



Clayton Hall Landfill Site and MRF

Permit Number: EPR/BV1364

Permit Number: EPR/AP3897CJ

Odour Management Plan

**Clayton Hall Landfill Site
Dawson Lane
Wittle Le Woods
Chorley
Lancashire
PR6 7DT**

Revision 4

September 2024

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1. INTRODUCTION

This Odour Management Plan (OMP) applies to Clayton Hall landfill site (permit no EPR/BV1364) and the Materials Recycling Facility (permit No EPR/AP3897CJ) operated by Quercia Limited. The landfill site is a non-hazardous landfill.

This OMP has been written to meet the requirements of condition 3.3.1 of the landfill permit: Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any odour management plan, to prevent or where that is not practicable to minimise the odour”.

This version of the OMP supersedes all previous versions. It has been prepared following EA guidance H4 Odour management, March 2011 published on www.gov.uk¹.

This revision has been produced to:

- include changes on site since the previous version
- remove specific details relative to the odour incident in 2019
- include control measures applicable during the movement of overtipped waste during February and March 2024.

This OMP outlines the methods by which Quercia Limited will assess, reduce and prevent potentially odorous emissions from the Clayton Hall landfill site to meet the following objectives:

- employ appropriate methods, including monitoring and contingencies, to control and minimise odour pollution;
- prevent unacceptable odour pollution at all times;
- reduce the risk of odour releasing incidents or accidents by anticipating them and planning accordingly.

Included as Directly Associated Activities within the landfill permit are a leachate treatment facility with a throughput of <50tonnes per day and a gas engine and flare. These are located in the yard area within the confines of the environmental permit boundary.

Adjacent to the landfill is Clayton Hall Recycling Centre which is operated by Quercia Ltd under a separate Environmental Permit, reference EPR/AP/3897CJ. The recycling centre sits within the permit boundary of the landfill permit.

It should be considered that when evaluating the number of odour complaints against the landfill operation that a normal level of odour complaints would be expected to be made against any landfill operation

¹ <https://assets.publishing.service.gov.uk/media/5a7ba9a2ed915d1311060b16/geho0411btqm-e-e.pdf>

accepting similar waste streams across the UK.

Landfill gas management at the site is carried out by a 3rd party, YLEM Energy (YE) who extract landfill gas from the waste mass to produce electricity. YE has worked with Quercia in managing the landfill gas in order to reduce odour emissions from the site. The working arrangements, rights and obligations of both parties are set out in a commercial agreement between Quercia and Ylem dated 5th August 2009. In order to achieve the management of odours, YE have and will be required to deviate from their defined gas management protocols as outlined in the Clayton hall Gas Management Plan. Deviations from these protocols have been outlined further in Section 5.3.

2. SITE LOCATION

The site is surrounded by a combination of farmland and woodland with residential areas to the east, west and south.

To the north and east of the site are fields of planted grassland and arable crops, with the River Lostock beyond. Beyond the river and the woodland is the residential area of Whittle le Woods. To the west of the site are the Spring Meadow housing development, Clayton Hall Farm, Leyland Golf Course and the residential area of Clayton le Woods. To the south of the site is Dawson Lane, farmland and Buckshaw Village.

2.1 Local Receptors

The local receptors identified within 1 km are listed in the table overleaf and shown on Drawing No 110/05 in Appendix A.

Ref	Receptor	Direction from	Approximate Distance from site boundary (m) to closest point
Residential			
1	Clayton Hall Farm and Bungalow	W	75
	Residences in High Spring Meadow (Clayton-Le-Woods)	WNW	38 - 50
	Residences in Clayton-Le-Woods	WNW	50 – 100
	Oak House	W	30
	Residences in Juniper Croft (Clayton-Le-Woods)	NE	400
	Residences in Anderton Crescent (Buckshaw Village)	S	290
	Residences in Whittle-Le-Woods	E	925
2	Matrix Industrial Park	SW	625
3	Dawson Lane (B5248)	S	Adjacent
	Preston Road (A6)	E	960
Public Amenity			
4	Public Footpaths	Surrounding	Adjacent – 1 Km
5	Leyland Golf Course	W	Adjacent
	Football Ground – Whittle-Le-Woods	E	280
	Buckshaw Village Football grounds	S	145
	Shaw Hill Golf Course	SE	730
	Cricket Ground	ESE	775
	Cuerden Valley park	N	830
Watercourses			
6	Surface Water Ditch	E	Adjacent
	Bryning Brook	W	Adjacent
	River Lostock	E	240
Ecological Sites			
7	Priority Habitat Deciduous Woodland	Surrounding	Adjacent – 1 km
8	Happy House Nursery	W	165
	Early Learners Pre-school	W	860
	Lancaster Lane Primary School	WNW	740
	Whittle-Le-Woods Primary School	E	920
	Gelston Manor Day Nursery	S	220
	Clayton-Le-Woods Manor Road School	NE	965
	Clayton-Le-Woods Primary School	N	545
Healthcare Sites			
9	Lisieux Hall Hospital	E	265
Farmland			
10	Farmland	N, E, S, W	Adjacent

Table 1: Receptors within 1 km

2.2 Weather Data

The landfill site operates a local weather station, located on the site adjacent to the weighbridge. The weather station records wind speed, wind direction and levels of rainfall.

Shown below is the Windrose for the 28 day period between 31st January and 28th February 2024 (Note: annual wind rose not available at time of writing, the OMP will be updated with annual data when available). The data recorded shows the direction the wind is blowing towards. This is principally from the west and south-east over the reported period.



Wind Rose for Quercia Clayton 2024-01-31 19:18 to 2024-02-28 19:18

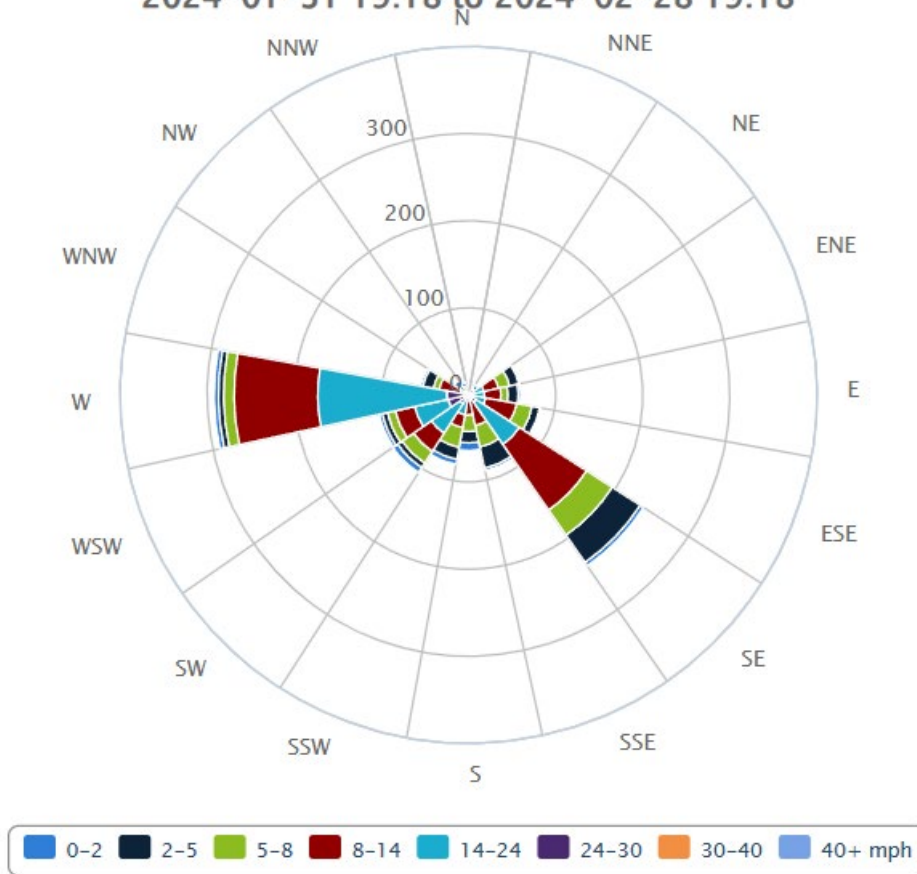


Figure 1: Wind Rose showing wind speed and direction wind blowing from

3. INVENTORY OF ODOROUS MATERIALS

3.1 Potential Odour sources

Table 2 below identifies the sources of odour from site operations:

Source	Descriptive Terms	Typical Primary Odour Elements
Commercial Waste – waste received for landfill or treatment through the MRF	Bottom of dustbin, rotten cabbage, fruity/citrus, acrid, sour, rotten, putrid	Esters e.g. Butanoates, Odour directly from the volatilisation of chemicals from foods e.g. Organic acids
Industrial/Demolition Waste	Bricks, wood, concrete	Sulphate based compounds giving rise to the production of hydrogen sulphide under anaerobic conditions.
Diesel / Oils	Oily, acrid, petrol like	Aromatics, toluene, xylene
Landfill gas (young)	Sweet, sulphurous, fruity, citrusy, gassy, pungent	Esters e.g. Butanoates, hydrogen sulphide
Landfill gas (Old)	citrusy (lemon like), fruity, gassy, pungent (Less sweet and sulphurous than above)	typified by limonen and hydrocarbons (Aky benzenes etc.)
Leachate (young)	Extremely sweet, sugary, pungent, food like, sulphurous	Organic acids (Butyric acid, butanoic acid) aromatics, alcohols, hydrocarbons, sulphur compounds
Leachate (Old)	Mild, fuel like, oily, ammonia (if PH is high) farm yard like	Aromatics and hydrocarbons
Landfill gas engine emissions	Sulphurous,	Sulphur dioxide, oxides of nitrogen
Landfill flare emissions	Sulphurous,	Sulphur dioxide, oxides of nitrogen
Odour neutralising/suppression	Sweet, floral, dependent upon the fragrance being used.	Essential oils

Table 2: Potential odour Sources

3.2 Odour Release Points

Odour is potentially released from the points listed in Table 3 below.

Odour Source	Release Point
Received wastes	Waste vehicles
	Inspection and sampling bays in yard
	Waste being treated or stored in MRF building (through open doors)
	Active face (tipping and compacting)
	Fugitive release through intermediate and temporary capping
Landfill Gas	Leachate wells, inadequate sealing
	Leaks in gas infrastructure
	Capped areas (fissures, inadequate welded containment membrane).
	Fugitive release through intermediate and temporary capping.
Leachate	Leachate wells, inadequate sealing
	Fugitive release from leachate treatment plant
	Vacuum tanker loading for off site disposal
Odour suppression system	Landfill waste tipping area, vicinity of works on previously tipped waste.

Exposed waste	Engineering works
	Landfill gas works, drilling and installation of gas wells
	Uncapped areas of the landfill site
Combustion gases from landfill gas	Engine exhaust, landfill gas flare
Movement of stockpiled waste	Active face (tipping and compacting)
	Movement of waste from the MRF to the landfill

Table 3: Odour release Points

The point source releases from the combustion plant and their impact on the receptors are presented in the Gas Risk Assessment (Golder Associates, August 2019).

3.3 Impacts

Odour from site operations can cause annoyance to local residents and reduce the amenity of the area for users of the golf course and the country park.

Receptors within 1 km of the site are listed in Table 1 and are shown on Drawing 110/05. This shows that receptors at Spring Meadow and the wider area of Clayton le Woods are in the direction of the prevailing wind (from the west). Spring Meadow residents are also the closest to the landfill site and so are considered the most sensitive receptors.

The residents at Oak House are closest to the MRF and landfill reception area, however they are not in the direction of the prevailing wind.

Measures to help reduce the impacts from emissions are detailed Section 5.

4. ODOUR COMPLAINTS / INVESTIGATIONS / RECORDS

Odour complaints reported directly to Quercia, or through the Environment Agency or Planning Authority will be investigated.

Quercia Ltd receives odour complaints via differing channels:

- Direct from the complainant
- Regulatory body (EA or planning authority)

Complaints are logged and reviewed by the Operations Team during daily meetings.

4.1 Complaints Received Directly from the Complainant

It is generally accepted that there will be a number of odour complaints attributable to even the best engineered and operating landfill facilities. Taking this into account, Quercia Ltd will operate the following protocol when in receipt of complaints directly to the site from people living or working near the landfill site.

In the instance where only one odour complaint is received by the site in over a relatively short time period, 4 hours, the operations team will review the weather data, from the on-site weather station, looking in particular at the wind speed and direction to determine whether or not the location of the complainant was down wind of the site at the time of the odour was detected. In the event that further complaints are received over a similar time period, the weather conditions will again be checked taking

into account any time lapse between the odour being detected and receipt of the complaint.

If the odour complaints are all of the same nature e.g. rotten egg smell (or other descriptions that could be associated with the landfill operations), site management/representative will immediately carry out a site investigation using olfactory techniques or instrument based (FID if available) to identify the source of the odour. If a problem with odour release is identified on the site, remediation will be carried out immediately where possible. Where immediate remediation is not possible, a temporary repair will be carried out to temporarily stop or significantly reduce the odour pending a permanent repair. Site management will inform the Environment Agency, where possible on the day of the complaint and remedial works. A record of the event will be made on the NWM013 Complaints Form (contained in Appendix E). If an odour can be detected that is not attributed to the landfill the details will be recorded in the site diary.

In the event that the complainant has requested that they be informed directly of the findings, a company representative will call back to inform them of the findings and actions carried out (please note that consideration to Data Protection Act will need to be made when holding personnel details on file).

4.2 Complaints Received from the Environment Agency

Quercia understand that the Environment Agency would normally only contact Quercia in relation to odour complaints if they had received any more than a few complaints and that they had any reason to believe that the complaints were attributable to Clayton Hall landfill operations.

Information supplied by the EA to the site management would normally be generally in terms of the area (road name and post code) from which the complaints had been received and the timing of them.

Based on the information supplied, Quercia Ltd will investigate odour complaints received from the EA adopting the following protocol:

- Investigate the weather conditions, using the data from the on-site weather station, at the time of the complaints taking into account any lapse in time between the odour complaints being received by the EA and the time that they are received by the site.
- Site management/representative will carry out an investigation of the site to try and identify the source of any odour releases.
- Site management/representative will contact the Ylem Energy to understand if there have been any breaches or failures within the gas collection infrastructure, including gas plant, flaring equipment and engine.
- If a source of odour is identified, where possible an immediate permanent repair will be undertaken; where this is not possible, a temporary repair will be carried out to reduce the odour being emitted.
- An effective permanent repair will be carried out as soon as possible afterwards.
- Site management will notify the EA of the findings and the corrective action carried out.
- A record of the complaint along with the corrective action carried out will be recorded on NWM013 Complaints Form.

4.3 Record Storage

A record of the odour complaints are held on site for 12 months and is managed by the Landfill Manager. Records older than 12 months are archived, the management of which falls under the Quercia SHEQ team. The current site diary is held on site. Any copies of historic diaries are archived at the landfill site, these are managed by the Landfill Manager.

5. CONTROL MEASURES

5.1 Waste Acceptance Procedures

Waste acceptance is according to the waste acceptance procedure which is contained in Appendix B and summarised below.

Prior to any newly identified waste producer or waste stream being accepted at the site, at the pre-acceptance / pre-contract stage, Quercia will arrange for samples of the waste streams to be tested, which will include for odour to ensure that the waste is not malodorous. Alternatively, the waste production site may be visited by Quercia to assess the waste streams being produced. Odour detection will be carried out by Quercia personnel who have experience in dealing with waste. Waste streams exhibiting significant odours will not be accepted.

Waste for the MRF is received at the weighbridge and directed to the MRF building. It is deposited in the reception area inside the building and inspected. Any waste which is malodorous will be reported to the site manager and rejected. If the depositing vehicle has not left site it will be immediately reloaded and taken away. If the vehicle has already left site the material will be covered with daily cover material and removed from site as soon as practicable.

Waste for landfill is received at the weighbridge and deposited in a reception bay in the yard for inspection and sampling before being moved up to the landfill cell by dumper truck. Any waste which is malodorous will be reported to the site manager and rejected before being taken up to the tip face. If the depositing vehicle has not left site it will be immediately reloaded and taken away. If the vehicle has already left site the material will be covered with daily cover material and removed from site as soon as practicable.

If waste is accepted and subsequently identified as being malodorous, the operator will notify the site management. The odorous waste will be covered immediately with site derived materials or other suitable waste streams to reduce the odour from it. Site management will conduct an investigation which will include contacting the producer of the waste in an attempt to determine the cause of the odour. Subsequent loads from the same waste producer will be inspected prior to deposit to assess the likely impact of waste receipt until confidence is restored that the loads will not present a significant issue. A result of the findings of the investigation will be reported in the site diary.

5.2 Landfill Operational Control Measures

5.2.1 Landfill Tipping Face

The tipping face of the landfill can be a source of odour; to reduce the escape of odours from the tipping face, non-biodegradable cover material is placed over the exposed waste at the end of each days' tipping, or more frequently if the nature of the waste dictates.

During relocation of overtipped waste in February and March 2024 daily cover will be applied progressively throughout the day.

5.2.2 Odour Neutralising Systems

The site operates with a number of odour neutralising suppression system which are supplied and maintained by a specialist contractor. The system releases a surfactant-based odour neutraliser in a mist which reacts with odorous chemicals in the air. The system includes:

- i) three mobile atomiser units that can be moved around site as required. These have been placed at cell 4b above the tipping face and the top of the stockpile area during movement of the overtipped waste in February and March 2024. The mobile atomizer units will be placed around the operational area between the tipping face and the boundary depending on the wind direction on the day.
- ii) A 150 m long high pressure nozzle line has been installed in February 2024 along the ridge of the landfill between cells 3B and 3C. This is an additional measure to help control odours during movement of the overtipped waste. It will particularly help to reduce odours at the closest residential receptors to the west.
- iii) a high pressure nozzle line is installed around the primary leachate treatment tank

Odour control measures have been reviewed by specialist odour control consultants Wyetech Bio and a report was produced in February 2024, contained in Appendix C. The report states that the odour abatement system is new and complies with BAT (best available technology) according to EA guidance H4 Odour Management.

5.2.3 Engineering Gas Containment

In summary, as part of the landfill gas control system, various designs of gas extraction system are installed into the waste, some of which will be temporary and/or sacrificial in nature. In general, Quercia will install these latter type of system designs to control odour from parts of the landfill that do not have the final capping installed. The Quercia Gas Management Plan provides further details of the design and specification of the installed temporary/sacrificial systems.

The temporary / sacrificial gas systems will be included as part of the overall gas management system and will be extracted upon, unless extenuating conditions exist.

Where required to aid odour control, a 'bleed over' gas control system will be installed on existing odour control wells. This system will be designed and installed to extract very limited volumes of landfill gas and will by-pass the main gas well control valve; allowing the main value to be closed and still offer some

form of gas extraction.

The photo below shows an example of the bleed over gas control system installed on one of the sites odour control valves.



Plate 1: Bleed over gas control system installed on an odour control gas extraction point.

To aid gas control from the leachate chambers at the site, a bleed over gas control system has been installed across the gas control valve. The photo below shows the design of the installed system.



Plate 2: Bleed over gas control system as installed onto a leachate chamber

5.3 Gas Extraction Protocol for Odour Control Purposes

Detailed below is the gas balancing protocol that will be applied to gas extraction systems installed for odour control purposes; this is a deviation from the YLEM Gas Balancing Protocol that would normally be applied.

Under normal circumstances if during monitoring of a gas extraction point, the results indicate that aerobic conditions exist, the extraction of gas from the feature would be stopped. For Clayton Hall, this has been revised to take account of the elevated levels of hydrogen sulphide that are present in the gas

from some areas of the site. The procedure will now be, where a gas extraction point is showing aerobic conditions and has a recent history of elevated hydrogen sulphide levels (>100ppm), the extraction from the gas well will be reduced to a minimum to provide a degree of extraction and reduce the potential for hydrogen sulphide to be released to atmosphere. Where subsequent gas monitoring results show that the degree of aerobic activity is increasing, the gas extraction will be reduced further or stopped until monitoring results show the gas to have reverted to anaerobic conditions.

Under normal operating conditions, the difference in the CH₄ to CO₂ is controlled such that the CH₄ level is >2% than the CO₂ level. Under well specific conditions to be applied to temporary and/or sacrificial systems only and for odour control only, the difference between the two values will be allowed to decrease to 2.0% (CH₄ < CO₂).

In addition to controlling against the CH₄ and CO₂ levels, the balance gas (free nitrogen) will also be considered. The free nitrogen content will be allowed to increase to 22% maximum, which is 4% above the current control limit.

Monitoring of the odour control systems specifically will be carried out on a daily basis (Monday to Friday) until the results of the monitoring show that the gas composition at each extraction point has stabilised.

YE as part of its normal operating procedures, reviews the operating conditions of the engine remotely, this is carried out by the “Duty Technician” 7 days a week. Interrogation of the operating parameters enables the technician to determine if there have been any changes to the gas field in terms of suction being applied and gas quality. If significant changes are identified or the normal operating parameters for the site are exceeded, the duty technician will attend site to monitor parts of the gas field (including the odour control systems) and re- balance as required.

Part of temporary / sacrificial gas systems can contain sections of overland pipe which can be subject to a build- up of condensate within them. Quercia will where possible design such systems to avoid the accumulation of condensate in the overland pipe; where self- draining of the pipework cannot be achieved, the overland pipe will be checked on a regular basis and de-watered; the frequency of which being dependent upon the rate of accumulation.

The operating parameters in terms of gas extraction will only be invoked in the event that odour are noted off site, odour complaints are received and can be attributed to the Clayton Hall landfill operation or if there is a perceived risk of an odour occurring from the gas management system.

5.4 MRF Operational Control Measures

The treatment process consists of mechanical treatment using a typical MRF plant including shredding, trommelling, metals recovery, air density separation. All treatment is carried out within a large building.

Although the permit allows an extensive list of wastes for treatment, the majority of waste received at the MRF is fragmentiser waste listed in Table 4 below. These waste types do not contain food waste or readily biodegradable material and therefore have a low odour generating potential.

LoW Code	Waste Type
19 10 03*	fluff-light fraction and dust containing hazardous substances
19 10 04	fluff-light fraction other than those mentioned in 19 10 03*
19 10 05*	other fractions containing hazardous substances
19 10 06	other fractions other than those mentioned in 19 10 05*

Table 4: Typical MRF Waste Accepted for Processing

The waste listed in table 4 is treated to remove ferrous and non-ferrous metals which are sent off site for recovery. The residual material is either sent off site as RDF or disposed of to landfill.

Incoming waste for treatment is deposited inside the processing building and all processing is carried out within the building. Recovered metals are stored inside before being dispatched from site and the residual material is stored both in the building and in concrete bays in the yard. This material is tested and taken up to the landfill site by dumper trucks from the bays or is loaded into vehicles for dispatch from site.

An extraction and abatement system will be fitted to the building which will extract air through a dust filter and then an activated carbon unit. The activated carbon abatement will remove volatile organic compounds that may be odorous.

6. MONITORING

6.1 Automated Odour Monitoring on site

An automatic odour monitoring system ‘Sentinel Online’ was installed in April 2024. Further details of the system are contained in the WyeTech Bio report contained in Appendix C. This is an automatic air sampling unit which measures a number of gases in ambient air including methane, hydrogen sulphide and ammonia.

The system will include four detectors. Two will be in fixed positions at the site boundary and two of the detectors will be mobile and can be positioned to respond to the wind direction on the day. It is planned to place one of the mobile detectors in the operational area and the other at the boundary in the direction of the prevailing wind.

The sentinel system will operate in addition to the olfactory monitoring described below and help confirm the presence of odorous gases if an offsite odour is detected.

6.2 Daily Odour Monitoring around the perimeter of the site

On a daily basis (Monday to Friday, not including bank holidays), a member of the Clayton Hall team undertakes a walk around the internal perimeter of the site to determine if there are any odours reaching the boundary of the site. Specific locations where the odour is investigated are shown as points N1 to N8 on Drawing No 08469/48C contained in Appendix A. The results of this monitoring will be reported onto the N1 to N8 report (excel spreadsheet).

A record of the findings of the odour monitoring is recorded in the site diary. If an odour is detected, the details of the investigation carried out, findings and remedial works are included in the Site Diary; the diary is held in the Landfill Manager’s office.

The frequency of perimeter monitoring is increased to twice daily under emergency conditions (section 7.3).

6.3 Annual Perimeter Monitoring

At points N1 to N6 as per the Environmental Permit Table S4.11, Landfill Gas in Ambient Air, annual monitoring will be carried out for methane, carbon dioxide, hydrogen sulphide, oxides of nitrogen, oxides of sulphur and VOC's.

6.4 Odour Monitoring in the Community

Off site odour monitoring is carried out if odours are detected during perimeter monitoring or if a complaint is received. The monitoring route and method is detailed in the Work Instruction (SSOW075) which is contained in Appendix D. In summary, a member of the operations team follows one of two routes depending on the wind direction on the day. The operative stops at regular locations and if odours are detected, they will go off route to follow up the location. The wind direction is established before commencing and the route is plotted using GPS. The route is recorded and the findings are recorded on a monitoring form contained within the Work Instruction. Results are reported to the management team for daily review.

6.5 FID Monitoring

During relocation of the overtipped waste in February and March 2024, FID (flame ionization detector) monitoring will be carried out daily around the operational area. This will detect if landfill gas being emitted from the waste surface. Results reported to the site manager and additional cover materials are added to areas if surface gas is detected.

6.6 Landfill Gas Monitoring

Landfill gas monitoring is carried out monthly as required by tables S3.5 and S3.8 of the permit.

6.7 Flux Box Monitoring

Unless otherwise agreed with the Environment Agency, as per the requirement of the sites Environmental Permit Table S.3.6, flux box monitoring will be carried out on an annual basis to confirm the release of “gas” through the surface of the cap (temporary or permanent) placed on the waste. Where any locations are identified at which the measured gas release is above the permitted conditions; remedial works will be undertaken to bring the release rates within the given limits.

7. CONTINGENCY MEASURES

7.1 Planned Engineering Works

Where planned engineering works are proposed that could give rise to odour being generated from the waste the following procedure will be put in place before the works commences:

- Gas monitoring for hydrogen sulphide will be carried out on the gas extraction points in the vicinity of where the works are planned; if high levels of H₂S are measured, consideration will be given to a redesign of the proposed works to determine if the location or the route of the works can be changed.
- If the works cannot be moved to another location, a task specific risk assessment will be carried out to

eliminate or reduce the risk of odorous landfill gas containing H₂S being released to atmosphere.

- The Environment Agency will be informed prior to the works commencing.
- The local community will be informed of any planned works at the regular liaison meeting.
- The gas collection system/odour control points will be balanced where necessary to ensure that extraction from the systems is at its most efficient in terms of reducing the risk of an odour release. Depending upon the nature of the works, this balancing may have to be carried out several days prior to the works being carried out to ensure that stable balanced conditions are achieved.
- Strategically placed odour neutralising units will be located down wind of the works between the location of the works and any residential properties.
- Weather conditions will be considered prior to the start of any works, such that in the event of a release of landfill gas, the impact on the local community will be negligible where possible.
- During the planned works, regular checks will be made for odour in the vicinity of the works and a written record of the check will be made in the site diary.
- Depending upon the duration of the works, the gas collection and odour control extraction points will be monitored frequently to ensure that extraction from the working area is maintained at its most efficient without detriment to the waste mass i.e. conditions that could give rise to initiate a fire within the landfill.
- The Environment Agency will be notified upon completion of the works.

7.2 Movement of Overtipped Waste

The following measures are being implemented during February and March 2024 in relation to movement of overtipped waste:

- Installation of an additional odour neutralizing line as detailed in section 5.2.2
- Location of mobile odour neutralizing units according to wind direction
- Restriction of acceptance of biodegradable waste to a minimum, with the majority of material accepted being low biodegradable material which can be used for covering exposed waste
- Increased odour monitoring in the community as detailed in Work Instruction (SSOW75)
- Daily perimeter monitoring increased to twice daily
- FID monitoring for landfill gas releases on the operational area as detailed in section 6.5

7.3 Emergency Procedures

In the event that an uncontrolled release of landfill gas occurs giving rise to odours, Quercia will;

- First attempt to minimise the release by the placement of site derived materials or suitable waste material over the affected area.
- Contact the EA to notify them of the problem.
- Locate the odour neutralising system to a location to reduce the impact of any odour on the local receptors.
- Undertake measurements across the landfill gas extraction system to ensure that the gas field is balanced efficiently and where possible increase the gas extraction in the affected area taking into consideration any potential to produce conditions that could give rise to adverse impacts on the condition of the landfill mass.
- Locate the odour monitoring sentinels between the operational area and the boundary in the direction of the prevailing wind.
- Increase perimeter monitoring from daily to twice daily
- Upon successful control of the odours, Quercia will inform the Environment Agency accordingly.
- Details of the incident will be reported into the YELM “Defect Reporting” system.

8. COMMUNICATION SYSTEMS

Quercia Ltd has communication systems in place which are detailed below:

8.1 Liaison meetings

Quercia Ltd will hold liaison meetings on a regular basis, the frequency of which will be reviewed on a regular basis and will be to a degree dependent upon the impact that the landfill operations is having on the community. Attendees of the meetings will include members of the local and regional councils, local members of parliament, regulatory body representatives and Quercia management.

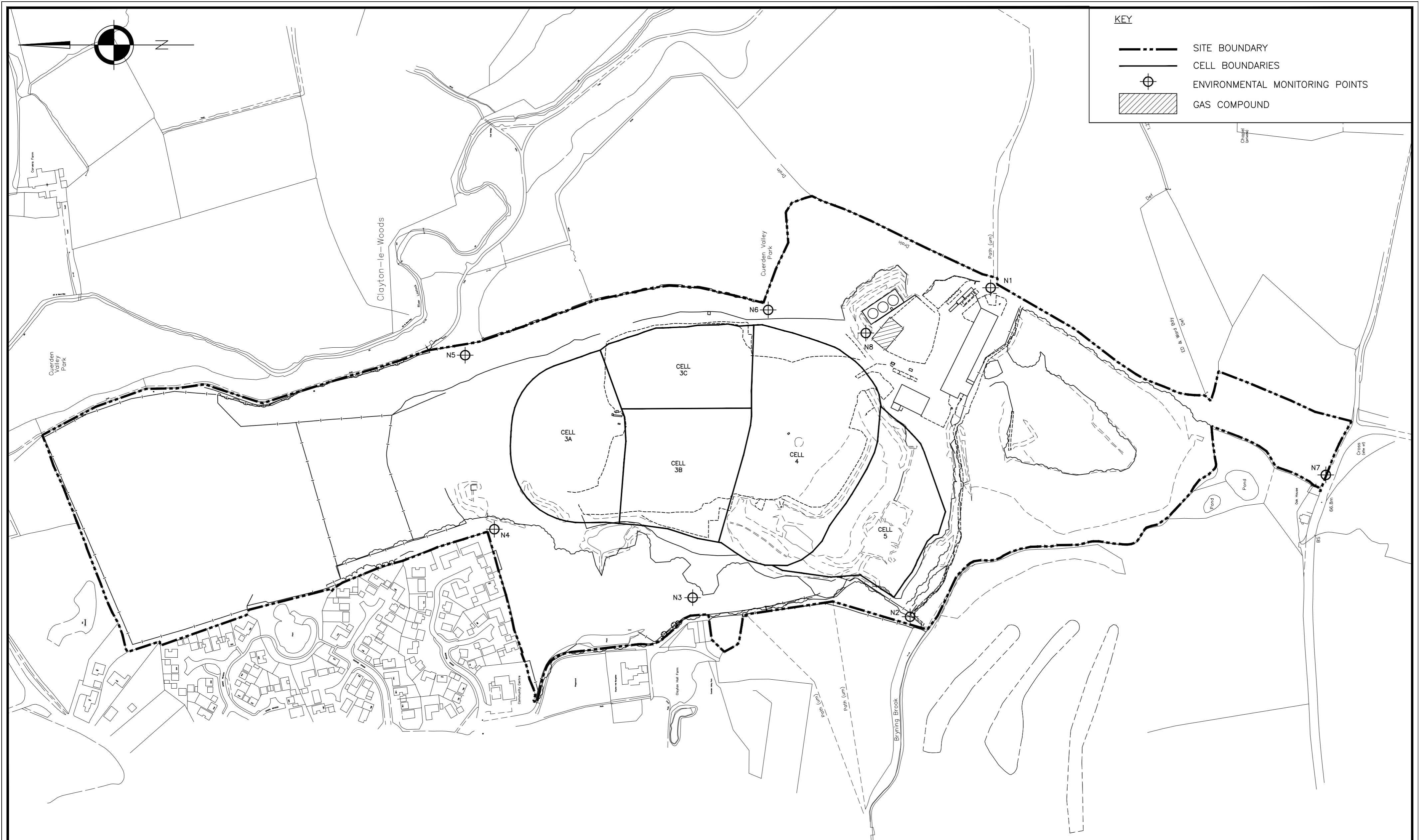
8.2 Direct Line to the Site

Quercia Ltd will where possible accept and deal with complainants calls directly received at the site. Where Quercia staff are not available to receive the call, the complainant will be asked to leave their contact details.

9. OMP REVIEW

This OMP will be reviewed on a regular basis, the initiation of the review being in part due to the level of justified odour complaints received relating to the landfill operation; the review and any subsequent amendments to be agreed with the Environment Agency.

Appendix A



KEY	
	SITE BOUNDARY
	CELL BOUNDARIES
	ENVIRONMENTAL MONITORING POINTS
	GAS COMPOUND

**THE ARLEY CONSULTING
COMPANY LIMITED**

Chorleian House
49-51 St Thomas's Road
Chorley, Lancashire PR7 1JE



Tel: 01257 278300
Fax: 01257 268063
E-mail: mailbox@tacl.co.uk

CLIENT.

**QUERCIA
LIMITED**

JOB TITLE.

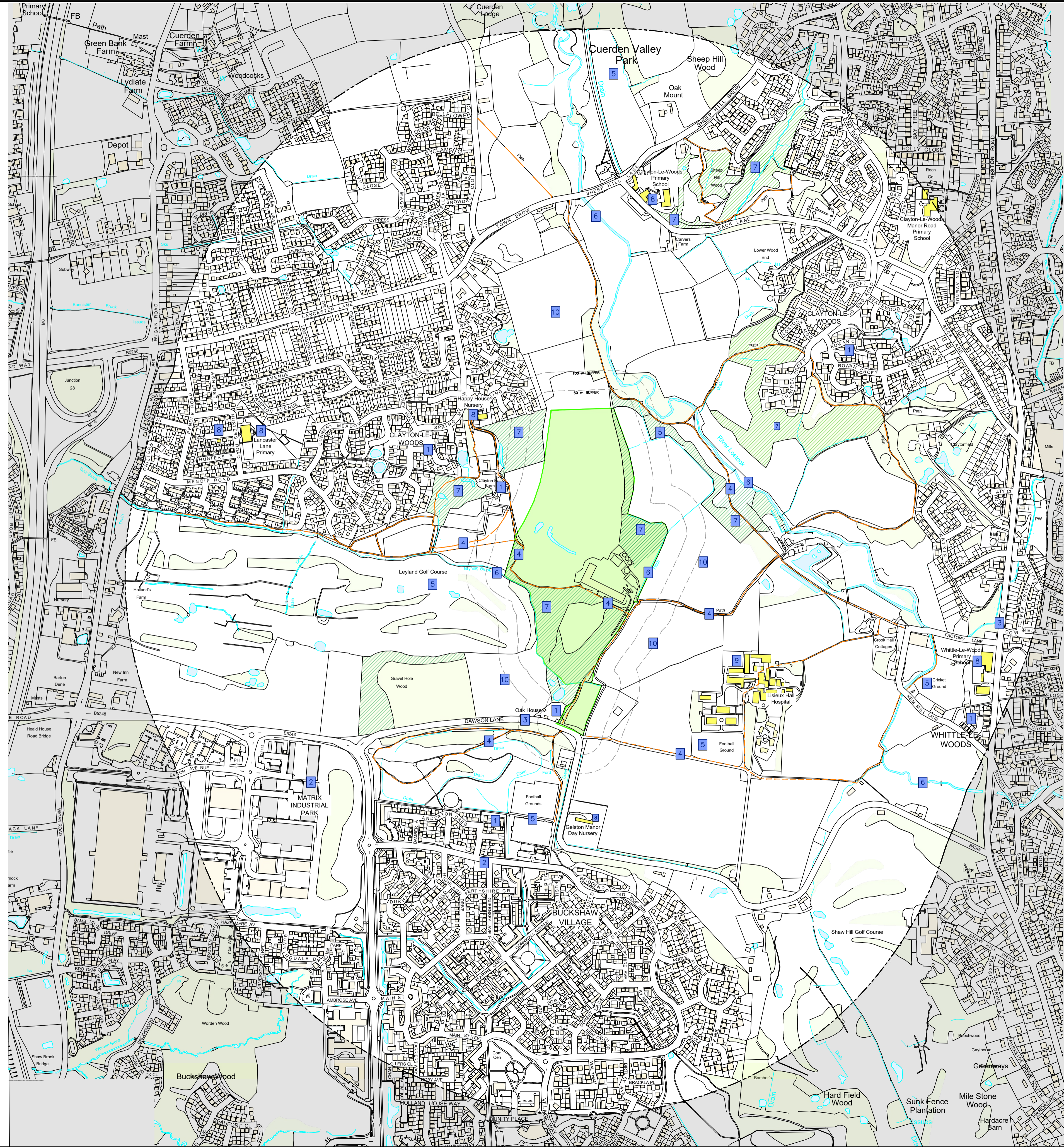
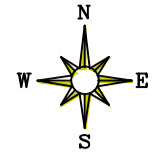
CLAYTON HALL
LANDFILL SITE, CHORLEY

DRAWING TITLE.

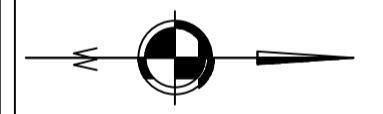
ENVIRONMENTAL
MONITORING POINT
LOCATION PLAN

REV.	DESCRIPTION	DATE	BY
C	BOUNDARIES UPDATED	17.7.18	M.Y.B.
B	BOUNDARIES UPDATED	31.5.18	M.Y.B.
A	BOUNDARIES UPDATED	29.9.14	L.G.

DRAWN BY.		APPROVED BY.	
L.G.		C.G.	
DATE.		DRAWING No.	
15/07/2010		08469/48C	
SCALE AT A2.			
1:2500			



- LEGEND**
- PERMIT AREA
 - PRIORITY HABITAT WOODLAND
 - RESIDENTIAL
 - SCHOOL/CARE FACILITY/HOSPITAL
 - INDUSTRIAL/COMMERCIAL
 - PUBLIC RIGHT OF WAY
 - 1 KM RECEPTOR BOUNDARY
 - 1 RECEPTOR REFERENCE



PREDOMINANT WIND DIRECTION IS FROM THE WEST

REV.	DESCRIPTION	DATE	BY

STARLING ENVIRONMENTAL LIMITED
 67 Chorley Old Road, Bolton,
 Greater Manchester, BL1 3AJ
 www: starlingenvironmental.co.uk
 email: claire@starlingenvironmental.co.uk
 Tel: 07989 673122

CLIENT:
QUERCIA LIMITED

JOB TITLE:
CLAYTON HALL LANDFILL SITE

DRAWING TITLE:
1 KM RECEPTORS PLAN

DRAWN BY: M.Y.B	APPROVED BY: C.G	DRAWING No. 110/05
DATE: 04/12/23	SCALE @ A2: 1:4000	

Appendix B



Clayton Hall Landfill Site

Permit Number: EPR BV1364

Waste Acceptance Procedure

**Clayton Hall Landfill Site
Dawson Lane
Wittle Le Woods
Chorley
Lancashire
PR6 7DT**

February 2024

CONTENTS

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APPENDICES

Appendix A – Waste Information Form (WIF) NWM210

Appendix B – Waste Sampling Plan

Appendix C – Waste Acceptance Criteria

Appendix D – Waste Rejection Notice

INTRODUCTION

Objectives

To ensure that the waste accepted into the landfill site is:

- compliant with environmental permit EPR/BV1364ID
- classified as non-hazardous for the purposes of recovery/disposal in compliance with landfill permit conditions as provided by the WM3 technical guidelines;
- meets the Inert Landfill WAC test criteria for leaching for inert materials being used for restoration or engineering purposes; and
- compliant with HMRC Landfill Tax Guidance for material destined for disposal at the landfill.

Responsibilities

Table 1: Roles and Responsibilities

Role	Responsibility
Waste Compliance Team	<p>To evaluate all external client requests for waste acceptance to the landfill and provide support to the site in relation to queries on individual waste loads.</p> <p>To undertake compliance checks on incoming wastes and ensure any waste found not to be suitable for the site is rejected.</p> <p>To support personnel in the ensuring the residual material, qualifying fines and restoration soils received through the MRF are compliant with the landfill acceptance criteria.</p> <p>To ensure all wastes accepted are supported by a completed WIF</p>
Operations Team	<p>To ensure the Waste Acceptance Procedures for the site have been followed before allowing wastes to be tipped at the landfill.</p> <p>To ensure all wastes that have been rejected are removed promptly and recorded as required under the waste rejection procedures and permit conditions.</p>
Weighbridge Operator	<p>To ensure that waste loads entering the site are authorised using the computerised transaction system. This includes the correct operation of the weighbridge, the computerised transaction recording, completion of the initial Level 3 Verification checks of load and paperwork at the weighbridge to ensure that all transfer documentation is up to date and accurate.</p>
Plant Operator	<p>To liaise with Weighbridge Operator with regard to incoming and outgoing waste vehicles, to complete the Level 3 visual inspection checks on incoming waste and to ensure the incoming waste is stored and processed in accordance with site requirements.</p>

PRE-ACCEPTANCE PROCEDURE

This sets out the procedure to be followed to ensure that wastes streams are assessed and pre-characterised before acceptance. In order for any waste to be accepted over the weighbridge, there must be a pre-existing contract available and this requires an enquiry to be set up.

Level 1 Check: Basic Characterisation Information

As part of the enquiry process from external waste producers, the Waste Compliance Team shall issue the Waste Information Form (see Appendix A) to the customer to collect the following pre-characterisation information as a minimum:

- Producer details including the company name and address;
- Source and origin of the waste including the name and address of the site and if the source is from another waste management facility, the environmental permit number;
- Information on the process producing the waste (including SIC Code and description plus the characteristics of raw materials, products or in the case of another waste management facility the details of the incoming waste streams and waste codes);
- Where material will not undergo any treatment at the MRF apart from bulking and transfer to the landfill, in addition to the other classification information such as certified laboratory tests, the client must provide a description and confirmation of the pre-treatment applied to the waste or a statement of reasons why pre-treatment was not considered necessary;
- Customer to confirm the appearance of the waste including its physical form (solid, liquid, gas or sludge), colour and odour;
- Waste description, the relevant list of waste (LoW) code (also known as EWC) and its classification (i.e. hazardous, non-hazardous or inert);
- Level 1 Basic Characterisation Analysis – this will be required for all wastes with a mirror entry LoW as defined in WM3 and for material being directed to the landfill for engineering or restoration purposes. For material classified as inert to be used for engineering or restoration purposes this analysis must also include the inert WAC leaching test results. All testing must be by certified laboratories;

Table 2: Sample Requirements for Waste Going to Landfill Without Processing

Amount of waste (tonnes)	Homogeneous waste (number of samples)	Heterogeneous and new waste (number of samples)
Less than 100 t	2	5
100 to 500 t	3	8
500 to 1,000 t	5	14
1,000 to 10,000 t	11	22
Plus (per additional) 10,000 t	+5 (pro rata)	+10 (pro rata)

- Where clients are declaring waste materials to be of qualifying nature for placement in the landfill, a declaration form will also be required to be completed and signed by the customer to complete their pre-acceptance. Upon arrival of materials sampling will be carried out to ensure that materials are declared correctly.

Note Level 1 basic characterisation testing will be rechecked at regular intervals and at least annually. Often this can be achieved by obtaining written confirmation from the producer that the waste, and the process generating the waste, has not changed since the last assessment or by the Waste Producer providing additional analytical data.

All waste received at the adjacent MRF will be subject to the same Level 1 Basic Characterisation and Level 3 Verification checks prior to being deposited at the landfill.

Level 1 Check: Technical Assessment

All Landfill enquiries attracting tax rates other than the standard tax rate must undergo technical assessment by the Waste Compliance Team. Even then, a technical assessment is still required unless the waste type is listed in the table below, from a single source and is otherwise is uncontaminated or unremarkable.

Table 3: Inert Wastes Not Requiring Technical Assessment

EW Code	Description	Restrictions
10 11 03	Waste glass-based fibrous materials	Only without organic binders
15 01 07	Glass packaging	
17 01 01	Concrete	Selected C & D waste only(*)
17 01 02	Bricks	Selected C & D waste only(*)
17 01 03	Tiles and ceramics	Selected C & D waste only(*)
17 01 07	Mixtures of concrete, bricks, tiles and ceramics	Selected C & D waste only(*)
17 02 02	Glass	
17 05 04	Soil and stones	Excluding topsoil, peat; excluding soil and stones from contaminated sites
19 12 05	Glass	
20 01 02	Glass	Separately collected glass only
20 02 02	Soil and stones	Only from garden and parks waste; Excluding top soil, peat

(*) Selected construction and demolition waste (C & D waste): with low contents of other types of materials (like metals, plastic, soil, organics, wood, rubber, etc). The origin of the waste must be known. No C & D waste from constructions, polluted with inorganic or organic dangerous substances, and no C & D waste from constructions, treated, covered or painted with materials, containing dangerous substances in significant amounts.

Technical assessments for soils or other materials being accepted into landfill site without MRF processing will be completed by the Waste Compliance Team– this includes any pre-acceptance audits at the Client’s site.

All post-treatment materials leaving the MRF facility, whether destined for disposal or restoration use at the landfill must undergo a technical assessment prior to movement. Quercia must therefore gather sufficient technical information at the MRF pre-acceptance and acceptance stages in order to facilitate this post-treatment assessment.

In all cases, the above pre-characterisation information shall be recorded and this forms the basis of the Basic Waste Characterisation or Level 1 Waste Characterisation for all landfill waste enquiries and is supplemented by information gained during the technical approval process. The Level 1 characterisation will be assessed by the Waste Compliance Team by:

- Reviewing the description of the material and the allocated LoW code against Schedule 2 of the environmental permits (EPR/BV1364ID for the landfill) to confirm the waste is on the list of permitted wastes that can be accepted.

- Undertaking a statistical analysis on the group of samples provided by the client to understand the mean result and the variation (standard deviation) of the waste stream. This information will be used to confirm that the Sampling Plan for compliance testing remains appropriate or will be used to inform a Site Specific Sampling Plan, if the Waste Compliance Team determine that a Pre-acceptance Audit is required for a particular waste stream.
- Reviewing the analytical results against the Waste Acceptance Criteria (Appendix C) – any sample with results above the relevant acceptance criteria will result in the waste from that producer being rejected at the pre-acceptance stage.
- Only materials classed as non-hazardous will be accepted – any sample classed as hazardous will result in the waste from that producer being rejected at the pre-acceptance stage.

WASTE ACCEPTANCE

The Landfill is permitted to accept up to 149,000 tpa of domestic, commercial and industrial wastes for disposal and up to 149,000 tpa of nominated wastes that can be used for restoration purposes. The list of waste to be accepted is shown in Schedule 2 of the site permit EPR/BV1364ID.

Wastes shall only be accepted on site if it:

- has been pre-approved through the pre-acceptance process. Any ad hoc load arriving at site will be rejected in accordance with the rejection procedure.
- Is of a type and quantity listed in Schedule 2 of the landfill permit;
- Conforms to the description in the incoming transfer documentation; and
- There is sufficient physical capacity at the site to handle the waste. This will be determined by the Operations Team based on weighbridge records of the waste received and processed coupled with visual checks to confirm available volume at the end of the working day. If necessary loads for the following day will be rescheduled if there is insufficient capacity.

Level 3: Verification Checks

Receipt at Weighbridge

All loads entering the site must stop and report to the weighbridge. Where appropriate, first time visitors will be required to confirm their registration as a waste carrier and will be issued with instructions on health and safety and site procedures.

Verification checks at the weighbridge will be completed by the Weighbridge Operator and will include:

- Review of the waste transfer note provided by the driver. The Weighbridge Operator will confirm the transfer paperwork includes :
 - a) details of the waste source (name of client and location where waste produced);
 - b) the classification of the waste (i.e. inert, non-hazardous or hazardous) – if the waste is marked as hazardous it must be immediately rejected by the weighbridge operator in accordance with the rejection procedure

- c) description of the waste (including LoW number) – waste with a LoW which is not listed in schedule 2 of the permit (EPR/BV1364ID) will be immediately rejected by the weighbridge operator in accordance with the rejection procedure;
 - d) A SIC code for the waste producer’
 - e) waste quantity;
 - f) how the waste is contained (e.g. loose in bulk wagon, drummed, etc);
 - g) waste carrier details; and
 - h) form has been signed by the company transferring the waste.
- Transfer documentation with the details identified above confirmed will be validated as correct and a copy of the transfer note will be held at the site office once waste has been accepted. If discrepancies are noted then the Operations Team or member of the Waste Compliance team will be contacted and discrepancies resolved before the waste is accepted. If the incoming waste classification or description is believed to be incorrect then this must be addressed with the waste producer and/or waste carrier. Such non-conformances will be rejected and recorded on a waste rejection note contained in Appendix D.
 - Confirmation with the driver, the waste description to ensure compliance with the information on the transfer documentation and the requirements of the permit. A visual check will be made, whenever possible, to ensure adequate description has been provided.
 - Each load will be weighed in and out to obtain a net weight for individual loads to confirm the quantities – this quantity will be cross checked to be sure it is consistent with the quantity listed on the transfer note.

If the weighbridge operative is satisfied that the waste is acceptable for receipt at the site within the terms of the permit, the driver will be directed to the relevant tipping area.

If the weighbridge operative is not satisfied by either the waste description or the content of the incoming load, the vehicle will be directed to a holding area where the load can be checked and the Waste Compliance Team notified. The load will be inspected thoroughly to decide on its acceptability.

If the waste is unacceptable under the terms of the permit, entry to the site will be refused and details will be recorded on a waste rejection note.

Visual Inspection

All incoming waste loads are subject to visual inspection by a site operative to ensure that they are as expected. Material will be tipped in a designated bay for inspection and sampling. Waste will be visually inspected by the site operative prior to loading onto the dump truck for transfer to the landfill. This check is to ensure no banned substances, asbestos or high-sulphate containing wastes are present and that the waste is not grossly infested with pests.

The weight of material transferred to the landfill from the MRF will be recorded from the weighers on the dump trucks and this information is transferred and recorded within the waste record system.

Level 2: Compliance Checks

For all wastes which require a technical assessment, Level 2 Compliance Checks will be undertaken at regular intervals as detailed in Table 4 below.

Table 4: Level 2 Compliance Check Requirements

LoW Code	Waste Type	Compliance Checks Requirements
19 12 12	Mechanically treated waste – MRF residuals	Every 1000 T of residual waste produced by the MRF treatment processes being disposed of in landfill will be tested for the Level 1 Basic Characterisation suite to ensure material remains non-hazardous after treatment and can be disposed of at the landfill. This testing will be undertaken in accordance with the Sampling Plan
19 12 12	Mechanically treated waste – Qualifying fines	22 samples per 10,000 T will be tested for the WM3 Compliance Suite to ensure material is non-hazardous and for HMRC LOI compliance for material that will be disposed of at landfill.
17 05 04	Inert Waste (soil waste)	Every 1,000T of incoming waste will be subject to a Level 2 compliance check* and tested for Inert WAC leaching and for HMRC LFT 1 compliance for material that will be used for restoration or cover materials. This testing will be undertaken in accordance with the Sampling Plan.

* Compliance checks on qualifying fines/inert materials will ensure each waste source is sampled at least 3 times. Sampling Plan contained in Appendix B.

Waste materials which are subject to ongoing compliance testing will be tested using the Quercia WM3 Compliance Suite in accordance with the sampling plan (Appendix B). All appropriate records will be kept and filed on site along with the WM3 Assessments.

Where compliance testing produces results which are approaching the compliance limits (i.e. close to hazardous thresholds) additional sampling on the material will be undertaken to provide confidence that material is non-hazardous and can continue to be accepted.

In the case of a sample failure, transfer of the waste to the landfill will be stopped with immediate effect. For incoming waste which is accepted without processing at the MRF:

- Low qualifying material which has failed the HMRC LFT1 LOI test will be isolated in the low-rate qualifying bay and all material in the bay treated as non-hazardous waste for disposal at the landfill under the higher landfill tax rate providing it meets the site landfill acceptance criteria (Appendix c). The client will be notified and all subsequent loads from this source would be treated as higher rate material until the client is able to demonstrate via further representative analysis that the lower rate of landfill tax applies. The Waste Compliance Team may revisit a client’s site to confirm the processing and handling of the waste meets the requirements for lower rate tax. If this material has also failed the Level 2 compliance check then it will be removed from site in accordance with the rejection procedure;
- For inert material which has failed the inert WAC test, this will be treated as non-hazardous waste providing it has met the site landfill acceptance criteria (Appendix C) and will be disposed of in the landfill. Additional sampling in accordance with the sampling plan (Appendix B) will be undertaken on any material already sent to stockpile and if this also fails inert WAC criteria then this material will be transferred for disposal at the landfill. The client will be notified and further incoming waste be treated as non-hazardous material for disposal until the Client is able to demonstrate via further representative analysis that the material is inert. If this material has also failed the Level 2 compliance check then it will be removed from site in accordance with the rejection procedure;

In both instances deliveries to site will be stopped immediately and arriving loads rejected until investigations are complete. The external third party customer(s) will be informed that they must restart the waste acceptance procedure from the start which will include provision of basic characterisation data including additional independent analysis provided by 3rd party labs on new waste samples. A new Waste Information Form will be completed and the Level 1 Technical Assessment will be repeated by the Waste Compliance Team to confirm if waste acceptance can be resumed.

For MRF residual waste which has failed the Level 1 Characterisation test, Quercia will halt transfer of residuals to the landfill and return laden dump trucks to the MRF where the non-compliant material can be offloaded back into the residuals bay. MRF processing of the incoming waste streams will be halted while the Waste Compliance Team:

- a. Arrange for the non-compliant residual material to be removed from the residuals bay and taken off site in accordance with the Rejection Procedure. Material will be sent to a suitably permitted offsite treatment or disposal facility.
- b. Sample the incoming waste stockpile in accordance with the MRF Sampling Plan and undertake the specified compliance testing to confirm this material can be processed. If this testing shows this material has also failed the compliance testing, it will be removed from site in accordance with the Rejection Procedure and sent to a suitably permitted offsite treatment or disposal facility.
- c. Investigates which incoming waste streams contributed to the processed residual material – this will include reviewing weighbridge records to confirm which source(s) make up the waste in the affected incoming bay. Once identified, the relevant Waste Producer (s) will be notified, the WIF process will be reviewed as above and compliance testing on their incoming waste loads will be undertaken.

If necessary, deliveries into the MRF and landfill will be stopped while this is undertaken.

Once resumption of waste deliveries has been approved, the testing compliance level of any customer failing a WM3 Level 2 Compliance Test will be increased to 20 incoming loads which must all pass the required standards for the level of compliance to return to 22 samples per 10,000 tonnes for 19.12.12 or 1,000 tonnes per test for 17.05.04 detailed in Table 3 above.

Waste Rejection and Quarantine

Materials will be rejected if:

- EWC code is not on the permitted waste list in Schedule 2 of Environmental Permit;
- An ad hoc load arrives without the relevant WIF assessments and approval having been completed;
- Transfer documentation for incoming waste loads is incomplete or discrepancies are noted;
- Materials are found in the waste mass which do not match the waste description and/or quantity or banned materials, asbestos or high sulphate materials, or gross pest infestation are found during visual inspections; and
- A Level 2 compliance testing sample fails against the defined Site Acceptance Criteria (Appendix C) or the waste is confirmed as being hazardous.

Actions to be taken in the event that waste is rejected include:

- Waste will be rejected at the weighbridge and not permitted to tip in the event that the load is not supported by a WIF approval or the LoW/EWC code on the accompanying documentation is not on the approved waste list (Schedule 2, Environmental Permit, EPR/BV1364ID) or the waste transfer documentation identifies the waste as hazardous.. The rejection will be recorded on the Rejection Notice (Appendix D) and copy of this will be provided to the Waste Carrier and the Waste Producer.
- If the weighbridge operative is not satisfied by the waste description on the paperwork, there are discrepancies in the paperwork, or the content of the incoming load, the vehicle will be directed to a holding area where the load can be checked and the Waste Compliance Team notified. The load will be inspected thoroughly to decide on its acceptability as follows:
 - a) If the incoming waste classification or description is believed to be incorrect then this must be addressed with the waste producer and/or waste carrier before accepting the load.
 - b) If the incoming waste is confirmed as not being suitable for acceptance then Producer will be notified that the waste is being sent offsite. The rejection will be recorded on the Rejection Notice (Appendix D) and copy of this will be provided to the Waste Carrier and the Waste Producer.
- Where the Level 3 visual inspection identifies non-permitted, banned, asbestos or high sulphate bearing materials are present, these will be segregated, photographed and quarantined within a secure area. Quarantined material will be clearly indicated, storage containers/skips will be of appropriate size and type, and will be located upon the impermeable concrete area. The Operations Team and/or the Waste Compliance Team will be notified and a further inspection will be completed.

Wastes rejected at the weighbridge will be immediately sent offsite. Wastes which are not immediately rejected at the weighbridge will be isolated from acceptable materials and sent off site for disposal as soon as arrangements can be finalised.

This is dependent upon tracing the waste disposer, any regulatory involvement and/or applying the Best Practicable Environmental Option for final waste disposal at an appropriately licenced facility.

RECORDS

Records associated with waste pre-acceptance, acceptance and rejection will be retained as follows:

Table 5: Record Retention

Record Type	Storage Format/Location	Retention Period
Waste Information Forms (NWM210)	Site Office	Min 6 years following receipt of waste
Level 1 Basic Characterisation Testing	Appended to WIF	Min 6 years following receipt of waste
Level 2 Compliance Testing	Appended to WIF	Min 6 years following receipt of waste
Waste Transfer Documentation	Weighbridge	Min 6 years following receipt of waste
Weighbridge Tickets	Weighbridge	minimum 6 years following waste treatment or removal from site
Waste Acceptance Records	Site Office	minimum 6 years following waste treatment or removal from site
Waste Rejection Forms	Site Office	minimum 6 years following waste treatment or removal from site

Title	Waste Characterisation and Pre-Acceptance Form				
Date	25/06/2019	Site	All Sites	Issue Number	6

All New Customers / Waste Producers MUST complete the Waste Characterisation and Pre-Acceptance Form prior to any loads being sent to the site. Additionally, if any existing Customers / Waste Producers wishes to bring a new waste material type to site they must also complete the Waste Characterisation and Pre-Acceptance Form prior to any loads being sent to the site. Waste materials may not be accepted on site if the Waste Characterisation and Pre-Acceptance Form has not been completed.

The Waste Characterisation and Pre-Acceptance Form is required to ensure that the waste streams can be evaluated to determine if they are permissible in accordance with the site permit conditions: Materials Recycling Facility (MRF) permit number AP3897CJ or Non-Hazardous Landfill Operations permit number BV1364 and any other procedures. Additionally, waste will only be permitted if its acceptance would not result in emissions to groundwater, surface water, there are no signs of pests, vermin, odours, non-permitted waste types etc.

Waste may only be permitted on site where a Waste Transfer Note is present, and the information detailed on the Waste Transfer Note is correct.

The waste type & EWC Code MUST be listed in Appendix A of permit number AP3897CJ or Table S2.1 of permit number BV1364.

Customer / Waste Producer Details (Source Address, Origin etc.)			
Process of Producing the Waste			
Description of the process:		SIC Code:	
Characteristics of raw materials and products:			
Type of Waste Treatment Applied			
Or a statement of reasons why such treatment is not considered necessary. (i.e. waste acceptable without testing in accordance with regulation 10 of the Landfill (England & Wales) (Amendment) Regulations 2004):			
Appearance of Waste			
Smell:		Colour:	
Consistency:		Physical Form	
Description of Waste	European Waste Catalogue Code (EWC Code)		
Can the Waste be Re-used, Recycled, Recovered or Landfilled?			

I declare the above information is correct and I confirm I have fulfilled my duty to apply the waste hierarchy as required by Regulation 12 of the Waste (England and Wales) Regulations 2011.			
Name:		Position:	
Signature:		Date:	

To be completed by a relevant company representative i.e. TCM, Site Manager, Q&SHE Manager, Waste Account Manager			
Has the above information been reviewed against relevant permit conditions?	Yes	No	
Is the waste type permissible under permit conditions?	Yes	No	
Has the Customer / Waste Producer been informed if the waste is non-permitted?			
Name:		Position:	
Signature:		Date:	

Doc Reference	NWM210	Issue no.	6	Agreed by:
Originator	Philip Corps	Date Reviewed	24/05/2022	Gray Whitehead
CONTROLLED DOCUMENT	Yes	Issued to/for	All staff	Supersedes: 05

Name/Reference:	QUERCIA/024	
Date Prepared	20/2/2024	
Parties Involved	Producer/Holder	Quercia Ltd
	Sampler	Waste Compliance Managers
	Laboratory	DETS
	Regulators	Environment Agency and HMRC
Responsibilities		
<p>Technically Competent Manager – to undertake checks to ensure the site management are carrying out the correct sampling of waste streams as provided by WM3 technical guidelines</p> <p>Waste Compliance Managers – to ensure that all samples have been collected and processed according to written plan</p>		
Objectives		
<p>To enable Quercia Limited to undertake a regular compliance (Level 2) testing programme to check conformance with the set compliance levels for the entire volume of waste received from a waste producer.</p> <p>This sampling plan relates only to samples taken at the Landfill facility.</p>		
Technical Goals		
<ul style="list-style-type: none"> • To determine the composition, concentration and properties of substances present within waste materials through laboratory analysis. • To determine if any hazardous substances are present as per WM3 thresholds and cut off points. • To confirm the allocation of the appropriate list of waste (LoW) code and compliance with the approved waste list as defined in Schedule 2, Environmental Permit (EPR/BV1364ID) • To measure the organic load in waste through LOI (Loss on ignition) determination and ensure the correct allocation of landfill tax. • To ensure that inert materials accepted for engineering/restoration purposes meet the Inert WAC criteria. 		
Background Information		
<p><u>Landfill Site</u></p> <p>The landfill is permitted to accept only non-hazardous waste streams as identified in Schedule 2 of the environmental permit and primarily accepts waste in the following categories:</p> <p>19.12.12 Mechanically Treated waste (residual waste from MRF and qualifying fines) 17.05.04 Inert Waste (soil waste)</p>		
<p><u>Process/Nature of the Arising</u></p> <p>Waste arriving at the site will have been through pre-acceptance assessment which will include:</p> <ul style="list-style-type: none"> • Waste Information Form detailing information on the processes originally producing the waste; • The results of any samples obtained and analysed for waste classification in line with WM3 and associated assessment (Client produced). • Decision basis and requirements for waste acceptance. • Basis for Compliance Tests <p>Only waste accepted through this process will be deposited in the Landfill . A portion of waste being disposed in the landfill will be subject to pre-treatment processing at the MRF and the residual material will be subject to Level 1 characterisation testing in accordance with this Landfill Sampling Plan.</p>		

Material Type and Dimensions

The material accepted at the landfill generally comprises solid waste delivered in bulk wagons (~20T per load) which is tipped into the reception bay where it is subject to visual Level 3 verification inspections. Waste will be sampled from an individual 20T load from the designated waste producer/source at the frequencies defined in the WIF information. Waste transferred to the landfill and subject to the Landfill Sampling Plan primarily comprises:

- 19 12 12 – mechanically treated waste from other waste treatment facilities. This is generally a mixed waste stream that will be processed at the MRF to separate recyclates from residual materials. Residual materials will be transferred to the residual waste bay and samples taken by the MRF are tested for Level 1 Basic Characterisation Suite to ensure the material is non-hazardous after processing. These samples will be generally taken from the residuals bay.
- 19 12 12 – mechanically treated waste classed as qualifying fines. These fines are generally from designated sources and will be deposited in the relevant low-rate tax bay. Qualifying fines will be sampled for Level 2 compliance checks using the WM3 Compliance Suite and for HMRC LFT1 LOI checks. Samples will be generally taken from the nominated low-rate tax bay.
- 17 05 04 – inert waste (soil wastes) which are received from other waste treatment facilities or from construction and excavation projects. Dependant on the source of the material and the intended use on site, Level 2 compliance samples will be generally taken from the tipped 20T load in the waste reception bay. These materials will be subject to Inert WAC testing as well as Quercia WM3 Compliance Suite.

Testing Level Required

- Level 1 Basic Characterisation testing will be required to be provided by the waste producer during the pre-acceptance process to support the preliminary Technical Assessment by the Waste Compliance Team. Analysis results must be from an accredited laboratory and will be provided by the Waste Producer during this stage and may be supported by Level 2 Compliance checks by Quercia as part of any pre-acceptance audit. Any site specific Sampling Plan will be attached and retained with the WIF and samples taken during the pre-acceptance audit will be forwarded to an accredited laboratory for analysis.
- Level 2 Compliance checks will be completed in accordance with this sampling plan and at the frequencies set out below. The analysis undertaken on these samples is outlined below.

LoW Code	Waste Type	Compliance Checks Requirements
19 12 12	Mechanically treated waste – residual produced from MRF treatment	Every 1000 T of residual waste being transferred after processing for Level 1 Characterisation Suite and HMRC LOI if material is deemed to be qualifying fines.
19 12 12	Mechanically treated waste – qualifying fines	22 samples every 10,000 T of incoming waste for Level 2 compliance checks and testing for WM3 Compliance Suite and HMRC LOI.
17 05 04	Inert Waste (soil waste)	Every 1,000T of incoming waste for Inert WAC leaching, WM3 Compliance Suite and for HMRC LFT 1 compliance.

- Level 3 Verification checks will comprise visual checks of the load and consignment paperwork at the weighbridge and initial visual inspection of the load once tipped in the waste reception area. Visual inspection at the point of loading for residual materials and qualifying fines will also be completed on materials being transferred from the residual and low-rate-tax bays.

Constituents to be Tested

Level 1 – WM3 Compliance Suite will be requested for Level 1 Basic Characterisation from the waste producer and will also be used for Level 2 Compliance checks. This testing suite will assess the levels of the following parameters:

Worse Case Compound	Parameter	Unit
Metals		
Arsenic	Arsenic acids and salts	mg/kg
Boron	Boron Tribromide	mg/kg
Cadmium	Cadmium Sulphate	mg/kg
Chromium III	Chromium – C III components	mg/kg
Chromium VI	Chromium – C VI components	mg/kg
Copper	Copper Sulphate Pentahydrate	mg/kg
Lead	Lead Chromate	mg/kg
Mercury	Mercury Difulminate	mg/kg
Nickel	Nickel Diodide	mg/kg
Selenium	Selenium Compounds except Cadmium Sulphoselenide	mg/kg
Zinc	Zinc Chromate	mg/kg
Hydrocarbons		

Hydrocarbon short chain – confirm source is not petrol or diesel	Total Petroleum Hydrocarbon (TPH) (C ₆ H ₄₀)	mg/kg
Hydrocarbons - polycyclic	Napthalene (C ₁₀ H ₈)	mg/kg
	Acenaphtylene (C ₁₂ H ₁₀)	mg/kg
	Fluorene (C ₁₃ H ₁₀)	mg/kg
	Phenathrene (C ₁₄ H ₁₀)	mg/kg
	Anthracene (C ₁₄ H ₁₀)	mg/kg
	Fluoranthene (C ₁₆ H ₁₀)	mg/kg
	Pyrene (C ₁₆ H ₁₀)	mg/kg
	Benzo (a) anthracene (C ₁₈ H ₁₂)	mg/kg
	Chrysene (C ₁₈ H ₁₂)	mg/kg
	Benzo (a) pyrene, Benzo (d,e,f) chrysene (C ₂₀ H ₁₂)	mg/kg
	Benzo (k) fluoranthene (C ₂₀ H ₁₂)	mg/kg
	Benzo (a,h) anthracene (C ₂₂ H ₁₄)	mg/kg
	Benzo (g,h,i) perylene (C ₂₂ H ₁₂)	mg/kg
Indeno (1,2,3, cd) pyrene (C ₂₂ H ₁₂)	mg/kg	
Others		
[H ⁺]	pH	-log [H ⁺]
NaOH	pH acid/alkali reserve	gNaOH
Water Soluble SO ₄ Acid soluble SO ₄ (sulphates producing H ₂ S (g))	Calcium Sulphate Dihydrate	mg/kg
Asbestos	Asbestos	mg/kg
Loss on Ignition	LOI	%
<p>Inert soils will be subject to WAC Leaching Tests in accordance with BS EN 12457-1:2002</p> <p>Characterisation of waste. Leaching. Compliance test for leaching of granular waste materials and sludges - One stage batch test at a liquid to solid ratio of 2 l/kg for materials with high solid content and with particle size below 4 mm (without or with size reduction)</p>		
Health and Safety Precautions and Access Restrictions		
<p>Sampling will be undertaken on an active waste management site and will involve various potential hazards associated with the individual wastes being sampled and the working area. A risk assessment has been completed for sampling within the MRF and is presented in Appendix 2. All other site rules must be concurrently observed during the sampling process.</p>		
Sampling Approach		
Population	<p>The population is the:</p> <ul style="list-style-type: none"> individual bay of waste individual load of waste (~ 20T) sampled from the external Waste Producer for soils. 	
Sub-Population	<p>The individual samples taken from each waste load taken at the 4 corners and at least 1 point from the centre of the load. Each of these samples has 5 increments.</p>	
Variability and causes	<ul style="list-style-type: none"> Spatial – within stratum variability 	
Scale of Sampling	<p>Each composite represents either the material within a storage bay or an individual load from an external Waste Producer which has not been subject to processing at MRF</p>	
Practical Instructions and Sampling Methodology		
Name and Organisation of Sampler	Waste Compliance Team	
Name/Organisation of other parties present during sampling	Plant Operators	
Statistical approach to be used	Mean Value of composite to a precision of 5% with a 95% confidence.	

Sampling approach and pattern (including justification)	<p>Sampling approach will be a stratified random sampling (probabilistic) approach where the population of waste (i.e the load or bay) is divided into sub-populations or strata.</p> <p>The samples are obtained randomly from each population from five points consisting of the following:(Four from the corners and one from the centre of the bay) as shown below.</p> <table border="1" style="margin: 10px auto; text-align: center;"> <tr> <td style="width: 33%; height: 50px;">★</td> <td style="width: 33%;"></td> <td style="width: 33%;">★</td> </tr> <tr> <td></td> <td>★</td> <td></td> </tr> <tr> <td>★</td> <td></td> <td>★</td> </tr> </table> <p>Samples will be collected at each point using a scoop which has an approximate volume of 200g to provide a 1kg sample from each location (i.e. 5 increments per sample). The 5 samples are then combined to provide an overall composite for the bay or load.</p> <p>Number of composite samples required to give a mean with 95% confidence was confirmed using a review of recent sampling analysis as per WM3 Annex C formula:</p> $n = (U_a * S/d)^2 * [(s_w/m)^2 + s_b^2 + s_e^2]$	★		★		★		★		★
★		★								
	★									
★		★								
Identify the Sampling Place and Points	<p>For material accepted without processing, samples will be taken from the incoming waste load, after the load has been discharged onto the reception bay floor, mixed and levelled using the loading shovel.</p> <p>For MRF process outputs samples will be taken from the relevant residuals bay.</p> <p>Sample points for both will be as per the sampling pattern presented above.</p>									
Sampling Equipment Needed										
Sampling Scoop	Clean scoop to be used for sampling each load to avoid cross contamination. Scoop volume is approximately 200g therefore 5 scoops (increments) make up each sample taken.									
Shovel	Used to access waste at depth of at least 20 cm in the stockpile – sample increment will be taken using the scoop									
Sample Container	Plastic tub – to be filled to 90% volume, leaving 10% air space to facilitate expansion.									
Sample Container (PAHs)	Samples to be analysed for TPH (Total petroleum hydrocarbons) and PAH (Poly Aromatic Hydrocarbons) to be contained in amber glass jars to avoid side reactions.									
Sample Details										
Sample Type	The sample will comprise an overall composite sample consisting of 5 x 1kg samples taken as per the defined sampling pattern. Each 1kg sample will comprise 5 x 200g increments.									
Requirements for sample reduction	<p>To provide a representative sample to the laboratory and retain a duplicate on site, the mixed composite sample will be reduced using a cone and quarter technique as follows:</p> <ul style="list-style-type: none"> Once the 3rd cone has been formed during the mixing process, the cone will be flattened by inserting the shovel repeatedly and vertically into the peak of the cone to form a flat heap of uniform thickness and diameter. The height should be less than or equal to the height of the shovel. The flat heap will be quartered using the shovel inserted vertically into the heap along the diagonals intersecting at right angles to form a 'cross'. One pair of opposite quarters will be discarded and the remaining two quarters will be formed into a new pile using the shovel. The weight of the discarded sample will be checked to ensure it is equal to half of the mass ($\pm 10\%$) of the composite before division. Where this is not met the discarded sample should be recombined and mixed again and the sub-division of the composite repeated. The process of mixing and quartering will be repeated until the desired mass for the samples is achieved. 									
Onsite Determinations	None									

Sampling Methodology	
<ol style="list-style-type: none"> 1. Confirm on the sample register which analysis is being undertaken to ensure sufficient sample is collected and sent for the analysis. 2. Ensure sampling equipment is clean to avoid cross contamination. 3. Observe the load being tipped in the waste reception bay and note any large items or contaminants on the sampling record. 4. Request the tipped load is mixed by the loading shovel and then levelled to form an approximate rectangular shape of even depth. The waste load should be photographed at this point. 5. Collect the 5 random samples in accordance with the sampling pattern from a depth of about 20cm using a sampling scoop. A shovel may be used to achieve the desired sampling depth but the sample must be taken with the sampling scoop. At each sample location increments of approx. 200g will be taken until 1kg of sample has been obtained. 6. If the observed load is more heterogenous than expected, additional samples may be taken to ensure the composite sample is representative of the whole load. Additional samples and pattern must be recorded on the Sampling Record along with the reason why these were taken. 7. An overall composite sample will be prepared for the load by mixing the 5 samples on a clean plastic sheet to avoid contamination from the floor. A conical heap will be formed on the floors by using the scoop to one scoop of material on top of the preceding scoop until all of the composite sample is placed on the cone (this will be approximately 25 scoops). Once all the composite sample is on the floor, it will be mixed by forming a new cone adjacent to it. The cone will be reformed 3 times. When forming the new cone, each scoop will be placed on the peak of the new cone such that the sample runs down all sides of the cone and is evenly distributed to ensure different particle sizes are well mixed. 	
<ol style="list-style-type: none"> 8. The composite sample will be reduced to form the laboratory sample and a duplicate sample using the cone and quarter technique detailed in sample reduction above. Duplicate samples will be retained for minimum of 12 weeks. The Sample Record form will be completed. 	
Anticipated Restriction or limitations that may impact data reliability	No restriction expected as samples will be taken from the load after it has been tipped in the waste reception bay.
Packaging, Preservation, Storage and Transport Requirements	
Packaging	<ul style="list-style-type: none"> • Main sample – sealed 1 litre plastic container (10% free space to be left in non-inert waste streams to allow for expansion or fermentation gases). • 120 ml and 60 ml Amber glass jars for TPH/PAH samples • All samples must be labelled in accordance with the laboratory instructions. • The chain of Custody Form will be completed and Fill in the one copy will be attached to the samples and one copy will be kept for record. Any photos taken of sampling situation if required (consignment) will be added. • A copy of the SDS must be retained by the labs for a minimum of 12 weeks.
Preservation	<ul style="list-style-type: none"> • Samples shall be packed and transported in such a way that their condition at the time of sampling is preserved.
Storage	Samples to be stored in a cooler box to maintain ambient temperature for up to 48 hours.
Transport Method	Courier
Transport Company Details	TBC on Chain of Custody form at time of collection
Analytical Laboratory	
Company Details	DETS
Review and Interpretation of Analysis	<p>The sampling log file must be provided by the testing labs, this will be used to cross reference the analysis results once received.</p> <p>Haz Waste Online-computerised software may be used by the waste compliance team to assess sample analysis results of waste materials and provide interpretation of material class based on the WM3 technical guidelines.</p>

Sampling Plan Appendix 1 --SAMPLING RISK MANAGEMENT PLAN

Likelihood ▶	Very unlikely	Unlikely	Possible	Likely	Very likely
Severity ▼					
Negligible	1	2	3	4	5
Minor	2	4	6	8	10
Significant	3	6	9	12	15
Major	4	8	12	16	20
Very Major	5	10	15	20	25

Risk Assessment Score
 1-3 = Very minor risk, no further action requires
 4-6 = Possible risk of injury or damage
 7-9 = Acceptable risk, improvements advisable
 10-12 = Corrective action or work permit required
 13-25 = Site/activity is unsafe

Hierarchy of Controls
Eliminate activity or substance
Prevent access to the hazard
Reduce exposure to the hazard (reorganise)
Provide adequate PPE and train
Provide welfare facilities

Common Hazard Codes							
A	Moving vehicles	F	Fire	K	Weather conditions	O	Other (electrical, radioactive,
B	Trip hazards	G	Water hazards	L	Cuts abrasions, debris	P	Behavioural (human actions)
C	Chemical hazards	H	Falls from height	M	Manual Handling	Q	Human Capability
D	Dust, fumes	I	Lone working	N	Noise	ENV	Environment
E	Confined spaces	J	Machinery				

What are the Hazards? (Refer to the Hazard Codes above)	What is the risk?	Who may be harmed & how?	What Current Control Methods are in place?	L	S	Score (LxS)	What Additional Controls are Required? (if applicable)
Fine particulate Matter (dust)	Inhalation of fine particulate matter produced during the sampling as well as eye irritation	Sampling staff & plant operators	Use of face mask and safety goggles	1	4	4	Training of staff on proper handling of waste fines and use of PPE when sampling. Awareness on the impacts of the risks
Fire	Fire caused from waste gases and waste explosives	Sampling staff and everyone in the area	Firefighting equipment and fire alarm to alert staff in case of fire.	2	4	8	Continuous performance of mock fire drills and training of staff on fire issues
Water Hazard	Injury from the wet muddy, slippery concrete floors	Sampling staff and everyone in the area	Good housekeeping as indicated in operation procedures of the MRF. Use of appropriate PPE (wearing safety boots with rubber sole)	3	3	9	Continuous removal of mud/soils accumulated on the floors/surfaces.

Moving Vehicles	Risk of being run over	Sampling staff and everyone in the area	Everyone must observe site rules regarding speed and always wear Hi-vis when on site	2	3	6	N/A
Cuts abrasion, debris	Injury caused by cuts and abrasion through debris during sampling	Sampling staff	Use of appropriate PPE (level 3 hand gloves)	3	3	9	N/A
Machinery	Falling objects from heavy mobile machinery	Staff and Contractors	Always follow site rules and wear hard hats whilst on site	1	4	4	N/A
Lone Working	Injury caused by performing sampling work alone	Sampling staff	Provision of assistance from other supporting staff during sampling and use of PPE correctly	1	3	3	N/A
Trip hazard	Injury	Staff and contractors	Always keep floors clean without debris and other loose obstructing objects	2	3	6	N/A
Falls from height	Injury while obtaining samples from trucks	Sampling staff	Use of appropriate equipment when obtaining samples from trucks and other raised platforms/Avoid heights when sampling	2	3	6	N/A
Human capability	Injury due to negligence and not following health and safety procedures when sampling	Sampling staff	Only trained staff should obtain samples	2	3	6	N/A
Behavioural	Injury due to inappropriate behaviour or conduct whilst performing tasks	Staff and contractors	Random drug test and no person is allowed to report to the site when under the influence of drugs or prescribed medicines that retards performance.	2	4	8	N/A
Chemical hazards	Injury due to direct/indirect contact with hazardous material or inhalation of toxic gases.	Staff and contractors	Adherence to health and safety site rules and use of appropriate PPE when handling waste.	2	4	8	Continuous training of site staff on handling hazardous substances and awareness campaigns.



Appendix B Waste Sampling Plan

Biological hazards	Exposure to diseases	staff and contractors	Adherence to health and safety site rules, exercising good housekeeping and use of appropriate PPE when handling waste.	2	5	10	Continuous training of staff on health and safety issues and carrying out awareness campaigns on disease control.
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Appendix B Waste Sampling Plan

Sampling Plan Appendix 2 – SAMPLING REGISTER

Sample ID	No of Samples	Name of Person Dispatching Samples	Dispatch Date	Lab Receipt Date	Lab Name	Comments	Job Number

For Non-Inert Wastes

Parameter	Worst Case Compound	Acceptance Limit**
Metals		
Arsenic	Arsenic Trioxide	<758 mg/kg
Boron	Diboron Trioxide	<931 mg/kg
Cadmium	Cadmium Carbonate	<250 mg/kg**
Chromium III	Chromium – C III components (Chromium (III) oxide)	<2053 mg/kg
Chromium VI	Chromium – C VI components (Chromium (VI) Trioxide)	<520 mg/kg
Copper	Copper Chloride	<1605 mg/kg**
Lead	Lead Compounds	<2500 mg/kg**
Manganese	Manganese Sulphate	<9095 mg/kg**
Mercury	Dimethylmercury	<434 mg/kg
Nickel	Nickel (II) Carbonate	<450 mg/kg
Selenium	Selenium Compounds (Selenium Dioxide)	<1780 mg/kg
Zinc	Zinc oxide	<2009 mg/kg**
Hydrocarbons		
Hydrocarbon short chain – confirm source is not petrol or diesel	Total Petroleum Hydrocarbon (TPH) (C ₆ H ₄₀)	<1000 mg/kg
Diesel (confirmed by TPH ID)	Diesel range organics	<10,000 mg/kg
Unknown Oil	Unknown oil With Benzo[a]Pyrene marker as <0.01% of total TPH concentration	<2500 mg/kg**
Hydrocarbons - polycyclic	Napthalene (C ₁₀ H ₈)	<1000 mg/kg
	Acenaphtylene (C ₁₂ H ₁₀)	<1000 mg/kg
	Fluorene (C ₁₃ H ₁₀)	<1000 mg/kg
	Phenathrene (C ₁₄ H ₁₀)	<1000 mg/kg
	Anthracene (C ₁₄ H ₁₀)	<1000 mg/kg
	Fluoranthene (C ₁₆ H ₁₀)	<1000 mg/kg
	Pyrene (C ₁₆ H ₁₀)	<1000 mg/kg
	Benz(a)anthracene (C ₁₈ H ₁₂)	<25mg/kg**
	Chrysene (C ₁₈ H ₁₂)	<1000 mg/kg
	Benzo(a)pyrene, Benzo(d,e,f)chrysene (C ₂₀ H ₁₂)	100 mg/kg
	Benzo (k) fluoranthene (C ₂₀ H ₁₂)	<1000 mg/kg
	Dibenz(a,h)anthracene (C ₂₂ H ₁₄)	<25 mg/kg**
	Benzo (g,h,i) perylene (C ₂₂ H ₁₂)	<1000 mg/kg
	Indeno (1,2,3, cd) pyrene (C ₂₂ H ₁₂)	<1000 mg/kg
	Total PAH's	<1000 mg/kg
Others		
[H ⁺]	pH	2 < x < 11.5
NaOH	pH acid/alkali reserve	-0.5 ≤ x ≤ 14.5
Water Soluble SO ₄ Acid soluble SO ₄ (sulphates producing H ₂ S (g))	Calcium Sulphate Dihydrate	< 10,000 mg/kg
Asbestos	Asbestos fibres	< 0.1 %***
Loss on Ignition	LOI	<10% for Qualifying Fines
**Takes no account of cumulative effects for Ecotoxic calculation e.g. of metals		
*** If the waste contains visible fragments of asbestos containing ≥0.1% asbestos fibres then the waste will not be suitable and will be classed as hazardous.		

Inert Waste Acceptance Criteria for Inert Soils

PARAMETER	UNIT	INERT WAC (BS EN 12457 AT L/S 10 l/kg)
Total Organic Carbon	%	3
Loss on Ignition	%	-
Total BTEX	mg/kg	6
Total PCB	mg/kg	1
TPH Total	mg/kg	500
Total PAH	mg/kg	100
pH		-
Arsenic	mg/kg	0.5
Barium	mg/kg	20
Cadmium	mg/kg	0.04
Chromium	mg/kg	0.5
Copper	mg/kg	2
Mercury	mg/kg	0.01
Molybdenum	mg/kg	0.5
Nickel	mg/kg	0.4
Lead	mg/kg	0.5
Antimony	mg/kg	0.06
Selenium	mg/kg	0.1
Zinc	mg/kg	4
Chloride	mg/kg	800
Fluoride	mg/kg	10
Sulphate	mg/kg	1000
Total Dissolved Solids	mg/kg	4000
Phenol Index	mg/kg	1
Dissolved Organic Carbon	mg/kg	500



Appendix D Waste Rejection Note



Calyton Hall Landfill Site and MRF
Dawson Lane
Wittle in Woods Chorley
Lancashire
PR6 7DT

Permit No: EPR/BV1364ID Landfill

Permit No: EPR/ MRF

REJECTION NOTICE

A load of waste was delivered to the above site has been rejected in accordance with our published site procedures.

Date:	
Time:	

Customer:	
Haulier:	
Vehicle Registration:	

Declared Material Type & Description, including EWC	
Reason for Rejection:	
Action Taken:	

Signed:	
Name:	

Appendix C

M. Drury trading as:

WyeTech Bio.

Bio-augmentation & Odour Control Consultants.

12, Mantella Drive, Hereford, HR1 1FB.

Tel: +44 1432 354 392. Mob: +44 7590 962489. E: 1drurym@gmail.com

A Preliminary Odour Survey and Report on Findings:

Clayton Hall Landfill Site.

Date: 5th February 2024

Contents:

Page Number:

- 2 – 4: Body of Report.
- 5: Sentinel Online Platform Overview.
- 6: Neutraliser Customer Data Sheet.
- 7: Abatement plant positions.

Prepared by Mark Drury of Wyetech Bio.

M. Drury trading as:

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Tel: +44 1432 354 392. Mob: +44 7590 962489. E: 1drurym@gmail.com

A.O. Tanya Weston,
Clayton Hall Landfill Site,
Dawson Lane,
Whittle Le Woods,
Lancashire.
PR6 7DT

5th February 2024.

Dear Tanya,

Ref: Initial Site Assessment.

Many thanks for your instruction to visit the above-mentioned site – permit number EPR/BV13641D - with a view to surveying the incumbent operation and making recommendations with regard to malodorous migration and prevention thereof. This, in a pro-active effort by yourselves to address any shortfalls the site and process may have in a bid to reduce any nuisance caused to local residents.

Please see a brief report of my findings below:

1.0 Executive Summary.

On the 5th of February 2024 Mark Drury (MD) of Wyetech Bio visited Clayton Hall Landfill (CHL) at the request of Tanya Weston (TW – Managing Director). The aim of this visit was to survey the site with a view to affecting the further reduction of malodour generation and migration.

Wyetech Bio. operate within, but are not limited to, the waste and food industry as independent consultants and are not affiliated to any one brand, manufacturer or authority.

2.0 Findings.

Before visiting site, MD spent time driving around the villages and houses surrounding the landfill to assess any presence of malodour. This is normal practice and, in the event of detection, the detection point is recorded and revisited several times in line with the EA

system of FIDOR. No detection points were recorded on this occasion. Further assessment was undertaken on the site haul road which was also odour-free and seen to be clean and in good order. The bushes and trees alongside the haul road were free of litter; several waste delivery vehicles were queuing to enter site – engines off.

After a briefing session and induction, an accompanied tour of the site was undertaken with a view to pinpointing areas of gas/odour emission and possible migratory paths, preliminary observations are listed:

2.1 Weather Conditions.

@ 08:45 on the 5th February 2024:
8 Degrees Celsius with 80% humidity.
Overcast with WSW breeze of 18MPH.
Gusting to 35mph.

Site orientation: Site entrance Southerly with the village of Clayton Le Woods Northerly.

2.2 Site Conditions.

MD was accompanied by the site manager – Graham Crank – on a survey of the main cell areas: cells 4a and 4b being the closest to the site entrance and cells 3a, b and c, making up the largest proportion of the works from centre to back heading towards the northern boundary. The site was seen to be in full operation with waste being transported from the MRF to the landfill cell in current use. Despite the weather conditions being very gusty, airborne waste was not present and the surrounding trees, bushes and vegetation were noted to be free of waste. A landfill site such as Clayton Hall would normally present a percentage of visual avian scavenging; this was not the case on the day, indicating a very low percentage of organic matter within the waste deposited. Malodour was noted as being very low and not at a level high enough to have caused any migration.

Views from the top of the landfill clearly show the areas of population and indicate the level of domestic encroachment over the years – there has been a landfill in this location since the 1960s, conurbations such as Spring Meadow would not have been built at this time.

3.0 Site Abatement Measures.

The site has several odour-abatement systems, managed and supplied by a specialist company:

1. A high-pressure nozzle line employed at the primary-settlement/aeration tank on the southern boundary.
2. Three mobile atomiser units that can be moved around site to accommodate changing conditions.

This equipment is new and complies with Best Available Technology (BAT) noted as a requirement in the Environment Agency's environmental permitting document: H4 Odour Guidance. The systems atomise an organic surfactant-based neutraliser dosed at a specific rate into the air where it neutralises malodourous molecules on contact. *See data sheet.*

3.1 Further Measures.

It was noted that a site operative was actively patrolling the cells with a flame ionization detector (FID). This device is used to measure levels of gas emitted from the ground. 'Landfill gas' is a mixture of gasses formed by the putrefaction of organic matter, its main constituents are methane (CH₄) and carbon dioxide (CO₂). The amount of methane available to the FID indicates overall LFG emitted at a given location.

3.2 Ongoing.

A 150m long high-pressure nozzle line odour abatement system is to be installed along the ridge of the landfill which will run laterally between cells 3b and 3c. A system in this position and at this height will afford coverage in all directions and ensure the neutralisation of any emission before leaving the site boundary. This system will reinforce the incumbent abatement systems and atomise the same neutraliser, ensuring parity of effect.


4.0 Conclusion on Findings.

With the current abatement systems in place and the imminent arrival of the above-mentioned additions, coupled with the tidy and well-run site in its entirety, it is very difficult to see what else can be done to improve conditions. Unfortunately for the operators, the site has been inactive for approximately eighteen months and its recent reopening will, quite naturally, draw attention to its activities. The site is also undertaking a period of waste level-reduction in a very prominent position which will also draw visual attention.

Both the incumbent odour-abatement systems and the neutraliser being atomised are fit-for-purpose. Currently, there is nothing available, that I am aware of, that could improve on their usage. However, in a bid to further improve conditions to local amenity, the operators have requested the installation of an odour-monitoring system. This will serve to notify them of levels of emission by gas type in real-time, and allow adjustments to site operation and procedures accordingly. It will also offer concerned parties the benefit of knowing exactly what a perceived odour is made up of and give an accurate level of its presence; eliminating the subjectivity of sniff tests and other olfactory assumptions.

An explanatory illustration of this type of system follows:

The Sentinel Online odour-monitoring system is a state-of-the art cloud-based system sending real-time data on a 24/7 basis. For more information go to: sentinel-online.com



Web Portal Client

- Cross-Platform (inc. Mobile)
- Data Visualisation
- Analysis & Reporting
- User Configuration
- Dispersion Analysis (Full CFD)***

Communications

- Ethernet, LoRaWAN, 4G, WIFI, XBee...
- LoRaWAN / 4G Gateway
- IoT Sim Provision & Management

Amazon AWS Cloud Services

- Cloudfront Content Delivery Services
- Step Function Orchestration Services
- S3 Storage Services
- Lambda Serverless Execution
- DynamoDB Object Storage
- IoT Core Services
- API Gateway Services
- EventBridge
- AWS Amplify
- IAM Security
- SNS Notification Services
- SES Email Services
- WorkMail Email Services
- Cognito (R&D)
- CloudWatch

Google Cloud

- Google Maps API

Sentinel Services

- Identity Service
- Client Query API
- Raw Decoding Services
- Data Ingestion Services
- Aggregate Model Builder

Sentinel Server**

- Meshium Gateway

Sentinel Sense*

- Embedded Sensor Suite

Sentinel Sense*

- Embedded Sensor Suite
- Libelium Calibrated Probes

Web Site

- Hosting: AWS S3
- Delivery: Cloudfront

Provisioning

- Physical Assembly
- Physical Install / Uninstall
- Configuration / Sensor Programming
- Data Decoder Programming
- Onboarding, Project Setup, Ranges
- Orientation / Training / Q&A

Servicing & Maintenance

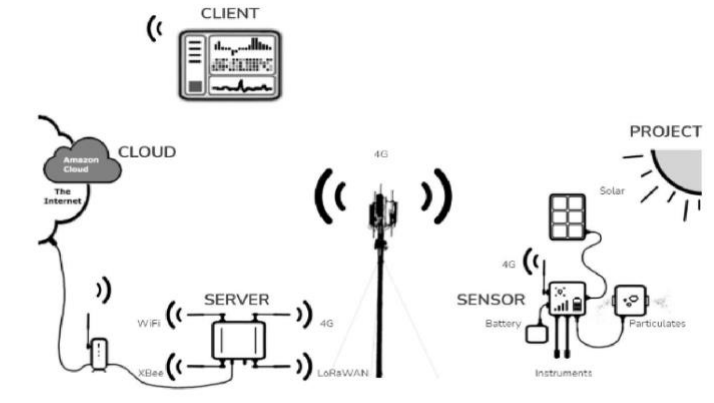
- Visual Inspection / Minor Repair
- Coordinated Onsite Testing
- Probe Swap / Calibration*

Monitoring & Alerting

- Manual (via Sentinel-Online.com)
- Auto Project Offline Alert (MD + AB)
- Manual Customer Alert (MD + AB)

.. Specific Hardware Only
 ... Hosted Server Solutions Only
 *** R&D Activity

Platform Overview



AVAILABLE SENSORS

SYSTEM	ENVIRONMENTAL	PARTICULATES	GASES
Battery	Temperature	$\mu\text{g} < \mu\text{m} / \text{m}^3$	Ammonia (NH3)
Internal Temperature	Humidity	PM1	Carbon Dioxide (CO2)
Attitude / Orientation	Atmospheric Pressure	PM2.5	Carbon Monoxide (CO)
Acceleration	Luminosity	PM4.0	Chlorine (Cl2)
Vibration	Distance (Ultrasound)	PM10	Ethylene (ET0)
Location (GPS)		HISTOGRAMS	Hydrogen (H2)
		...	Hydrogen Chloride (HCl)
			Hydrogen Sulfide (H2S)
			Hydrogen Cyanide (HCN)
			Methane (CH4)
			Molecular Oxygen (O2)
			Nitric Dioxide (NO2)
			Nitric Oxide (NO)
			Ozone (O3)
			Phosphine (PH3)
			Sulfur Dioxide (SO2)
			...





odr

Odour Control Additive



odr is ASE's range of organic, non-toxic, food grade odour neutralisers using biodegradable essential oils collected from sustainable resources. By working in 5 ways, odr odour neutraliser offers comprehensive and highly effective odour neutralisation which actually breaks down and removes odours from the air, rather than masking them, or hiding them with surfactant technology.

When used in Air Spectrum's odour control systems, the appropriate odr from the range is efficiently atomised to produce a very fine mist. The mist interacts with the odour particles for a sufficient time to neutralise them. Having absorbed the odorous components, odr breaks down the molecular structure to form harmless, nonvolatile salts that degrade naturally.

The non-toxic and food-grade nature of odr allows it to be used both in outdoor environments and within buildings. It is safe for use around humans and animals.

Strengths

odr is available in a variety of strengths to suit each application. The range includes odr 1 - odr 7, 'odr 7' being the strongest and to be used with the most potent odours and extreme applications.

Fragrances

Cherry	Citrus	Natural (Un-fragranced option)
Cotton Fresh	Strawberry	Strengths 6/7 are only available
Festive Forest	Peppermint	in 'natural' fragrance
Eucalyptus	Green Grass	



APPLICATIONS

- Waste processing sites
- Recycling plants
- Ports & shipping
- Anaerobic digestion
- Animal-related practices
- Manufacturing
- Agriculture
- Food-related industries
- Remediation



Technical Specification:

odr is provided as a liquid concentrate, it is then added to potable water and applied using fogging equipment.

Shelf life: up to 12 months

Storage: Store in cool, dry conditions (between 5-30°C)

Packaging: odr is available in a 25kg, 200kg drum or a 1000kg IBC container

Air Spectrum operates to the highest standards and is accredited by a number of professional bodies. These include ISO 9001 quality standards accreditation as well as international environmental standard ISO 14001 accreditation.

Call us
01905 362100

Chat with us
www.airspectrum.com

Aerial shot showing the positions of both the mobile odour-abatement units and the proposed line of the soon to be installed high-pressure nozzle line.




MD 05/02/2024

Appendix D

Off site odour monitoring

1.Task/Activity	Off-site odour monitoring	2.Business Function	Auditing
3.Site / Location	Area surrounding Clayton Hall Landfill	4.SSOW Ref No	SSOW075
5.Date	26/02/2024	6.Next Review	26/02/2025
7.Developed By	QSHEE Team	8.Consulted	Landfill Manager
9. Permit to Work?	YES <input type="checkbox"/> <input type="checkbox"/> NO <input type="checkbox"/> X <input checked="" type="checkbox"/>	10.R. A. Ref No	CH075

11. Identified HAZARDS from Risk Assessment

							
Slips & trips							


12. TRAINING REQUIRED

Odour monitoring	Driving license	Manual Handling	H&S Induction	H&S Site Induction
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13. PERSONS AT RISK

Employees	Public				
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14. PPE REQUIREMENTS

							
Safety Footwear							

15. CURRENT CONTROL MEASURES. Identified in Risk Assessment

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16. PROCEDURE

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To enable Neales Waste Management / Quercia mitigate any potential issues arising from potential odour from the landfill affecting the general community. To enable the company to gain a clear understanding of any possible off site odour issues, act appropriately and operate within the requirements of their environmental permit and planning permission.

- Using an appropriate weather app, record the current wind direction and strength, atmospheric pressure, weather and temperature for the area, on SSOW075 appendix 1 if travelling south of the site or appendix 2 if travelling North of the site.
- Using the weather application, if the direction of the prevailing wind is North of the site follow the Northern Route if the direction of the wind is to the South of the site follow the southern route.
- Use an appropriate GPS mapping application and record the route you take attaching a copy to the report at the end of your audit.
- Familiarise yourself with the different terms and manner to record odours and issues and take a note book to record significant aspects on the route.
- Throughout the process you must ensure you drive safely, following all “rules of the road” and speed limits, driving appropriately for the conditions and if it is not safe to stop and sample, do not complete the action and return later when it is safe to do so. The route below is a suggestion and may need to be altered if you find any furtive odours on the way.
- Start at PR6 7DT, NWM/Quercia landfill site off Dawson Lane.
- If following the northern route, turn right out of site and proceed along Dawson Lane towards Wigan Road. Turn right onto Wigan Road and proceed towards Leyland Way/Lancaster Lane junction. Turn right onto Lancaster Lane and then immediately right again onto Pendle Road and turn onto the small retail car park alongside Tesco’s. Stop and sample the area for odour by safely parking and alighting from the vehicle. Take a moment to enable you to acclimatise to the environment. Record findings, paying attention to the details and descriptions on the SSOW075 appendix. No odour, faint odour moderate, strong etc., duration, sensitivity and record your findings accurately.
- Turn left out of the car park and right onto Lancaster Lane, travel along this road and turn fourth right into Spring Meadow. Stop at the community centre and sample the area for odour. (Be aware that local residents have complained often in this area and may be sensitive to your actions).
- Continue onto Higher Meadow and turn into Cunnery Meadow and is safe to do so stop and sample the area. Continue along Cunnery Meadow and turn right into Stoney Holt, (third right), and rejoin Spring Meadow. If any strong odours found in this area and it is safe to do so, sample again and maybe drive further into and around the housing estate to gain a clear picture of any possible issues.
- Finally head along Spring Meadow until you reach the roundabout and turn right onto Lancaster Lane again. Ensure you have appropriately recorded your findings at each sampled point.
- Head along to Town Brow, then onto Sheep Hill Lane and if safe to do so stop near or at the Cuerden Valley car park and sample the area for odours. Cross over the Sheep Hill Lane and turn onto Back Lane. Stop somewhere near the Primary school if there is space and it is safe to do so and sample the area for odour. Drive along Back Lane and turn into the Ley Inn car park and stop and sample for odour. Again record your findings appropriately and ensure you follow all rules of the road and do not present any issues to other road users.
- Leave the Ley Inn car park, turning left and enter the roundabout and take the first turning onto Wood End Road. Samples may be taken here if any concerns found in the area. At the end of Wood End Road turn right onto Clayton Green Road and at the next roundabout turn left into the Asda Superstore car park and sample the area. Leave the Asda car park, at the roundabout turn left and at the following roundabout turn right, third turning and then almost immediately turn left into the Lidl Superstore car park, stop and sample the area for odour.
- Turn left out of the Lidl car park onto the A6 Preston Road and drive along and stop at the Halfway House Pub and Travel Lodge hotel car park and sample the area for odour. Return to Preston Road turning left out of the car park and drive along until you reach Cow Well Lane and stop nearby where it is safe, across from Whittle Le Woods CE Primary and St. Johns CE Church. Sample the area for odour and then return to the Neales Waste Management Site at Clayton Hall Sand Quarry off Dawson Lane. If time and road conditions allow, and you have any concerns about odour before you return to site it may be worth turning into Fiddlers Lane and then down Back Lane, sampling the atmosphere where it is safe to do so and possibly Watkin Road, again where it is safe to do so. At all times be aware of other road users, park safely and record any findings accurately and appropriately.

- If the direction of the wind is blowing towards the south then change the sampling route to cover the area to the South of the site and use SSOW075 appendix 1 to record your details on.
- Start at PR6 7DT, NWM/Quercia main site off Dawson Lane. Stop near the main boundary Gate and take the first of your odour samples before turning onto Dawson Lane. Turn left out of site and proceed along Dawson Lane towards Preston Road. Turn right onto Preston Road and proceed towards The Ridings, turn left onto the Ridings and then right onto Harvest Drive. Stop and sample this area when it is safe to do so. If any furtive odours are discovered drive further into this estate and where safe to do so stop and take further samples. Turn around and return to Preston Road back along the route you initially took. (Be aware that residents in this area have complained in the past and may be sensitive to your actions).
- Turn left onto Preston Road and proceed to Buckshaw Ave, go past Doorway to Value furniture shop and the Sea View Inn, turn right into Buckshaw Avenue and stop and sample the area for odour, where it is safe to do so. Always be aware of road conditions and drive appropriately.
- Head along Buckshaw Avenue and at the roundabout turn left onto Ordnance Road and at the next roundabout take the second turning and head towards the Tesco Superstore car park. Stop and sample the area for odours where it is safe to do so. (Be aware that local residents have complained in this area and may be sensitive to your actions).
- Leave Tescos and head toward the Buckshaw Village Community Centre at PR7 7HZ, again where it is safe to do so stop and sample the area. If any strong odours found in this area and it is safe to do so, sample again and maybe drive further into and around the housing estate. Finally head along Bamber Avenue, PR7 7BD and again stop and sample if safe to do so.
- Drive onto Central Avenue and if possible take another sample. If during this route any significant odour is discovered, add stops and maybe extend the route around the housing estates wherever it is safe to do so.
- Travel along Central Avenue and turn right at the green man statue turning onto Dawson Lane and return to the Neales Waste Management Site at Clayton Hall Sand Quarry.
- Whichever route you take ensure that you record your findings on the appropriate appendix sheet, add the screenshots of the weather app and the GPS app route taken and upload the whole detail onto the Issosmart System, filing the reports by date and time and month, in the "Records" section, then "Complaints", then "Clayton Hall Odour Complaints" and then by month.
- If significant furtive odours were discovered anywhere on the route report the detail verbally to Grahame Crank or Tanya Weston immediately.
- If possible investigate the furtive odours and as a minimum discuss re-positioning the odour management systems, changing the days landfill activities or altering actions as appropriate.
- If on the odour monitoring route, any odours not connected to NWM/Quercia activities are discovered, try and record them with accurate descriptions as this may also mitigate potential spurious complaints and help build a picture of possible other issues, not related to the companies activities.

17.First Aid Precautions

There are no specific first aid precautions required for this task.

18.First Aiders

NA

19.Additional Information

Prior to starting on the route, ensure the vehicle you are driving is suitable for the task. That you are familiar with the route you are about to take. You are capable of driving the route, stopping safely and alighting from the vehicle multiple times. Ensure you have appropriate clothing for the weather conditions and your line manager knows you are leaving site to complete the task. Ensure you understand the terminology on the report and the type of odours you can expect and how to record the details appropriately.



SSOW075 Appendix 1.docx



SSOW075 Appendix 2.docx

Appendix E

Integrated Management Systems Complaints Report NWM013

EA COMPLAINT REFERENCE	NIRS No.			
DATE & TIME COMPLAINT RECEIVED	Date		Time	
NAME OF COMPLAINANT				
ADDRESS OF COMPLAINANT				
TELEPHONE NUMBER OF COMPLAINANT				
DATE/TIME NOTICED BY MEMBER OF PUBLIC	Date		Time	
DATE/TIME REPORTED BY MEMBER OF PUBLIC	Date		Time	
REPORT TYPE(S) (Complainant description)				
SUSPECTED SOURCE(S)	Landfill	Transfer Station	(pls delete as appropriate)	
DETAILS OF COMPLAINT:				
<p>ROOT CAUSE (Why did this occur? Ask Why up to 5 times): Consider failures of – Design, Equipment, Systems, Procedures, Environment, Training, Supervision, Communication, Personal Performance etc</p>				
INVESTIGATION CONCLUSION				
COMPLAINT JUSTIFIED	YES	NO		
OBJECTIVES & TARGETS REQUIRED	YES	NO		
CORRECTIVE ACTION REPORT REQUIRED	YES	NO	CAR REF No	
AUTHORISED BY:	SIGNATURE:			
	DATE:			