

Odour Management Plan

Babraham Research Campus Limited

Application Reference: EPR/WE3374AB/A001

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Appendix A Waste Inventory

1 INTRODUCTION

This document is the Odour Management Plan that accompanies the application for a bespoke environmental permit for the site located at Babraham Hall, Babraham, Cambridge, CB22 3AT. The site is located at National Grid Reference TL 50526 50613 .

The application is to encompass several waste activities, including the bulking and storage of non-hazardous and hazardous, clinical, and WEEE wastes for onward transfer to appropriately permitted operations for further recycling or disposal for onward transfer to appropriately permitted operations for further recycling or disposal.

Site will also compact dry mixed recyclables and municipal wastes, to be bulked and then for transferred offsite for further recycling. Finally, a small-scale composting operation will be undertaken for the purpose of land-spreading on the surrounding pastureland to facilitate the maintenance and upkeep of the wider BRC estate.

The volumes of waste stored on site at any one time are limited. In the unlikely event that all wastes are stored at their maximum at the same time there would be no more than 40 tonnes on site. Of these approximately 25 tonnes would have the potential to be odorous, and are therefore covered in this Odour Management Plan (OMP).

Maximum annual throughput sought is 5000 tonnes, in reality it is unlikely that this level will be achieved but provides future capacity in the event of expansion of the campus. Where this is the case this OMP would be reviewed to ensure all potentially odorous wastes and activities are identified and adequately mitigated.

The proposed activities at site are directly linked to the campus and the companies that operate within it. All wastes detailed within this document and those supporting the application originate from campus activities.

This OMP identifies potential odour issues and proposes mitigating measures that can reduce adverse impacts, and has been drafted using the EA OMP template.

The OMP should be read by the Technically Competent Manager (TCM), site staff, contractors working on site, and the Environment Agency (EA).

1.1 Site Description



Figure 1 Aerial image of the site, showing the permit boundary in green.

The site, operated by Babraham Research Campus, is located within the wider Babraham Estate, located within the village of Babraham. Site is located approximately 9 km south-east from Cambridge, 755 m west of the A1307 and, 1.6 km west of the A11. The location is shown on the Permit Boundary Plan (K436.1~20~001) and within Figure 1 above. The site covers an area of approximately 0.3 ha.

Surrounding land use is predominantly parkland, agricultural, and commercial/research in the campus to the east, and residential in the village of Babraham to the south-east. The wider area is also populated by agricultural areas.

The site is underlain by an impermeable surface on which three buildings sit, with a dedicated access point into the yard area. The yard area at the forefront of the site is where waste compaction operations are undertaken alongside storage for municipal offensive waste storage. The building immediately to the left of the site entrance is used primarily for storage of WEEE wastes. The building located on the northern boundary is used for the storage of clinical wastes. The bottom left corner on site is reserved for the composting operation. These activities and storage areas are indicated on the Site Layout Plan (K436.1~20~003).

1.2 Maintenance & Review of the OMP

The TCM is responsible for the OMP and ensuring people are trained. The plan is stored in the site office. The OMP will be reviewed annually or following a substantiated odour complaint.

All personnel shall be trained in the procedures for which they are responsible, including any reporting and contingency procedures. Records of all training shall be maintained and reviewed in accordance with BRC's written Management System.

All staff or contractors working on site must not undertake any work for which they are not competent – except under the careful instruction and supervision of a competent person.

Site specific inductions must include relevant aspects of the health and safety, environmental and quality policies, documentation, risk assessments, and emergency procedures. Further training will be provided if skills decline when not used regularly, and refresher training will be provided as necessary to ensure continued competence. Information from personal performance, health and safety monitoring, accident investigation and near-miss incidents are to be used to identify any gaps in skills and competence.

1.3 Relevant Sector Guidance

This OMP has been produced in accordance with the following guidance:

- H4 Odour Management¹; and
- Control and monitor emissions for your Environmental Permit²
- Environment Agency Odour Management Plan Template, v2 dated 05/05/2021

¹ [Environmental permitting: H4 odour management - GOV.UK \(www.gov.uk\)](https://www.gov.uk/guidance/environmental-permitting-h4-odour-management), published 4 April 2011

² [Control and monitor emissions for your environmental permit - GOV.UK \(www.gov.uk\)](https://www.gov.uk/guidance/control-and-monitor-emissions-for-your-environmental-permit), updated 24 November 2022

2 RECEPTORS

2.1 Receptor List

A receptor is the object (e.g., person, organism, resource, or property) impacted by a hazard. For example, odour may cause offence to a human (the receptor). When identifying receptors which may be at risk from the site, the following have been considered:

- Occupants of the campus and Estate
- Homes, or groups of homes
- Factories and other businesses
- Playing fields and playgrounds
- Schools, hospitals, and other public buildings
- Ancient woods
- Locations used to grow food or to farm animals or fish
- Footpaths
- Roads and railways
- Conservation areas, habitats, and protected areas and areas of scientific interest

Sensitive receptors within 1 km of the permit boundary are shown on the Sensitive Receptor Plan (K436.1~20~002). The IDs on the Sensitive Receptors Plan correspond to the Receptor List (Table 1) below.

Detailed risk assessment is provided in the Environmental Risk Assessment (in particular ERA8) which sets out information on how risk of odour is managed and mitigated, details of monitoring on and around site, and contingency measures implemented in the event of accident, emergency or abnormal event.

Table 1 Sensitive Receptor List (1 km)

RECEPTOR TYPE	ID	DESCRIPTION	DISTANCE (M)	DIRECTION	SENSITIVITY TO ODOUR
HUMANS AND PROPERTY	-	Site Workers	On site	-	High
	-	Site Visitors	On site	-	High
	INHABITANTS OF RESIDENTIAL PROPERTIES				
	1	45/46 Rowley Lane	135 m	S	High
	2	Residential Close off of Sawston Rd	400 m	SSW	Medium
	3	42 High Street	690 m	SE	Low
	4	Residential Dwellings off High Street	695 m	SE	Low
	5	Residential Dwelling 'The Close'	750 m	ESE	Low
	6	Oak Ln and High Street Residential Dwellings	945 m	ESE	Low
	7	Residential Dwelling off A1307 Cambridge Rd	970 m	N	Low
	SENSITIVE PUBLIC USE				
	1	Babraham Church of England Primary School	485 m	SE	Low
	2	Babraham Nursery	895 m	E	Low
	COMMERCIAL USE				
	1	Babraham Research Campus Site	<5 m	SW	High
	2	Babraham Research Campus Site	<5 m	SE	High
	3	Babraham Research Campus Site	225 m	E	High
	4	KWA Architects (Cambridge) and George Inn	785 m	SE	Low
	5	Construction Site - Bennett Wy and Railway Cl	950 m	WSW	Low
	RECREATIONAL AREAS				
	1	Open Field by Babraham Cricket Club	290 m	SSE	Low
	2	Babraham Cricket Club	450 m	SSE	Low
	3	Open Field by Babraham Research Campus and Residential Dwelling (5)	515 m	E	Low
	AGRICULTURAL				
	1	Allotments Alongside the Site	<5 m	E	Medium
	ROADS AND RAILWAYS				
	1	Rowley Ln	140 m	SSW	Medium
	2	Sawston Rd	545 m	SW	Low
	3	Babraham High Street	600 m	SE	Low
	4	A1307 - Cambridge Road	755 m	NE	Low
	PUBLIC RIGHTS OF WAY				
	1	Public Right of Way - Footpath	160 m	E	Medium

RECEPTOR TYPE	ID	DESCRIPTION	DISTANCE (M)	DIRECTION	SENSITIVITY TO ODOUR
	2	Public Right of Way - Footpath	435 m	S	Low
	3	Public Right of Way - Footpath	610 m	SW	Low
WATER	SURFACE WATER				
	-	River Granta	225 m	E	Low
	-	Small Pond/Area or Surface Water Within Babraham Research Campus	525 m	SE	Low
	-	Small Ditch or Brooke within Residential Area 6	930 m	E	Low
	DESIGNATED SITES				
	-	No designated sites within 1 km			
	NON-STATUTORY DESIGNATED SITES				
	1	Priority Habitat - Deciduous Woodland	5 m	SE	High
	2	Priority Habitat - Deciduous Woodland	20 m	NW	High
	3	Priority Habitat - Coastal and Floodplain Grazing Marsh	90 m	E	Medium
	4	Priority Habitat - Deciduous Woodland	160 m	SE	Low
	5	Priority Habitat - Deciduous Woodland	245 m	NW	Low
	6	Priority Habitat - Deciduous Woodland	250 m	N	Low
	7	Priority Habitat - Deciduous Woodland	400 m	SE	Low
	8	Priority Habitat - Traditional Orchard	510 m	SE	Low
	9	Priority Habitat - Lowland Meadow	615 m	SSE	Low
	10	Priority Habitat - Deciduous Woodland	680 m	NE	Low
	11	Priority Habitat - Deciduous Woodland	710 m	SE	Low
12	Priority Habitat - Deciduous Woodland	760 m	N	Low	
13	Priority Habitat - Deciduous Woodland	910 m	SSE	Low	
HERITAGE SITES	LISTED BUILDINGS, PARKS & SCHEDULED MONUMENTS				
	1	Parish Church - St Peter's Church - Grade 1 Listed Building	205 m	E	Low
	2	Babraham Hall - Grade 2 Listed Building	490 m	E	Low
	3	Church Farmhouse - Grade 2 Listed Building	560 m	S	Low
	4	Nine Grade 2 Listed Buildings	790 m	SE	Low

2.2 Wind Rose & Weather Data

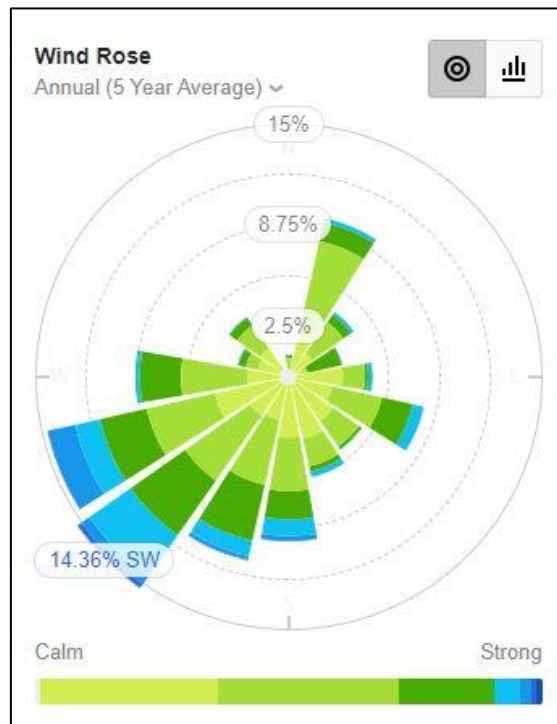


Figure 2: Andrewsfield wind rose. Annual 5-year average, 2018 - 2023 (willyweather.co.uk).

The closest observing station where wind statistic data is available is at Andrewsfield, approximately 30 km south-east of the permit boundary.

Figure 2 presents the wind statistics on a wind rose as an 5 years' average using data from 2018 to 2023).

The wind rose indicates that the sensitive receptors located towards the north-east. and east northeast of the site are potentially at greatest risk from odours transmitted through the air.

3 SOURCE OF ODOUR & SITE PROCESSES

The Environmental Risk Assessment identifies the following potential hazards of greatest significance:

- Fugitive emissions of odour relating to the composting operation on site
- Emissions of odour in relation to clinical and municipal wastes.

3.1 Materials Entering & Leaving Site

Various waste streams are accepted onto site and collected through often daily collections from the adjoining BRC facilities and the associated tenants. All wastes accepted originate from this source with no wastes accepted from outside companies.

Primarily, clinical, general municipal wastes, and those relating to the composting operation will offer the greatest potential for odour generation on site. However, and as outlined within the remainder of the documents supporting this permit application, the wastes accepted are of small quantities, containerised and storage time on site is minimised.

3.1.1 Clinical Wastes

Tenants as part of the wider BRC site are provided with clear instructions on the disposal of biological and clinical wastes. The various clinical wastes accepted are subject to daily collections by BRC staff and as clinical waste, all material once collected is matched to the electronic records kept by tenant companies to ensure waste is categorised correctly once on site. Wastes are from research facilities within the campus.

No wastes are collected unless accompanied by the appropriate form declaring the contents of the bagged waste and the official sticker with waste identification details is placed on the bag.

These wastes are loaded into 770L bins and stored on site until an economic load is developed. At this point collections are organised for dispatch of the waste to an appropriately permitted facility.

Waste consignment notes are generated on dispatch to these contractors.

3.1.2 General Municipal Wastes & dry mixed recyclables

As with other wastes on site, general municipal waste originates from the tenants on the BRC campus and is collected daily by BRC site staff. Once deposited on site, they are subject to compaction in the main yard and stored either within a 40-yard skip or the 32-yard compactor skip until a load is developed for dispatch to an appropriately permitted facility.

The procedure for waste rejection is detailed in the written Management System.

3.1.3 Compostable waste

Composting operations are minor in scale and undertaken within the western corner of site within two static fully sealed composters with capacity of 6 to 8 tonnes each.

The majority of the waste is generated through the ground's maintenance activities of the wider campus landholding, and is supplemented by limited volumes of other organic wastes generated by tenants within the campus. These materials are collected daily.

The compost produced by this process is used directly on the campus's own land holding around the campus.

The incoming material is temporarily (up to 1 week) stored in sealed 770/1100 litre bins before being loaded by a bin lift mechanism into one of the composters.

The waste is then mixed and water added, aerated and mixed for a minimum of two weeks, and up to four weeks.

Whilst one of the composter is running, the other composter is used for storage of the subsequent loads, until 50% of the capacity is reached and the process is repeated.

The composting process on site is very small in scale:

- The annual throughput of the composting process is 110 tonnes per year.
- The maximum amount of compostable waste stored at any one time is 16 tonnes.

Waste accepted on site for the composting operations are the following:

- Green waste from ground care operations (EWC code 02 01 03, 02 01 07).
- Biodegradable kitchen and canteen waste (EWC code 20 01 08, 02 03 01).
- Autoclaved animal bedding (EWC code 02 01 06, 18 02 03). The waste is autoclaved before being put out for collection by the producers and therefore it arrives to site sterilised

Daily checks on odour generation are made around the static composters and the extended site. As this process is low volume and carefully managed, malodour impact have not been an issue, however where issues are identified the TCM will instigate necessary actions to remedy, and in the extreme remove any malodorous material from site. has never Where issues are

3.2 Odorous Materials

Table 2 overleaf outlines the potentially odorous materials and their location on site.

Table 2 Odorous Materials

Odorous and potentially odorous material	Odour potential	Location of odorous materials on site
Clinical wastes	YES	Clinical wastes containerised and stored within a building on northern boundary – see Site Layout Plan (K436.1~20~003).
Municipal Wastes	YES	Municipal wastes containerised in main yard area – see Site Layout Plan (K436.1~20~003).
Compostable waste	YES	Composting operation located in south-west corner – see site layout plan (K436.1~20~003)

For a full inventory of wastes, identifying odour potential and risk, quality limits, and storage times, please see Appendix A

3.3 Overview of Odorous Processes & Emissions

Operations on site are limited to bulking and storage for the majority of the wastes accepted onto site. Clinical and WEEE wastes are merely bulked until an economic load is achieved and they are then sent to an appropriately permitted facility for recovery. Clinical wastes are accepted onto site pre-segregated and bagged in accordance with procedures described within the management system.

These wastes are containerised on site, labelled in accordance with their contents until they are dispatched to an appropriately permitted contractor.

Municipal wastes are compacted and stored within the accompanying container (32-yard skip) or an additional 40-yard skip. Depending on the contents, there is potential for minor odour through the compaction process. This is offset as wastes are containerised and in small quantities, and therefore unlikely to present a significant odour issue.

Composting on site is contained and sealed, and of limited volume. As a result odour impact is unlikely and would be intermittent in nature if it did occur.

The site is equipped with mobile plant. All equipment is periodically inspected in accordance with manufacturers' guidance and manuals, to ensure the plant and equipment is available for work when required.

The site is operated in accordance with written procedures incorporated within BRC's Management System. All procedures: identify the potential hazards; include written instruction on how to undertake tasks; and specify the required control measures (including PPE and safety equipment). Each procedure is accompanied by an activity risk assessment.

4 CONTROL MEASURES & PROCESS MONITORING

4.1 Appropriate Measures

Table 3 below outlines the risk level and associated control measures to mitigate the risk of fugitive odour emissions from site.

The site is manned throughout the day, and informal odour checks are constantly undertaken. These are extended to similar checks across the campus, and surrounding areas.

The site has operated in this way for a number of years without significant odours being noted beyond the site boundary, and without complaint from neighbours or Campus tenants.

Table 3 Monitoring Procedures for Appropriate Measures

Odorous and potentially odorous process / material	Risk Level	Control measures (Appropriate Measures)	Monitoring frequency	Retained Risk Level
Composting operation	MEDIUM	<ul style="list-style-type: none"> • Composting operation is of small scale (under 80 tonnes per annum) and to support the maintenance of the wider BRC campus to be used on pasture within the site. • Wastes collected for use within the composting operation is containerised and in small quantities (collected within 1100l and 770l bins). • Prevailing wind would transport odour emissions over agricultural land initially before reaching commercial receptors approx. 360 m from site. 	<ul style="list-style-type: none"> • Odour checks made as part of daily housekeeping checks and site staff are trained to remain vigilant throughout the operational day. 	LOW
Clinical Wastes	MEDIUM	<ul style="list-style-type: none"> • Clinical wastes are only collected and accepted onto site if appropriately bagged and labelled. • All clinical wastes are containerised on site. • All clinical wastes are stored internally within a building. • Wastes do not undergo any treatment, are merely stored and bulked awaiting transfer to appropriately permitted facility. 	<ul style="list-style-type: none"> • Informal monitoring throughout the day and as part of daily housekeeping procedures. 	LOW
Municipal Wastes	LOW	<ul style="list-style-type: none"> • Municipal wastes collected are stored within containers on site. • Short turnaround time from receipt to onward transfer. • Small quantities stored on site. 	<ul style="list-style-type: none"> • Informal monitoring throughout the day and as part of daily housekeeping procedures. 	VERY LOW

5 REPORTING & COMPLAINTS RESPONSE

The Technically Competent Manager (TCM) is responsible for responding to complaints and implementing the complaints procedure. All complaints will be investigated within 24 hours upon receipt.

Upon receipt of a complaint, either directly from a neighbouring resident or indirectly via the Regulator. The following information will be requested from the complainant:

- Name;
- Address;
- Contact details;
- Date(s) and time(s) to which the complaint relates; and
- Nature of the complaint and any other details which may assist in the identification of the source, activity or circumstances which prompted the complaint.

The timings and description of the complaint will be analysed in conjunction with the activities and meteorological conditions logged on site without delay to identify the odour source. The complainant may be asked to keep ongoing log for correlation with the site operational log. Once the source or activity is identified suitable mitigation measures will be implemented without delay to prevent odour emissions.

The details of the complaint and any subsequent investigation will be recorded with relevant information retained.

5.1 Complaints Reporting

Records relating to management review, complaints, internal audits and inspections are held for a minimum of six years.

All complaints will be acknowledged and investigated by the TCM, or nominated person, with resultant actions reported to the complainant and the EA.

5.2 Community Engagement

On receipt of a complaint, the TCM, or nominated person, will investigate the complaint to swiftly rectify the source.

Where contact details are made available, the complainant will be contacted within 24 hours to check that the mitigation measures rectify the issue.

Where additional time is required to undertake repair or replacement of infrastructure which has caused the complaint, the complainant will be contacted with details on the actions being taken and the estimated timescale for completion.

5.3 Pro-active Odour Monitoring

The TCM and site staff will monitor odour periodically throughout the day (at least twice). Any adverse observations, that are directly attributed to the site's activities, will be recorded and retained.

5.4 Reactive Odour Monitoring

On receipt of a complaint, the TCM, or nominated person, will investigate the complaint to swiftly rectify the odour source. Odour checks at both the source and permit boundary will be carried out by the TCM, or nominated person, to check if the mitigation measures rectify the issue.