Caulmert Limited

Engineering, Environmental & Planning Consultancy Services

Whisby IBA Processing Facility

Lincwaste Limited

Environmental Permit Variation Application

Odour Management Plan

Prepared by:

Caulmert Limited
Office: Strelley Hall, Main Street, Strelley, Nottingham, NG8 6PE
Tel: 01773 749 132
Email: andystocks@caulmert.com
Web: www.caulmert.com

Document Reference: 5671-CAU-XX-XX-RP-V-0304.A0.C1

August 2023

Caulmert
engineering environmental planning

APPROVAL RECORD

Site: Whisby IBA Processing Facility

Client: Lincwaste Limited

Project Title: Environmental Permit Variation Application

Document Title: Odour Management Plan

Document Ref: 5671-CAU-XX-XX-RP-V-0304.A0.C1

Report Status: **Final**

Project Manager: Andy Stocks

Caulmert Limited: Strelley Hall, Main Street, Strelley, Nottingham, NG8 6PE

Author	Samantha Hayden Environmental Consultant	**Date**	08/02/2023
Reviewer	Andy Stocks Director of Environment	**Date**	05/07/2023
Approved	Andy Stocks Director of Environment	**Date**	05/07/2023

Revision Log			
Revision	**Description of Change**	**Approved**	**Effective Date**
C1	Initial Release	AS	17/08/2023

DISCLAIMER

This report has been prepared by Caulmert Limited with all reasonable skill, care and diligence in accordance with the instruction of the above named client and within the terms and conditions of the Contract with the Client.

The report is for the sole use of the above named Client and Caulmert Limited shall not be held responsible for any use of the report or its content for any purpose other than that for which it was prepared and provided to the Client.

Caulmert Limited accepts no responsibility of whatever nature to any third parties who may have been made aware of or have acted in the knowledge of the report or its contents.

Odour Management Plan

TABLE OF CONTENTS

DRAWINGS

5671-CAU-XX-XX-DR-V-1800	Sensitive Receptors Plan
722A167A	IBA Processing Pad – General Layout

1.0 INTRODUCTION

1.1 Background

1.1.1 Caulmert Limited have been appointed by Lincwaste Limited ('the Operator'), a wholly owned subsidiary of FCC Environment Limited, to prepare an environmental permit variation application to vary their existing permit for Whisby Landfill Site to include for an IBA Processing Facility within the permitted installation boundary. As part of this, an Odour Management Plan (OMP) for the site is required.

1.1.2 It is proposed to accept up to 70,000 tonnes per annum of IBA wastes for processing at Whisby Landfill. The Operator proposes to vary their existing permit to add a 'Schedule 5.4 A(1)(b)(iii) activity for a mix of recovery and disposal of non-hazardous waste with a capacity exceeding 75 tonnes per day involving treatment of slags and ashes'.

1.1.3 This activity will involve processing Incinerator Bottom Ash (IBA) wastes at the site to remove ferrous and non-ferrous metals for recycling, producing an IBA Aggregate (IBAA) and disposing of the remaining IBA residues by landfilling at Whisby.

1.1.4 Odorous emissions from IBA storage and handling activities on Site are not anticipated to cause pollution beyond the site boundary and consequently this document sets out control measures and actions that will be implemented should odour become an issue.

1.2 Objectives

1.2.1 This Odour Management Plan provides a means of assessing the effectiveness of control measures at the site. The proposed Odour Action Plan should be implemented in cases of failure of control measures and odour emission events. This document also reviews the current procedures for investigating odour emission events and includes reference information on the understanding of odour nuisance.

1.2.2 This Odour Management Plan has been prepared with reference to the Environment Agency's technical guidance 'H4 Odour Management – How to comply with your environmental permit' published April 2011, and to the 'Best available techniques for the assessment and control of odour' published June 2005.

1.2.3 In addition, an 'Environmental Risk Assessment' has been produced as part of this permit variation application which considers any potential risks (including odour) associated with the proposed operations, under document ref. 5671-CAU-XX-XX-RP-V-0302.

1.2.4 The operator intends to use this OMP during the expected operational life of the landfill IBA Cells 1-4 and IBA Processing Facility. The Plan will be reviewed on a regular basis, and when a new element of site infrastructure is introduced or changes to the permit are proposed, as is the case with this most recent permit variation.

1.3 Site Location & Setting

1.3.1 Whisby Landfill Site is located approximately 8km to the southwest of Lincoln and 3km west of North Hykeham, off Thorpe Road, in Whisby. The area of the proposed IBA Processing Facility (hereafter referred to as 'the Site') is within the Whisby Landfill Site permitted area, centred on National Grid Reference SK 89647 66699.

1.3.2 The Site is accessed from Eagle Road to the north of the landfill. The landfill is permitted to accept 49,900 tonnes per annum of non-hazardous waste for disposal and 50,000 tonnes per annum of wastes for restoration.

1.3.3 The area proposed for the IBA treatment and storage area (IBA Cell 1) is predominantly surrounded by the existing landfill infrastructure. Whisby Landfill Site is located within an agricultural setting, with fields and water bodies associated with former sand and gravel pits surrounding the landfill site to the north, east, south and west.

1.3.4 The closest residential receptors are houses on Thorpe Road 415m to the northeast and Station Road 460m to the southeast. Crossing Gate Poultry Farm (and Sam's Auto Car Repairs Garage) is located 610m to the southwest and there is a row of houses on Eagle Lane 690m to the southeast. There are no schools or hospitals within 1km of the Site.

1.3.5 Tarmac Whisby Sand and Gravel Quarry is located 25m to the north of the Site and some commercial premises have been identified on Thorpe Road including The Railway Inn 480m southeast and TFM Country Store (a pet and animal feed store) 760m northeast. Lincoln Radio Sailing Club is also located 660m to the southwest.

1.3.6 An indicative site location plan of Whisby Landfill Site is shown below in Figure 1. The proposed IBA Cells 1-4 and IBA Processing Facility will sit within the permitted landfill site boundary in the north-western portion of the site (inside the blue line on Figure 1).

Figure 1 - Site Location (source: Google Earth, 2023)

1.4 Site Operations

1.4.1 The operator proposes to operate an IBA Processing Facility, to receive IBA from FCC-owned Energy from Waste (EfW) sites: FCC Eastcroft EfW and FCC Lincoln EfW. The operator also proposes to develop four new landfill cells (IBA Cells 1-4) for the deposition of IBA wastes.

1.4.2 The proposed Facility will use the following mobile plant in one half of IBA Cell 1, which is within the footprint of the permitted boundary of Whisby Landfill Site, to treat IBA waste and move material around site:

- Mobile sieve machines
- Eddy current separators with vibrating feeders
- Hand-sorting station with conveyors and overbelt magnets
- Front-loading shovels
- Dumper trucks

1.4.3 The purpose of the mobile plant will be to allow for the removal of ferrous and non-ferrous metals, separating out IBA Aggregate (IBAA) and disposing of the remaining IBA residues within the landfill (into IBA Cells 1-4). The activity will require the temporary storage of IBA waste pre- and post-treatment in stockpiles and also of the separated metal fractions. The IBA residues will be disposed of by mono-filling, whilst the recovered metals will be sent for recycling off-site and the IBAA will also be sent off-site for re-use.

1.4.4 The site will accept and treat up to 70,000 tonnes per year of non-hazardous IBA waste as a mix of recovery and disposal activity, with the temporary storage of up to 140,000 tonnes of unprocessed IBA wastes at any one time during the maturation stage on the pad. It is anticipated up to 20,000 tonnes per year of IBAA will be separated out for export off-site and up to 7-8% removed as recovered metals, to be sent for recycling.

1.4.5 The IBA processing and temporary storage of unprocessed and processed IBA wastes and metals will take place on the base of the newly constructed IBA Cell 1 at the site.

1.4.6 The IBA will be sampled at the source site for analytical testing prior to arriving at Whisby. Incoming IBA will be stored in separate stockpiles awaiting test results. Once test results confirm the IBA is non-hazardous, the IBA will undergo maturation in windrows on the pad in the open air (atmospheric carbon dioxide and rainwater being required) prior to treatment. The maturation process should result in a reduction of pH and will stabilise any heavy metal leachability of the IBA. Any IBA wastes classed as hazardous based on test results will be rejected from site and sent to a suitably permitted facility.

1.4.7 The IBA processing will consist of mechanical screening of the IBA to remove ferrous and non-ferrous metals and will include screens, ferrous and non-ferrous metal separators and a picking station. Separated metals and IBAA will be stored in designated stockpiles on the pad awaiting export off site. The site will also utilise dumper trucks for IBA deliveries to the pad and a front loading shovel for feeding IBA wastes into the process.

1.4.8 The proposed IBA Processing Facility is to be situated on a pad, within one half of the engineered IBA Cell 1. This cell will be constructed with engineered liner, drainage system and protection layer, and surface water/leachate will be managed by draining under gravity via spine drains to a sump. No discharges to surface water or sewer are proposed.

2.0 SOURCES

2.1 Overview

2.1.1 The definition of odour 'sources' within this OMP includes both materials used at the Site which may release odours, and process plant items (e.g. process vessels) where odours may be generated through heat and/or mechanical processes.

2.2 Waste Acceptance

2.2.1 Upon receipt of IBA, the waste will be verified by the site's waste acceptance procedures and material will only be stored in the dedicated waste storage area. Once on-site, the IBA material will be monitored and processed as quickly as possible to ensure anaerobic conditions do not occur within IBA stockpiles, generating potential odours.

2.2.2 If any odorous material (i.e. non-conforming material) is delivered to Site, this material will be rejected as per the site's Non-Conformance and Rejection Procedures. If odorous content is discovered after material has been delivered, the material in question will be isolated and disposed of to an authorised facility, as per the same procedure. Incidents relating to the receipt, rejection, deposit, and removal of such material will be recorded in the Site Diary.

2.3 Materials Inventory

2.3.1 The following material is handled on Site and has the potential to create odours:

- Incinerator Bottom Ash (IBA)

2.3.2 The IBA may have a distinctly earthy odour but it is not considered that this has the potential to cause odour issues beyond the site boundary during normal operating conditions. The stockpiling of IBA for long periods has the potential to give rise to odour due to sulphates within the IBA being reduced to sulphides including hydrogen sulphide if the unprocessed stockpiles become anaerobic and malodour generation is possible from the surface. This can be prevented if stockpiles are kept to a minimum and not stored for long periods.

2.4 Processing Activities

<u>Storage</u>

2.4.1 The main materials handled on Site are the IBA, IBAA and separated out metal fractions.

2.4.2 IBAA and separated ferrous and non-ferrous metals are to be stored in separate stockpiles in the areas shown on drawing ref. 722A167A and will not result in any odour emissions.

2.4.3 The stockpiling of IBA has the potential to give rise to odour in the instance that sulphates within IBA can be reduced to sulphides including hydrogen sulphide if the unprocessed stockpiles become anaerobic. However, daily site inspections including olfactory monitoring will detect any odour issues prior to them becoming a risk of nuisance to nearby receptors.

Processing

2.4.4 The processing of IBA, which is to include screening, metal separation and hand-sorting is unlikely to generate significant odours, as IBA does not contain biodegradable or putrescible materials and so is not considered to be malodourous or offensive.

2.4.5 The agitation of the IBA may release low amounts of the earthy odour, but this will dissipate with distance and wind and is unlikely to affect nearby receptors.

2.4.6 Only IBA that has been fully matured and not allowed to undergo anaerobic conditions will be processed. Stockpiles discovered to be anaerobic and producing odours will be allowed to gradually aerate and stabilise prior to processing to prevent a large release of odours.

2.4.7 The hand-sorting station is within a container which will shelter the conveyor belt line and reduce escape of potential odours.

Storage of Fuel

2.4.8 It is not anticipated that fuel will be stored in the IBA Processing and storage area of IBA Cell 1, however if, due to operational requirements, storage of fuel is required, the diesel will be stored in a dedicated tank with secondary containment and will not result in any odour emissions. Fugitive odour release may occur during re-filling of the tank and filling of vehicles/plants from the tank. However, these events will be of short duration and infrequent

2.5 Landfilling

2.5.1 The landfilling of IBA wastes into IBA Cells 1-4 may cause further agitation of the material, however waste acceptance procedures will prevent any odorous material being accepted into the processing line, and therefore processed residual IBA waste to be landfilled will be very unlikely to be odorous. The construction of the IBA Cell 1 (and subsequent IBA Cells 2, 3 and 4) will be below surrounding ground levels and therefore waste will be deposited below surrounding ground levels and sheltered from cross-winds likely to carry odours to nearby receptors.

3.0 RECEPTORS & PATHWAYS

3.1 Local Sensitive Receptors

3.1.1 The main receptors sensitive to odour are humans living or working near to the site, particularly if downwind of the site. Receptors surrounding the permitted boundary are shown in drawing ref. 5671-CAU-XX-XX-DR-V-1800 'Sensitive Receptors Plan'. The majority of receptors surrounding the site are sand and gravel quarrying, agricultural fields and surface water bodies not particularly sensitive to odour.

3.1.2 The closest human receptors are workers on Whisby Landfill Site <10m south and east, and also at the Tarmac Whisby Sand and Gravel Quarry 25m north. It is considered industrial premises are less likely to be sensitive to odours.

3.1.3 The closest residential receptors are houses on Thorpe Road 415m to the northeast and Station Road 460m to the southeast. Users of these roads may also be sensitive to odour.

3.1.4 Crossing Gate Poultry Farm (and Sam's Auto Car Repairs Garage) is located 610m to the southwest and there is a row of houses on Eagle Lane 690m to the southeast. There are no schools or hospitals within 1km of the Site.

3.1.5 Some commercial premises have been identified on Thorpe Road including The Railway Inn 480m southeast and TFM Country Store (a pet and animal feed store) 760m northeast. Lincoln Radio Sailing Club is also located 660m to the southwest.

3.2 Odour Release Pathways

3.2.1 The transfer of odours off-site and towards local residential, commercial and recreational properties occurs through release to air and subsequent atmospheric dispersal of the emissions to air. Fugitive emissions of odour from the site are likely to be affected by local weather conditions, in particular by wind direction. Wind statistics observed from Swinderby RAF weather station, located over 4.5 km to the southwest of the Site are considered to be representative of the typical conditions at the site (Figure 2 below).

3.2.2 A review of the data recorded daily between December 2011 and April 2023 on the Windfinder.com website[1] indicates that the most dominant wind direction is from the southwest towards the northeast. The sensitive receptor plan shows that predominant wind conditions are likely to blow from the IBA Processing Facility away from most of the nearest sensitive receptors towards the few properties and businesses over 400m to the northeast on Thorpe Road and agricultural fields beyond.

3.2.3 An Air Dispersion Model (ADM) for odour has not been deemed necessary, due to the low odour expected from IBA.

[1] Windfinder website 2023, found here: https://www.windfinder.com/windstatistics/swinderby_raf

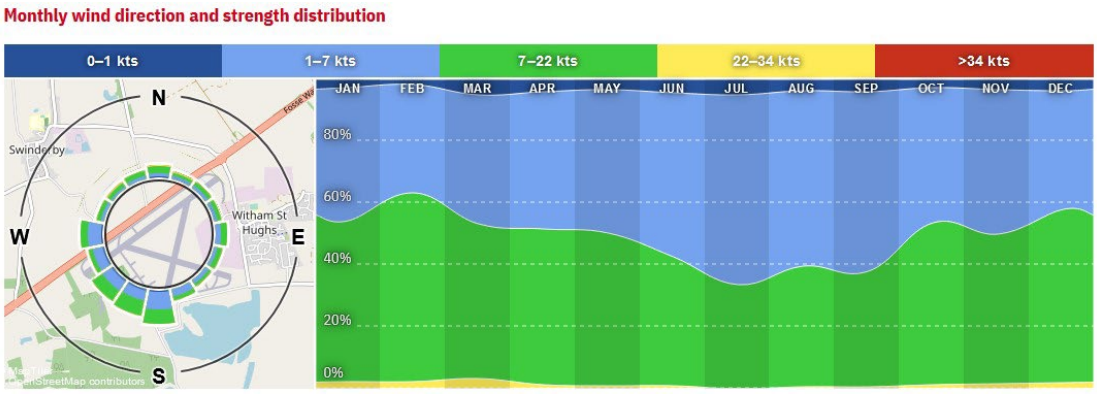


Figure 2 – Swinderby RAF wind statistics – average wind direction & strength 2011 to 2023

3.3 Odour Complaints

3.3.1 There has been no history of previous complaints relating to odour at Whisby Landfill Site to date.

4.0 OPERATIONAL ODOUR CONTROLS

4.1 Control Measures

4.1.1 To ensure odours are kept to a minimum the following control measures will be undertaken:

Reception & storage of IBA

- Strict waste acceptance procedures will ensure that only permitted wastes are accepted into the operation and any excessively odorous wastes rejected from site.
- The storage of any non-conforming material will be kept in a quarantine area separate from the reception area and removed as quickly as practicable from site.
- The operator will ensure there is sufficient trained staff to deal with the anticipated waste loads coming in, to ensure incoming wastes are processed as quickly as possible.
- Site staff will limit IBA stockpile sizes and monitor odours to prevent anaerobic conditions, which could cause an odour. IBA stockpiles are kept outdoors to allow for ventilation/maturation of stockpiles.
- The site will operate on a first-in first-out basis ensuring good rotation of IBA wastes and preventing accumulation of anaerobic conditions within piles.
- Daily site inspections will include waste storage areas being checked to assess that stored waste is not becoming odorous.

Processing of IBA

- The conveyors within the hand-sorting station container will be partially covered.
- Drop heights will be considered and reduced where possible on screening conveyors, loading and unloading vehicles and landfilling/depositing wastes to prevent dust, aerosols and the potential for odour generation.
- Good housekeeping measures will be adhered to including ensuring site surfaces kept tidy and processing machinery kept clean to prevent build-up of IBA wastes.

Landfilling of IBA

- Non-hazardous IBA wastes, soils and cover soils will be disposed of in IBA Cells 1-4 of the landfill.
- IBA wastes will be covered in the landfill with inert soils/cover layer at the end of each working day to prevent the release of odours and to ensure a stable working surface.

- Critical spare parts for plant and machinery will be stored on site to limit downtime in the event of any machine breakdowns, to ensure IBA stockpiles are not left for long periods of time.

- An alternative facility will be agreed for the diversion of incoming IBA in the event of operational difficulties at the site.

5.0 ACCIDENT MANAGEMENT PLAN

5.1 Accident Scenarios

5.1.1 In accordance with Environment Agency (EA) guidance, there is the potential for emergency or abnormal conditions to occur which could lead to an odour release and so the following abnormal and emergency situations have been considered:

5.2 Anaerobic conditions within IBA stockpiles

Situation

5.2.1 Anaerobic conditions forming within IBA stockpiles due to sulphates within IBA being reduced to sulphides, including hydrogen sulphide, generating odours.

Control Measure

5.2.2 Storage times of IBA wastes will be minimised on site and the IBA material will be managed/turned to ensure anaerobic conditions are not allowed to develop. Prioritise movement and processing of odorous stockpiles.

5.3 Plant failure or malfunction

Situation

5.3.1 Breakdown or malfunction of the processing equipment or mobile plant involved with depositing waste in the landfill, resulting in the IBA waste material being left for extended periods of time in stockpiles. This may lead to sulphates within IBA being reduced to sulphides, including hydrogen sulphide, if the unprocessed stockpiles become anaerobic.

5.3.2 The direct impact of this will be dependent on the length of time of the breakdown, the volume of waste being processed and weather conditions i.e. particularly high temperatures or prolonged periods of heavy rainfall etc.

Control Measure

5.3.3 In the event of a plant failure or malfunction, processing or deposition in the landfill in the relevant area will cease. The equipment will be cleaned down and reason for breakdown investigated. Alternative equipment will be sourced as soon as possible until the equipment can be repaired or hired in as necessary. Crucial spare parts for plant and machinery will be stored on site to limit downtime in the event of any breakdowns. If possible, the IBA material will be managed/turned to ensure anaerobic conditions are not allowed to develop until a replacement plant/machine can be sourced or the repairs completed.

5.3.4 Planned deliveries of waste will be managed during this period and postponed if necessary or sent to an alternative facility.

5.3.5 All plant and equipment will be maintained and regularly serviced in accordance with the manufacturer's recommendations and planned maintenance procedures will be followed to minimise breakdowns. Replacement plant, such as the loading shovel, and/or generators will be available within 24-48 hours. Specialist equipment such as eddy current separators or screening equipment will be replaced as soon as practicably possible.

5.4 Adverse meteorological conditions/flooding

Situation

5.4.1 Periods of adverse weather conditions including high rainfall leading to flooding, low / high temperatures, temperature inversions and high winds towards the direction of the sensitive receptors.

Control Measure

5.4.2 If adverse weather conditions or flooding is expected, divert wastes to alternative facility if storage areas unavailable and proceed with shutdown of plant, equipment and utilities.

5.4.3 Following adverse weather conditions such as continued and persistent high winds towards sensitive receptors or heavy rainfall causing anaerobic conditions within IBA stockpiles, then operations will commence as soon as possible when favourable conditions resume and, if necessary, the neighbours will be approached and advised of the potential for short term odour generation during this time. If flood waters enter the site, inspect the site, undertake full clean down and thoroughly check systems for damage prior to starting up machinery.

5.4.4 Operations may have to be undertaken during adverse weather conditions at times in order to minimise the potential for an increased impact at a later date. Other control measures in place should minimise the impact on nearby receptors.

5.5 Process failure

Situation

5.5.1 Breakdown of the process and failure to maintain optimum conditions resulting in anaerobic conditions developing within the IBA stockpiles. This could result from prolonged storage times and inadequate aeration.

Control Measure

5.5.2 Any process failure will be managed and controlled as per the previous sections above.

5.6 Site staff shortage

Situation

5.6.1 Shortage of trained operational staff resulting in IBA waste material being stored for longer periods without processing and/or turning in the reception or process pad area, or IBA not being deposited within the landfill.

Control Measure

5.6.2 In the event there is a shortage of operational staff at the site, alternative staff will be sourced from other FCC facilities or hired in as necessary. If necessary, waste deliveries will be controlled until the situation can be rectified.

5.7 Transport haulier unavailable

Situation

5.7.1 The identified outlet for the IBAA or metals is no longer able to accept the material at short notice or the transport haulier is unavailable.

Control Measure

5.7.2 FCC have a number of alternative waste hauliers who can be contacted in the event the regular haulier is unavailable to remove the IBAA or metals from the site. Removal of IBAA and metals is anticipated to be on a campaign-basis anyway, and therefore there will likely be ample storage availability on site to mitigate against occasional unavailability of hauliers.

5.7.3 The IBA waste to be landfilled will not be affected by this problem due to landfilling being undertaken with IBA Cell 1 at Whisby and therefore using internal plant to transfer materials to landfill.

5.8 Force Majeure and Odour

Situation

5.8.1 Unexpected circumstances such as a fire, explosion, fuel spillage or vandalism on-site could trigger the release of discernible odours.

Control Measures

5.8.2 Under these circumstances odour related contingency measures will be dealt with as promptly as possible. Remediation and reporting procedures for the above are as required within the Permit. Record incident and actions taken in the Site Diary.

5.8.3 If fire or explosion, inform emergency services immediately, cease operations and evacuate site. When safe to return, inspect site thoroughly and undertake full clean down of plant,

machinery and site surfaces and remove fire waters from site using tankers to avoid the presence of odours stagnant water.

5.8.4 If spillage or leak of hazardous substances, such as fuels or oils, ensure spillage procedures followed and spill kits used to contain and clear up spill. In the event of a large spill, inform the Environment Agency and ask for assistance from emergency crews if required.

5.8.5 If the site is vandalised, ensure site is inspected and any security breaches rectified.

6.0 ENGAGING WITH THE NEIGHBOURS

6.1 Complaints Procedure

6.1.1 As part of this Odour Management Plan, engagement with the neighbours will be undertaken.

6.1.2 Typically, complaints about the site are usually received via the Environment Agency, although the operator also deals with complaints received directly where necessary. In the event of a complaint being received the following can be implemented:

- Information can be provided to the local neighbours (via the Environment Agency) regarding the point and method of contact for the site in the event an odour has been detected or they want to discuss any activities etc at the site.

- The complainants can be advised that any complaints/concerns will be addressed immediately following identification/notification and contingency actions implemented.

- The complainants can be advised of any corrective action and a follow up call carried out if required.

6.1.3 The operator will continue to maintain a routine liaison with the Environment Agency regarding odour nuisance. In the event of an odour complaint being received by the EA, the complaint is passed to the operator for the investigation. Every complaint is recorded on FCC's designated Safeguard incident reporting system, as detailed below:

- All complaints are recorded on to Safeguard by the site manager or site staff, describing the complaint and severity.

- The complaint is forwarded to the Regional Environment Manager to undertake further investigation.

- Depending on the severity, the complaint can be escalated to senior management for investigation if necessary.

- The system is a digital process and records a wide range of reporting.

6.1.4 The Safeguard Reporting System is already in place as part of the company's accredited environmental management system and includes reporting to the EA of the findings of the odour investigation.

6.1.5 The odour investigation procedure will also include the following elements:

- Site walk-over coupled with olfactory monitoring along the site boundary, an assessment of the site operations which took place prior to and at the time of the complaint in relation to their odour potential, and other on-site sources of odour.

- Assessment of the weather conditions prior to and at the time of the complaint.

- A suitably trained person who is familiar with the site conditions and the 'sniff-testing' monitoring technique will carry out odour investigations at the site. In the event of a substantiated complaint being received, then mitigation measures will be used for the areas/activities which were cause of the particular odour event.

6.1.6 A follow up report on the investigation will be issued to the EA if the complaint is found to be substantiated and, if requested, to the Local Authority. The report will identify improvements proposed to reduce the potential for future complaints. Any new recommendations will then be incorporated in the Odour Management Plan and the operating procedures for the site.

7.0 MONITORING

7.1 Schedule

7.1.1 Odour monitoring will be undertaken in order to assess how successful the operational management and mitigating control measures are at the site and to identify if necessary whether odour is causing a potential nuisance to ensure that appropriate remediation measures are adopted early.

7.1.2 Monitoring will be undertaken by designated staff who will be fully trained by Site Management. All site personnel will be responsible for reporting any problem odours identified during their day-to-day operations.

7.1.3 Monitoring at the site will consist of the following:

Parameter	Monitoring Technique	Frequency
Meteorological Monitoring	Local weather information	Manually checked at start of each working day and logged .
Olfactory Monitoring	Site perimeter, included as part of daily site inspections. Off-site checks (towards the identified sensitive receptors) in event of odours detected at boundary or following a complaint.	Daily (or more frequently following odour complaints).
Complaints Monitoring	Logged in accordance with Complaints procedure.	Ad-Hoc

7.2 Meteorological Monitoring

7.2.1 The nearest weather station will be utilised for meteorological monitoring at the site and will as a minimum include monitoring for wind speed and direction.

7.2.2 Weather conditions will be noted at a time of an odour survey and assessed in terms of any odour effects beyond the site boundary. This would indicate which local receptors lie downwind of the site. The following weather conditions are considered to be unfavourable with regard to the effects of the potential odour emissions and should be considered when assessing odour events:

- Weather conditions, especially wind speed and direction, are important factors which influence odour dispersion. Stronger winds (>6 m/s) reduce the impact of odours due to greater dilution and dispersion than lighter winds, whereas wind direction determines the direction of odour dispersion.

- The greatest risk of poor odour dispersion tends to occur on cool nights, with low wind speed, during anti-cyclonal conditions and in the presence of a temperature inversion. These conditions often happen during the cold part of the year and can result in odours being transported over long distances from the source.

- Calm weather spells (wind speed <0.1m/s) results in omni-directional dispersion of odours from the site as it is regulated largely by diffusion in the air. Under such conditions, all locations directly adjacent to the source would be expected to be impacted by fugitive emissions.

- Conversely, high temperatures during the warm part of the year may often lead to increased odours and could result in increased complaints from residents living near the site.

- The mean wind direction recorded at the nearest station at Swinderby, is recorded as from the south-west.

7.2.3 In the event of odour complaints, the data enables complaints to be assessed against the meteorological conditions for the relevant period. Meteorological information will be recorded on the Safeguard system which is logged internally and sent to the EA.

7.3 Olfactory Monitoring

7.3.1 As part of the daily inspections, appropriately trained and experienced site personnel will carry out olfactory monitoring on- and off-site at selected locations.

7.3.2 Additional locations for monitoring may also be included, depending on the frequency and location of any complaints received at the site.

7.3.3 The monitoring results will be recorded on the 'Daily Installation Checks Form', which forms part of the Site's Management System.

7.3.4 Olfactory monitoring will be carried out in accordance with the recommendations detailed in the EA H4 guidance, including avoid strong foods or drinks and strongly scented deodorisers or toiletries etc for at least half an hour prior to the monitoring. In addition, individuals suffering from a cold, sore throat, or sinus problems that may impair their ability to detect odours will not undertake the olfactory monitoring.

7.3.5 The designated person will exit their vehicle and remain in the locality for a minimum of 1 minute whilst breathing normally. Any external activities that may contribute to odour generation in the surrounding area will also be noted on the form and an assessment of the intensity of the odour will be made using the key provided. The routine monitoring points have already been assessed for sensitivity, but should any additional locations be used, the sensitivity will be entered using the key provided.

7.3.6 In the event odour is detected above intensity ranking 3 (moderate odour), the site management will be informed immediately, and the approximate location and extent of the odour plume assessed, and site operations reviewed and remediated.

7.4 Complaints Monitoring

7.4.1 Any complaints received directly by the Site or via the Regulatory Bodies, including the EA and Local Authority, will be recorded on the FCC Safeguard System. Investigation will then be undertaken via olfactory monitoring at the location of the complaint and on-site to substantiate the extent and location of the plume and to identify the source of the odour.

7.4.2 If necessary, odour monitoring will also be carried out at the nearest sensitive receptors to the site and the monitoring results recorded.

8.0 REMEDIAL ACTION PLAN

8.1 Action Plan

8.1.1 Following receipt of a complaint or identification of an odour at the site, the following action plan will be undertaken, including:

- Additional olfactory monitoring as detailed above to identify the extent of the odour plume and potential cause for the odour i.e. waste material and/or process activity.
- Examination of the operational activities at the site at the time of the odour complaint or odour identification.
- Examination of the meteorological conditions at the time of the complaint or odour identification
- Examination of the process conditions i.e. stockpiles, storage times etc.
- Carry out a review of the operational procedure and process controls and instigate any control measures immediately following identification of the problem.

8.1.2 Further olfactory monitoring will be carried out to ensure the issue has been addressed and to monitor the effectiveness of any control measures undertaken.

8.2 Record Keeping and Reporting

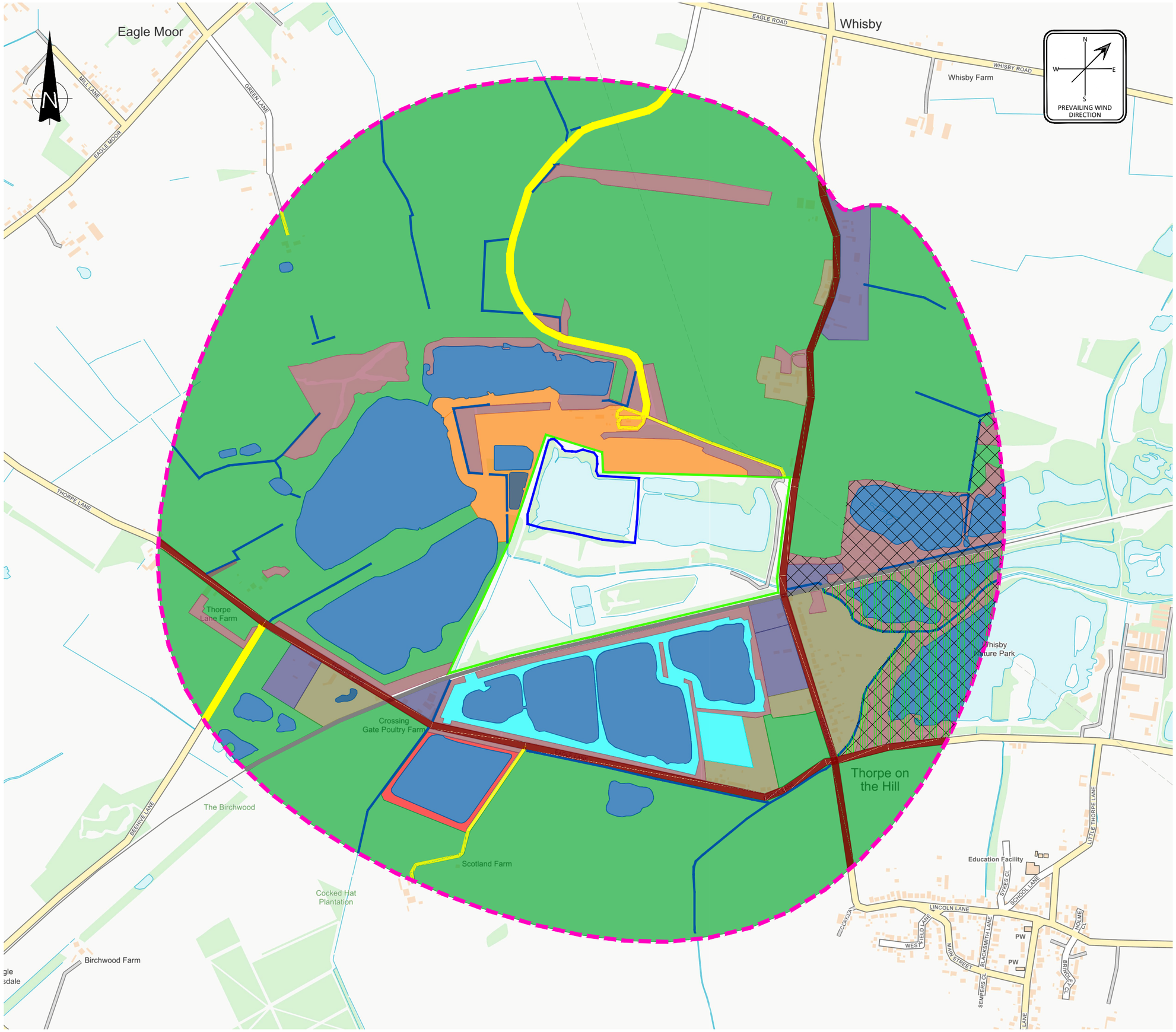
8.2.1 The procedure for recording via the FCC Safeguard System will be undertaken as detailed above. All information is recorded digitally and maintained within a digital database. All information can be accessed via computer within the Site Office and will be made available to the Environment Agency on request. This record keeping already forms part of the Site's Management System.

8.3 Odour Management Plan Review

8.3.1 This Odour Management Plan (OMP) will be reviewed on a regular basis, or following receipt of a significant and substantiated complaint that requires a change in management procedures for the site.

DRAWINGS

5671-CAU-XX-XX-DR-V-1800 Sensitive Receptor Plan
722A167A IBA Processing Pad – General Layout



LEGEND

- LANDFILL BOUNDARY
- IBA PROCESSING FACILITY
- 1000m OFFSET
- SURFACE WATER
- WOODLAND
- COMMERCIAL
- INDUSTRIAL
- RESIDENTIAL
- MAJOR ROAD
- MINOR ROAD
- RAIL
- AGRICULTURAL
- PUBLIC AREAS
- RECREATIONAL
- LOCAL WILDLIFE SITES
- LOCAL NATURE RESERVES

P02	BOUNDARY UPDATED	EJD	SH	SH	04.07.23
P01	ISSUED FOR INFORMATION	EJD	SH	SH	17.05.23
REV	MODIFICATIONS	BY	RE	AP	DATE

PURPOSE OF ISSUE: FOR INFORMATION

STATUS: S2

CLIENT: LINCWASTE LIMITED

PROJECT: IBA PROCESSING FACILITY
WHISBY LANDFILL SITE

TITLE: SENSITIVE RECEPTORS PLAN

DESIGNED BY	DRAWN BY	REVIEWED BY	AUTHORISED BY
EJD	EJD	SH	SH

DATE	SCALE @ A3	JOB REF:	REVISION
16.02.2023	1:10,000	5671	P02

DRAWING NUMBER: 5671-CAU-XX-XX-DR-V-1800

Caulmert
engineering environmental planning

WWW.CAULMERT.COM

Registered Office: InTec, Parc Menai, Bangor, Gwynedd, LL57 4FG Company Registered No: 06716319

NOTES:

1. ALL DIMENSIONS IN MILLIMETRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM.

2. DO NOT SCALE FROM THIS DRAWING.

3. ANY ANOMALIES IDENTIFIED WITH THE DETAILS SHOWN ON THIS DRAWING ARE TO BE BROUGHT TO THE ATTENTION OF FCC ENVIRONMENT (UK) LIMITED PRIOR TO CONSTRUCTION WORKS COMMENCING.

LEGEND:

- Contours
- Proposed Leachate Collection Point
- Site Acces Road
- IBA Storage & Processing Area
- Plant Site Area
- Pre-Processing Stockpiles
- Post-Processing Metals Stocks
- Post-Processing IBA Storage
- Mobile Dust Suppression System

Revision:	Date:	Description:	By:	Chk:
-	-	-	-	-
-	-	-	-	-
A	15.06.23	Area's revised	BS	MP

Reference files:
Information taken from plans;
Plan: WR7855 01 02

FCC Environment (UK) Limited
3 Sidings Court, White Rose Way, Doncaster. DN4 5NU

Site:
WHISBY LANDFILL SITE

Drawing Title:
IBA Processing Pad - General Layout

Drawn By:	Checked By:	Date:	Scale:	Paper Size:
BS	MP	15.06.23	1:750	A3

Status:	Revision:	Drawing No:	Plan Number:
FINAL	A	**722A167**	-

WWW.CAULMERT.COM

Caulmert
engineering environmental planning

Registered Office: InTec, Parc Menai, Bangor, Gwynedd, LL57 4FG
Tel: 01248 672666
Email: contact@caulmert.com
Web: www.caulmert.com