waste has the potential to generate odour and therefore planning of operational activities should take account of this by arranging treatment of category C waste during periods when neighbouring premises are vacant, i.e. before and after the normal working day of neighbouring businesses. The odour control system is fully operational during these times and sufficient stock of solution is maintained on site. Shredded material forming RDF, SRF and fines must be retained in the main building until loading from site is imminent.

4.6 In the unlikely event that all measures fail to contain or prevent fugitive emissions beyond the site permit boundary the site manager / TCM shall take the decision to cease the activity causing the incident until full control is resumed. In extreme conditions this may necessitate closing the site until normal operations prevail.

5. Sources and Locations of Potential Odour Emissions

5.1 Table 4 below highlights the potential sources of odour generation and corresponding elements of mitigation and control.

Table 4

Activity	Location	Mitigation	Control measures	Adequately controlled
Waste delivery vehicles entering the site	Entire site	Unlikely to cause odour at this point as loads are sheeted or contained	Malodorous loads may be detected at the weighbridge and the vehicle prevented from entering the site.	Yes, weighbridge operator requires training in this respect
Waste handling equipment transferring segregated waste	Entire site. Processed waste is transferred from the main building to waiting vehicles. The process of carrying waste to the vehicle then tipping can give rise to release of odour	Ensure sufficient waste is available to load the waiting vehicle to ensure the least time is taken to load the vehicle. Place the waste in the vehicle rather than allow waste to drop from height.	Mist-Air system located within the main waste processing building concentrating on active areas. This system can incorporate odour neutraliser	Yes, but olfactory monitoring of this activity must continue to confirm the effectiveness of the controls and if found inadequate, consideration of a perimeter odour control system should be taken.
Activity	Location	Mitigation	Control measures	Adequately controlled
Waste handling equipment loading conveyer belt	Main waste reception building	Activity is carried out within a three-sided building. The operator is considering installing an enclosed vessel with full automation of recyclate recovery	Mist-air system designed to provide a hydraulic barrier across the open aspect of the building and individual manifolds able to concentrate on specific points of activity in the building.	Series of fan assisted water dispensing manifolds fitted at given points within the building creating an inward air gradient. Additional fan manifold fitted to provide cover of individual activity within the building
Screener and conveyer belt	Main waste reception building and exiting into picking line	The screener is located within the reception building and benefits from coverage of the mist-air water fan assisted manifolds	The screener has three static misting manifolds at strategic points in addition to two fan assisted manifolds pointed directly onto the screener and fines stockpile beneath. Odour neutraliser incorporated into the system	Adequate controls are in place and may be augmented by the use of odour neutraliser
Conveyer belt end line	Sited at the back of the main processing building	Short run of open conveyer benefiting from protection from three sides	Two static misting manifolds providing coverage of the conveyer as	Controls require monitoring for efficiency

			it exits the picking line	
Loading of waste materials after sorting and segregation	Predominantly within the main waste processing building	Segregated materials will at this point have fines particulates removed to individual stockpiles therefore odour generation will be confined to certain waste types	Ensure waste is stored on site for minimum period. Large bulk vehicles are used to transport waste from site ensuring stock rotation.	Waste materials with zero odour potential to be stored external of the building and odour control system.
Movement of materials to and from the main processing building	Materials such as shredded wood, waste fines and metals are stored external of the main covered building	Large items unlikely to cause odour emissions and contained by a 3-metre-high concrete wall surmounted by 2-metre-high litter netting	Ensure loading activities are conducted expeditiously. Consideration of prevailing wind direction.	Infrequent activity which preplanning will mitigate fugitive emissions

6. Enclosure of Waste Storage and Processing Areas

6.1 H & H Waste Management are acutely aware of the potential nuisance odour emissions can cause, especially beyond the permit boundary. Through a continuing process of evaluation the company have identified the potential sources of odour generation and implemented a programme of control and mitigation. The most effective odour control method is a solid barrier between the source of odour and potential receptor beyond the site boundary.

6.2 The predominate source of odour generation has been identified and measures incorporated within the existing operation to control and mitigate odour generation by enclosing the sorting and screening processes within building wherever possible and without causing unacceptable operational disruption. Table 5 below tabulates the activities currently conducted within buildings.

Table 5

Activity	Enclosed	Potential to enclose process	Mitigation if not enclosed
Waste reception area	Enclosed to 3 sides with opening for waste acceptance	Placement of netting across the entrance would create operational difficulties	Odour suppression systems in place via Mist-air system
Screening process	Enclosed to 3 sides with opening for waste acceptance		Mist-air system coverage focused on specific activities
Picking line	Fully enclosed		Consideration being taken to replace existing sorting equipment with fully enclosed and automated system.

Deposit of loose materials	Enclosed to 3 sides and open to receive materials designated for treatment, loading and storage	Front aspect of the building must remain open to accept waste delivery vehicles	Odour suppression systems in place. Vehicle driver to be questioned on the type of waste being carried and whether this has the potential to be odorous.
Waste shredder	Only within the main building which is enclosed on 3 sides	New enclosed treatment and sorting equipment will be fully enclosed	Mist-air system in effect in the main building
Fines screener	Enclosed to 3 sides	Activity takes place in the main building	Odour suppression system in place
Segregated materials storage	Open to 1 side to allow plant access for loading	All category C waste shall be stored in the main building	Olfactory assessment shall be conducted at regular intervals by the facility manager
Building rubble	Surrounded to 3 sides but open above	Potential to erect fine netting over this storage area.	No odour anticipated from this type of waste
Inert soils	Stored in a 3-sided bay external of the main building	Only small quantities are brought to site and infrequently	Unlikely to cause odour
Green waste	Stored in the main building	Only small quantities are brought to site and infrequently	Retention time on site should be minimal. Stored in the main building only.

6.3 On average, waste shall be stored on site for 2 / 3 days maximum as the treatment facility relies on throughput to allow continual acceptance and processing. Large articulated vehicles are utilised to transport waste from site in its various forms. The use of such large vehicles contributes to the throughput process and H & H have the advantage of operating a fleet of such vehicles through a sister company.

It remains company policy to clear the building of waste by midday Saturday of each week to facilitate cleaning and maintenance works.

7. Olfactory Odour Monitoring

7.1 The effectiveness of site operational odour mitigation measures is monitored by the site manager / supervisor:

- On-going olfactory monitoring of waste treatment and transfer operations to determine the potential for odour to migrate beyond the boundary of the site
- AM and PM olfactory monitoring outside and downwind of the site
- Record actions taken in the site diary
- Engage non-operation staff to attend external odour surveys as operational staff are likely to be desensitised
- Appendix D presents the olfactory monitoring points internally and externally in relation to the site layout
- Extended (further afield) olfactory monitoring shall be undertaken at the discretion of the site manager / TCM if odour is present likely to cause a nuisance to neighbours

beyond the immediate vicinity. Such extended surveys shall be noted giving exact location, duration, type and intensity of odour

7.2 Triggers for abnormal operational conditions necessitate additional prevention and suppression measures and additional monitoring. Triggers can include:

- Areas of concern identified in routine checks (e.g. commercial waste containing black bags)
- Odour complaints received (visual monitoring for potential odorous waste should precede complaints as actions should be pre-planned and not reactive)
- Failure of equipment which means stockpiles may increase
- Accidents e.g. split load, odorous loads
- High temperatures
- Old waste

7.3 Any of the above may necessitate additional measures to prevent the generation and release of odour beyond the permit boundary. In these instances the site manager / supervisor will implement such additional measures to control the situation or failing to do so cease the activity precipitating the situation.

7.4 Closing the site to incoming waste streams may not resolve an abnormal situation but may prevent continuation over a longer period.

7.5 All monitoring activities should be recorded in the site diary including actions taken if required to resolve an incident. Review of prevailing weather conditions should be conducted before commencement of daily activities in order for pre-planned mitigating measures to be in place commensurate to expected conditions. A wind sock will be installed in an exposed position along the northern boundary to alert site management to prevailing wind directions. This will also determine the likelihood of changeable wind patterns and potential to shift to sensitive receptors at short notice and actuation of contingency plans.

7.6 Procedures should be in place to account for absence of the site manager / supervisor, ideally either one of the aforementioned should be in attendance at the site in conjunction with the site supervisor who shall have equal knowledge of this odour management plan.

7.7 As a final act of control, consideration should be given to prevent further inputs from a noted odorous source if prevailing conditions cannot be managed adequately.

7.8 Regular off-site odour surveys shall be carried out at the following times:

- 9.00 – 11.45 – 1400 – 1600

Surveys shall be conducted by non-operational staff to ensure a non-biased desensitise opinion is obtained. Findings shall be recorded on form “Odour and Dust Survey” and completed forms passed to the site supervisor / site manager as appropriate for action if required. A note will also be made in the site diary.

7.9 Ad-hoc surveys shall be undertaken should concerns about a particular waste stream become evident followed by the same recoding procedure as mentioned above. Visitors from regulating authorities should be accompanied by a member of the odour monitoring team to substantiate concerns relating to off-site odour.

7.10 Black bag waste is not accepted into site due to the known potential for odour and very limited recyclable items present within the waste. Any waste thought to be old or having an element of black bags will not enter the treatment process but placed immediately within the waste pile scheduled for disposal that day.

Degradable waste of any type will not remain on site for periods greater than 6 months to prevent the potential of odour and also remain compliant to the requirements of the fire prevention plan.

At the point of tipping, waste will be visually and orfactory checked for the presence of potentially odorous waste and if found will be treated as described previously.

Internal and external odour monitoring will be undertaken AM and PM at the points shown in Appendix D. At the discretion of the site manager a non-operation member of staff, ideally from the office team, may be asked to attend the external monitoring locations and report back to the management team and if odour is noted the manager or TCM will accompany them to the point where odour was noted.

The uninitiated are unlikely to be influenced by familiar waste odours and less likely to dismiss an odour when detected, it is therefore good practice to alternate the third person used for off-site odour surveys and when unaccompanied will not be influenced by operational staff who have amore intermate association with waste type odours.

8. Odour Suppression Equipment

8.1 A variety of odour suppression equipment is available on site, ranging from static fan assisted manifolds to fixed line misting systems and potable units. The table below illustrates the type, application and location of odour suppression equipment.

Table 6

Item	Type	Location	Number
Mist-air system	Fan assisted manifold	Main waste reception building	7
Mist-air system	Static misting manifold	Main waste reception building. Primary and secondary screener, conveyer belt and end of manual sorting line	8
Mist-air system	Static misting line	Above the entrance to the main reception and processing building	1
Potable units	Mobile	Entire site	1

The Mist-Aire system is designed to accommodate odour masking agents and neutralisers if required and is comprehensive in dispersion around the site due to its location for dust control.

The introduction of agents into the system shall be determined by the results of olfactory surveys and not persistently incorporated in the system for the following reasons.

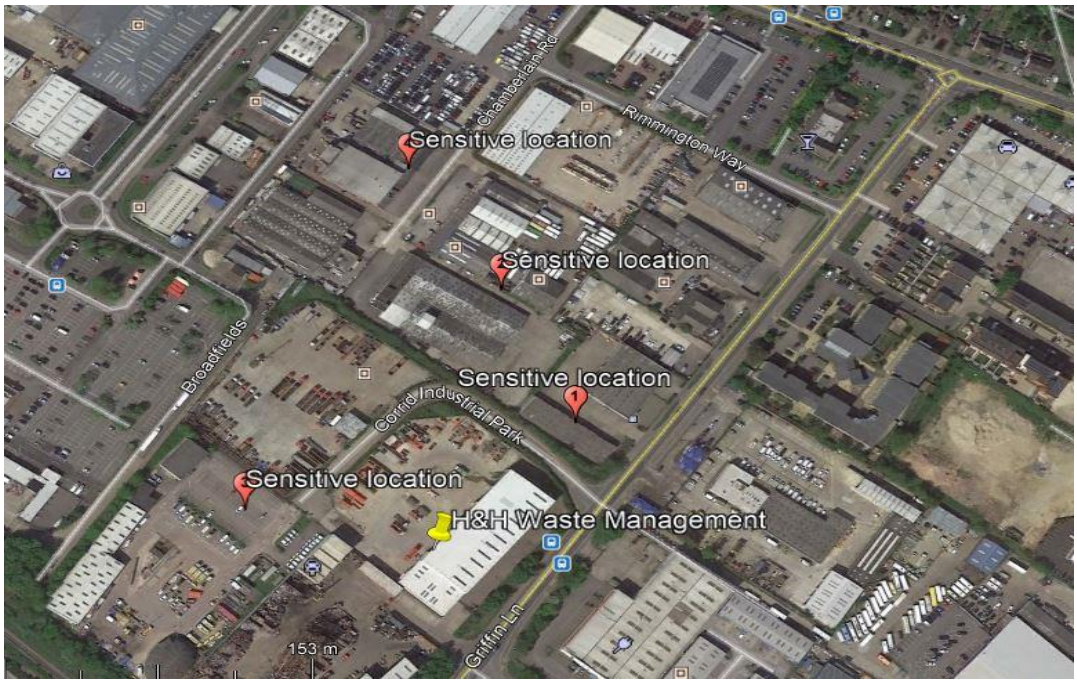
- Continuous use of masking agents tends to desensitise the recipient against the positive intention of the agent and in some instances cause a nuisance that would score on the Hedonic tone
- Although masking agents are plant based, their continual use could cause an adverse effect on site staff working within the influence of the spray
- Unnecessary use of resource materials causing increased operational cost

The use of masking agents and neutralisers shall alternate between the various types available in order not to desensitise or become a nuisance. Likewise, the strength of additives shall vary according to the perceived strength of any odour or trigger condition.

9. Sensitive Receptors

9.1 Any and all occupied premises within the locality of the site and influence of operations can be deemed as a sensitive receptors in as much as its occupied. However, from necessity, some must be considered more sensitive than others by virtue of their vulnerability.

Sensitive Receptor Plan



9.2

As mentioned previously, the site is located in the main industrial area of Aylesbury and is surrounded by the usual amenities found in a typical town of this size. The estate is surrounded by outlaying housing developments which includes the potentially sensitive locations mentioned below. These locations have been identified as being particularly sensitive but at some distance from the site are unlikely to be severely affected if odour is present.

- Pebble Brook School is some 980 metres to the southeast.
- Haydon Abbey Combined School is 600 metres to the north east
- Thomas Hickman School is 930 metres to the north west
- St Mary's Church of England School is 370 metres to the south west
- The Royal Buckinghamshire hospital is a little over 1,000 metres due east

Table 7

Boundary	Closest property	Approximate distance to Aylesbury Transfer Station boundary (m)	Up / Down wind of the site
South west	Local authority depot	0	Up wind
West	Supermarkets	200	Down wind
North west	Various supermarkets	230	Down wind
North	Various light commercial buildings	<50	Down wind
North	Various supermarkets	<300	Down wind

The wind rose presented below illustrates the prevailing wind direction in the location of the site.

9.3 The presence of other, third party, industries having the potential to give rise to odour is not known, therefore it is essential that regular olfactory monitoring is undertaken by persons not directly associated to daily waste operations to identify the type and nature of an odour and it's intensity.

9.4 Identifying the type and potential source of odour will help resolve any potential failure of the management system and expeditiously negate the impact on local amenities. It will also help to highlight the possibility of a third-party emission.

10. Complaints and Engagement with the Local Community

10.1 H & H Waste Management acknowledge their duty of care towards their neighbours, local community and environment and are aware of the importance of operating the waste treatment and recycling facility in a professional and responsible manner.

10.2 The site manager / TCM shall ensure comprehensive records are maintain on site pertaining to the performance of the odour management protocols and are available to the regulating authorities when required.

10.3 Regular site meeting shall be convened with interested parties being present and the prevailing performance of the management system, equipment and actions taken, discussed and minutes taken and disseminated to relevant interested parties.

10.4 In the event of complaints being received pertaining to the operation the site manager / TCM shall investigate the legitimacy of the complaint by verifying prevailing conditions at the time of the complaint. Reviewing site operations records, such as the site diary, prevailing weather conditions and managers inspection records for potential causes.

10.5 Details of the complainant shall be taken at the time of making the complaint which shall be communicated to the site manager / TCM to conduct an internal investigation. The aforementioned shall contact the complainant to inform them of the ensuing investigation and provide and estimation deadline to respond.

10.6 Should the investigation extend beyond the anticipated deadline the site manager / TCM shall contact the complainant to keep them appraised of progress and re-estimation of the new deadline.

10.7 Dealings with the general public and local commercial neighbours will remain sympathetic regardless of the validity of the complaint. If the situation dictates the site manager / TCM will visit the complainant to explain first hand the nature of the response.

10.8 Complaints received shall be discussed at the site monthly meetings and details reviewed for commonalities and trends. Actions shall be apportioned to individuals if required and plans produced to rectify perceived poor performance issues.

10.9 Complaints received to site shall be recorded on the appropriate complaints form which forms part of the company procedural management system.

11. Site Manger's / Supervisors Action List

Table 8

Trigger	Actions	Recorded Data
No triggers – normal site operations	*Normal operations mitigation measures.*	Record times of site inspections in site diary
	Daily inspections in and around the site compound for the possibility of any material that may give rise to odour. Insure Mist-air system is operational and sufficient deodoriser fluid is available. Keeping waste piles dampened down has a positive effect on odour release. Ascertain what waste is expected for the day, type and source. Check the weather forecast for prevailing conditions. Check with transport provider that sufficient vehicles are booked to export waste from site, ensuring stock rotation. Plan for any circumstances that has the potential to compromise the ability to prevent odour emissions. Daily olfactory monitoring at predefined points downwind of the site at known sensitive receptors.	Daily inspections must be entered into the site diary. Record vehicles number removing waste from site. Note the source of any malodorous loads and actions taken to prevent a recurrence. Any problems with transport must be communicated to the site manager to action.
Hot Humid Conditions	*Additional measures / actions.* Ensure all normal operating conditions have been met. Give precise instruction to weighbridge staff to be alert to malodorous loads inferred procedures are insufficient in these conditions. Be prepared to reject loads that appear odorous. Consider increasing the strength of the deodorising solution and locate the mobile unit to a position downwind of the potential source of odour. Increase frequency of olfactory monitoring at sensitive receptors.	
	Additional Monitoring. Increase routine site inspections to hourly depending on the severity of the wind and type of the waste. Before daily operations commence check weather forecast and plan site activities accordingly. The	Record weather conditions and subsequent actions in the site diary.

	placement of a wind sock / flag will aid decision making when ordering site activities.	
Trigger	Actions	Record Data
Problems identified during site inspections i.e. presence of odour on site and/or during routine off-site monitoring	*Additional measures / actions*. Ensure all routine mitigation measures have been completed. Check operational area for the possible source of odour and be prepared to suspend the activity. Call upon transport to remove malodorous waste from site at the earliest opportunity. Check Mist-air system is operating as expected and enlist the aid of non-operational staff to detect what odour is present.	Record all inspections in the site diary, noting actions and results.
Odour complaints	*Additional actions / measures.* Firstly check that all normal operating procedures have been completed. Record details of the complaint on the appropriate form. Check site diary for information concerning weather / site conditions for the corresponding date and time of the complaint. Should the complaint relate to current operations, investigate the potential source of the complaint and compare available data against the known location of the complainant. Respond to the complainant with findings of the investigation and actions taken, if any. Maintain vigilance for remainder of the day. Ensure the site, waste piles are secure during afterhours.	Ensure details of any complaints are noted in the site diary and appropriate forms completed. Ensure weather data is recorded for the day and following 24 hours.
Failure of plant and equipment	*Additional measures / actions.* Ensure normal operating procedures have been met. Check condition of waste stockpiles. Arrange for repairs and or, replacement equipment. Cease individual treatment activities until plant / equipment is operational. Suspend operations or reduce inputs to a controllable level. Increase frequency of site inspections and deploy additional resources if required.	Record all details of the event in the site diary. Inform the EA of plant failure, site closure.
Preplanning at the enquiry stage of a contract	At the enquiry stage of excepting a new customer a full understanding of the type of waste, components and source, whether this is varied or fixed should be obtained.	Note event in the site diary and discuss any special requirements with ops team. .

	Commercial team must pass this information to site management to help them prepare and have a full understanding of the type of waste expected	
High Wind	Examine the influence of the wind in relation to the facility layout and impact on waste storage. How does the wind react to narrow spaces and is it able to draw waste from the main building. Consider placement of large waste containers to disrupt the wind pattern.	As above but convey positive actions and results to fellow workers.
Malodorous load	Reload the waste if the delivery vehicle is still on site, inform the producer of the situation and pending action. If the vehicle has left site and no potential exists of it returning that day, arrange for external transport to remove the waste as soon as practicable	Continue to liaise with producer and inform the commercial department of the action taken

The continuous throughput at the transfer station results in the storage of waste not exceeding 6 months, which in itself is exceptional as the maximum turn-round for waste piles is 72 hours. Waste streams reliant on the commercial market for price stability have the potential to stagnate if prices are low, consequently, the time in storage exceeds the normal desired duration. In this event the site manager will take a commercial decision whether to remove the stored waste by whatever is the most cost-effective means to ensure stock is not held on site for long periods.

Daily inspection of the operations will be carried out by the TCM and site manager in the company of the site supervisor and their inspection will focus, amongst other items, on waste rotation, noting whether the rotation method is performing as required and waste materials are not stagnating.

Stock rotation is facilitated by employment of third-party haulage contractors utilising articulate vehicles with carrying capacity of 110m3 to either remove waste to landfill or further treatment. Regular shipments of waste enable continuous stock rotation and ensure no waste remains in storage for more than a week.

To ensure the principal of first in first out is achieved, waste is taken from the rear of the pile by a 360-degree excavator or wheeled waste handling machine and placed onto the conveyer belt and hence to the picking line. Fresh waste is added to the front of the pile and constantly pushed to the rear, continually replacing the waste and feeding the 360-degree machine. This ensures waste is constantly rotated and old waste is replaced by fresh material.

12. Housekeeping.

The site manager, TCM and supervisor shall be responsible for the implementation of housekeeping duties by detailing site operatives with tasks designed to maintain the visual standard expected of a modern waste management facility. It follows that a clean and tidy site negates the potential for a build-up of odorous waste especially in remote locations around the site. The list presented below should not be considered exhaustive but considered as a minimum.

- Daily collection of fugitive litter, especially in locations not often frequented
- Daily cleaning of plant and waste handling equipment to prevent a build-up of waste material
- Visual inspection of buildings and surfaces and detail cleaning parties if necessary
- Inspection and cleaning of drain gully's for accumulated silts
- Ensure chemicals are returned to lockable containers / buildings and lids are secure
- Impermeable surfaces should be kept clean and free of dust, the site mechanical road sweeper is ideal for this work
- As waste storage bays become free between batches of waste, detail work parties to sweep the area before more waste is added
- Ensure plant maintenance is carried out in accordance with the requirements stated in the fire prevention plan and environmental management system document
- Monitor weather forecast for adverse conditions that may affect operations and create entrainment of waste

13. Gypsum

- From the variety of waste types accepted and stored on site plasterboard containing Gypsum is perhaps the most likely to cause odour - if the conditions pertaining to its storage are not carefully managed.
- Gypsum is a naturally occurring mineral found and mined in various locations around the world. It is also a by-product of industry and because of its versatility and benefits within building construction, such as thermal barriers (dry wall lining), its application is widely used.
- Following the cessation of co-disposal at landfill sites Gypsum based products are either sent for recycling or to specific categories of landfill having a mono disposal cell. The very small quantity accepted and stored at Smith Recycling Limited proves uneconomical to send direct to landfill, assuming a suitable category site were nearby. Instead this waste stream is sent to third party facilities who handle much larger quantities and inevitably have agreements with plasterboard manufacturers to recycling the material.
- Plasterboard containing Gypsum becomes problematical when it gets wet and begins to degrade and anaerobic decay occurs. The microbes in these conditions biologically convert the sulfate in the Gypsum into hydrogen sulfide (H2S) by using organic wastes and water attached to the plasterboard. This reaction creates the foul-smelling gas often associated to rotten eggs and once generated can easily disperse into atmosphere where it can be detected as low as 200 ppm.

14. Training

- The site supervisor shall have overall responsibility of ensuring the requirements of this management plan are met and shall implement the procedures therein to the satisfaction of the site manager /TCM.
- In order to calibrate the sensory perception of each member of the site team, primarily the supervisor, simple sniff tests will be undertaken using common products that each is familiar with. Each product shall be identified by sniff testing and comparisons made of the perceived intensity of the odour. If all the requirements of this odour management plan are followed it is very unlikely that Gypsum waste will reach the stage of degradation and odorous, therefore it will not be possible to familiarize management staff with the characteristic odours associated with hydrogen sulphide as Gypsum becomes anaerobic. The written description as described in section 13 must suffice along with second opinions gained from other members of the management team.
- The site manager / TCM shall periodically accompany the supervisor on his rounds to ascertain that his perception of the presence, frequency, intensity, and offensiveness of odour remains factual. This will also serve to familiarize / remind other members of the management team with the procedure and be able to provide cover in times of absence of the supervisor.
- The primary purpose of this odour management plan is to identify waste having the potential to become odorous and exclude them prior to acceptance. Monitor for potential odours and take action should odour become apparent and before the odour becomes offensive to off-site receptors.

15. Summary

From production of this odour management plan has arisen a greater understanding of the potential sources of odour generation, likelihood of fugitive emissions entrainment and local receptors. With this knowledge, coupled with past experience of mitigating odour generation and controlling its entrainment, comes the ability to conduct waste treatment activities without posing a nuisance to local amenities and the environment.

Pre-operational planning is essential to ensure the days activities are controlled and managed in such a way as to negate the sites impact on the locality and immediate workforce. Understanding the potential for individual activities to generate odour, mitigate the likelihood before it occurs, rearrange procedures to correspond to prevailing conditions serves as a primary means of control.

Monitoring the performance of the odour suppression systems, types of equipment employed, staff awareness and training will ensure an effective odour management system incorporating all best available techniques.

It must be noted that the location of the waste treatment and transfer facility, being central within a busy industrial area, has the potential to be influenced by third party activities and by virtue of their business, also have the potential to generate odour

The waste acceptance procedure presented in Appendix F outlines the requirements of duty of care and iterates the protocols that are in place to prevent non-conforming wastes and those that may have the potential to be odorous.

It has been identified that plasterboard waste under certain conditions has the greatest potential to cause odour and therefore this plan is biased towards its control and management.

The Environment Agencies guidance H4- Odour Management has been consulted when compiling the actions of this management plan and where required using the acronym "FIDOR" as the basis to formulate the plan.

The level of engagement required with the local community is considered minimal at present but will change if adverse trends develop to the point of becoming a nuisance.

Odour diaries are not considered necessary taking into account the types, quantities, and past experience of operating the site, but records of odour surveys shall be made in the site diary, to include what actions were taken if applicable.

Hedonic tones have not been considered because of the factors stated previously but suffice it to say that hydrogen sulphide would score negatively were it present and released into the local community.

This odour management plan should be reviewed in conjunction with prevailing conditions at the site, personnel change over and prolonged abnormal conditions. It should also be read in conjunction with the EMS, FPP and other supporting management plans.

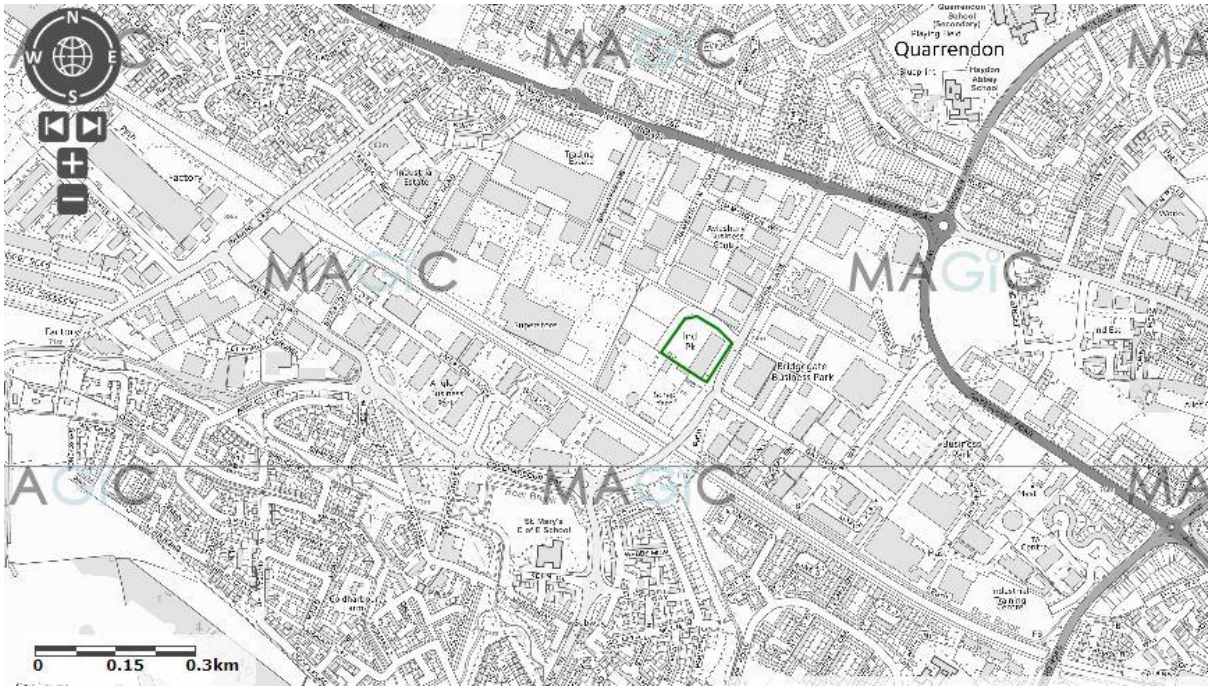
Should odours be detected off-site and found to be as a direct result of operations, then it must be considered that failure to adhere to this plan has occurred.

This odour management plan should be reviewed in conjunction with prevailing conditions at the site, personnel changeover and prolonged abnormal conditions. It should also be read in conjunction with the EMS and FPP.

APPENDIX

APPENDIX A

Site Location



APPENDIX B

Complaints Form

Date Received:	**Time Received:**

Complainant:

Complainant Contact Details:

Details of Complaint:

Details of Investigations:

Was the Complaint Justified?

Action Taken:

Response Given to Complainant:

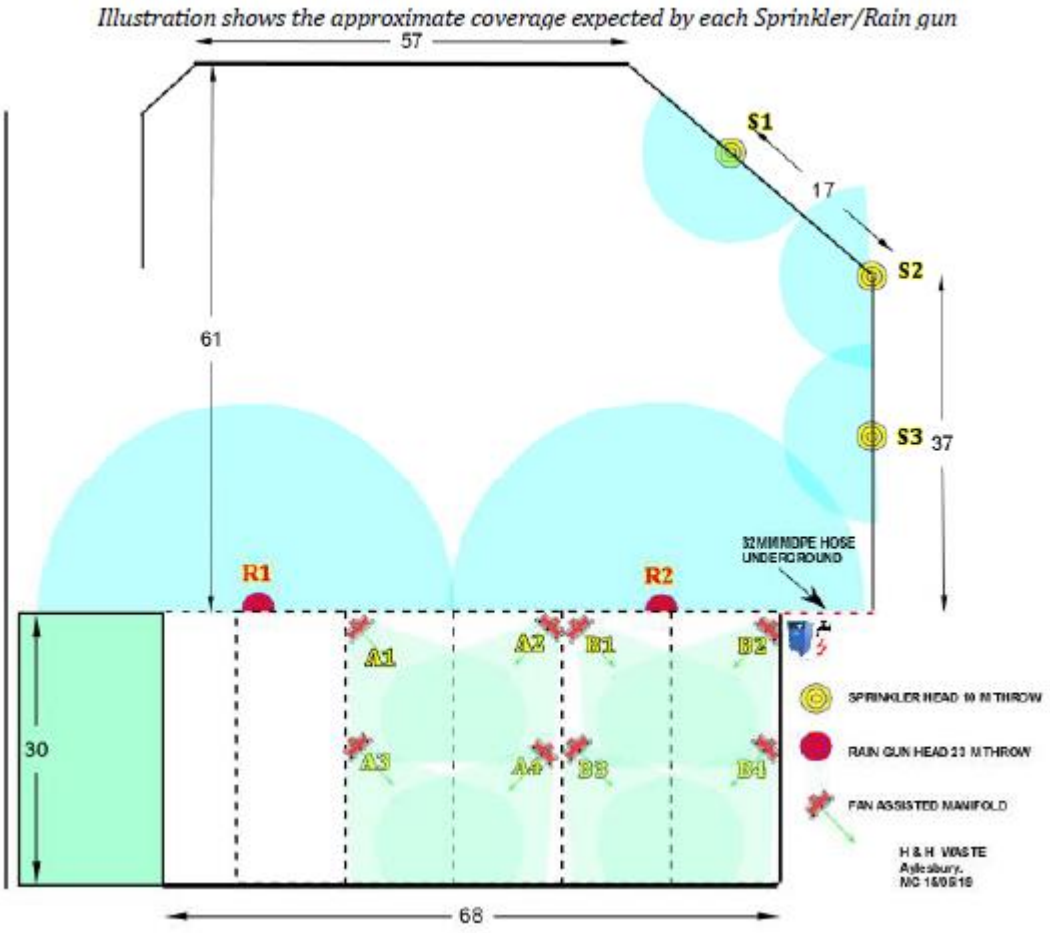
Form Completed By:	**Date:**

APPENDIX C

Site Layout and Features

APPENDIX D

Mist-Air System



APPENDIX E

Odour Monitoring Points

APPENDIX F

Waste Acceptance Procedure

Waste Acceptance / Duty of Care

All waste materials that enter the facility are subject to this waste acceptance procedure.

1. Waste Carriers Licence

1.1 Vehicles entering the site will do so via the weighbridge office, the vehicle will enter the weighbridge and the driver will report to the weighbridge operator.

1.2 All customers using the site will hold a valid waste carriers licence should they be required to do so. A copy of waste carrier's details will be retained on site for future reference.

1.3 Companies failing to produce a valid waste carriers licence will be allowed entry for disposal to prevent the potential for unlicensed disposal if rejected from site. The EA will be contacted and advised of the company's details. Further entry to site will be refused until such time that they are registered.

1.4 The site will keep a copy of the licence of regular customers for reference. Occasional customers will have to prove that they hold a valid waste carriers licence before tipping.

1.5 All companies making waste deliveries to site must hold a relevant waste carriers licence, operating under the auspices of another carrier is **not** permitted and, in this instance, vehicles will be refused entry.

2. Duty of Care Waste Transfer Note

2.1 All customers will have to show a copy of their duty of care document to the weighbridge staff unless an annual transfer note is in place. A list of the approved annual waste transfer note holders will be recorded and displayed at the weighbridge

2.2 The member of staff will check the material description and EWC code and confirm that this material is acceptable within the permit conditions. Should the transfer note be deemed incorrect, then the site checker will make the appropriate communications to the customer to rectify and clarify the right EWC code. Written confirmation is required from the customer when changing the original details of a transfer note.

2.3 It is the producer's responsibility to correctly describe the waste being carried and any subsequent alterations to delivery details will be carried out by the vehicle driver under instruction from the customer / waste producer. Any such changes will be noted in the site diary, recording details of the transaction. The site manager / TCM will be informed of such occurrences.

2.4 In the scenario mentioned above the vehicle delivering the waste will be singled out for closer inspection at the weighbridge and at the disposal point to ensure the waste has not been miss-described. Any failure at this point, the vehicle will be subject to the rejected load procedure

2.5 A copy of the site permit and in particular schedule 2, table 2.2, will be displayed in a prominent position in the weighbridge office for reference when required. The site manager or TCM will hold "tool box talks" at regular intervals to discuss such matters as waste acceptance procedures and attendance records will be kept for future reference.

3. Issuing the Ticket

3.1 A weighbridge ticket will be issued by the site checker and this will detail the following:

- Customer
- Haulier
- Material Description / EWC Code
- Producer location
- SIC Code
- Volume / material weight
- Date
- Site Weighbridge Operator & Drivers signature

3.2 When all checks are complete, and the site checker is satisfied that accepting the waste conforms to the conditions of the site permit, a weighbridge ticket will be issued and signed by both parties. The waste delivery driver will retain a copy, likewise the site checker who will append the transfer note accompanying the load to the weighbridge ticket.

3.3 The waste will be rejected if the documentation is incorrectly filled out, required entries missing or the waste description does not match the requirements of the site permit. Waste rejection procedures will apply in all instances in this regard. (the waste carrier / producer will be given the opportunity to rectify errors on the waste transfer note by demonstrating the authenticity of the waste and correct paperwork)

4. Visual Inspection of the Load

4.1 When waste materials arrive at the site they will be assessed against the details stated on the accompanying transfer note.

4.2 A visual and olfactory assessment will then be conducted by the site checker if the type of container allows this action.

4.3 The waste will be visually checked at the point of disposal by the site operative designated to undertake this role. The operative will be familiar with the conditions of the site permit and in particular table 2.2. Any waste that are not listed in table 2.2 will not be accepted for disposal.

4.4 The operative will inform the site manager and customer if the load is considered non-compliant.

4.5 If the load is non-compliant with the permit conditions then the rejected load procedure will be followed.

4.6 Where there is uncertainty regarding the conformity of the load or where the vehicle has already left the site the quarantine area will be utilised for temporary holding of the waste. The quarantine area will be located on the impermeable base only.

4.6 All materials received at the site which require treatment under the permit will be deposited within the waste reception areas on the impermeable base.

4.7 Strict adherence to waste acceptance procedures will proactively reduce the potential of reactions between different waste types.

5. Non-conforming waste

5.1 Rejected Load Procedure

5.2 Any loads identified as unacceptable prior to tipping shall be isolated, prevented from tipping, the driver, customer, and site manager / TCM informed, and the most appropriate course of action agreed between all parties.

5.3 If the non-conforming waste is hazardous the Environment Agency will be consulted on the best course of action, which may result with the vehicle being redirected to another, suitably permitted waste facility or returned to the waste producer.

5.4 Any load or part load identified as non-conforming waste at the point of discharge shall be reported to the vehicle driver prior to leaving the site and the site manager / TCM informed. Photographic evidence shall be obtained. Appropriate action will then be decided upon in accordance with 5.3 above.

5.5 Details of rejected waste will be kept on site; this will include time and date, haulier and vehicle registration number, producer details, type of waste and reason for rejection.

5.6 In the event of a waste being rejected discussions will be held between Smith Recycling Limited and the customer/haulier to determine why the waste was rejected and what measures must be put into place prior to the acceptance of any further waste loads from the same source.

5.7 It is unlikely that a malodorous load will be noticed before the point of tipping as the weighbridge office is restrictive for the clerk to ascertain the full extent of the load. However, suspicions noted at this point can be conveyed to the site supervisor who will carry out checks at the tipping point of the waste reception building.

5.8 The site supervisor shall make a judgement of the extent of odour present and whether it has the potential to cause a nuisance either at that time or later and he shall consider this against the type of waste, intended treatment process and resultant period of storage on site. These factors shall determine whether the load should be accepted or rejected from site. If there is doubt, the supervisor will seek advice from the site manager / TCM and together decide the most suitable course of action.

If the load has been tipped and found to be odorous or potential to be, the waste shall be immediately added to the pile awaiting export from site. The matter shall be discussed with the management team who will contact the haulier / producer to agree a protocol that prevents odorous waste coming to site.

Odorous waste will not be stored in the quarantine area as this is set-aside for emergencies but added to the waste pile destined for off-site disposal at the earliest opportunity, which must be no longer than the following day or if approaching the weekend, the same day.

5.9 Such events as those mentioned above will be noted in the site diary and form the topic of the next scheduled Tool Box Talk to evaluate the performance of site procedures pertaining to waste acceptance.

Waste Acceptance Flow Chart