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Containment & Drainage Management Plan

v2.0

Environmental and sustainability solutions provided to

Waste Organics (Leeds) Limited

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1.0	First issue	27/01/2026
1.1	Minor draft update to tank details	24/02/2026
2.0	Second issue	27/02/2026

CONTENTS

1.0 INTRODUCTION

Waste Organics (Leeds) Limited (hereon referred to as Waste Organics) operate was transfer and treatment station. Waste Organics is permitted to accept and process a variety of materials at their Waste Treatment Facility on Knowsthorpe Road, Leeds, under a bespoke waste operation permit. Permitted activities are as stated below:

- Storage and treatment of waste, recycling and reclamation of metals, metal compounds and other inorganic materials and recycling or reclamation of organic substances which are not used as solvents (<249,999 tonnes per annum (tpa)).
- Storage and treatment of uncontaminated plastic, glass, and ferrous and non-ferrous metal wastes arising from the treatment of end-of-life vehicles (<249,999 tpa).
- Storage and treatment of uncontaminated ferrous metals or alloys and uncontaminated non-ferrous metal wastes (<249,999 tpa).
- Storage and treatment of organic substances which are not used as solvents, metals and metal compounds and other inorganic materials (<249,999 tpa).
- Storage and treatment of refrigeration equipment (<249,999 tpa).
- Storage and treatment of biodegradable solid and liquid wastes for the production of a “soup” for off-site treatment via anaerobic digestion (<249,999 tpa).

The production of a “soup” for onward treatment at off-site anaerobic digestion facilities is currently the main activity on site and as such this Containment and Drainage Management Plan solely considers this activity. This activity could give rise to surface water/leachate runoff which has the potential to leave site and therefore a site-specific containment and drainage management plan is proposed herein to actively manage all sources of potential pollutant waters generated on site.

1.1 Site Location

Waste Organics (Leeds) Limited
Waste Treatment Station
Knowsthorpe Road
Leeds
LS9 0NX

1.2 Site Description

The site is situated on Knowsthorpe Road which is one of many roads present in the Crossgreen Industrial Estate. The industrial estate is located approximately 4km southeast of the centre of Leeds, near the Stourton and Knowsthorpe areas of the city. Knowsthorpe Road

joins to Knowsthorpe Gate which itself is a main access road into the industrial estate from the A63 (Pontefract Lane) which is a main arterial road from the M1 motorway to the centre of Leeds. The site is surrounded by mixed-use industrial developments. Immediately north of the site is a vehicle bodycare workshop, to the east is a major waste water treatment works, to the south is a cement production facility and to the west is a chemical production facility. The River Aire is located approximately 600m south of the site and the nearest residential receptor is located approximately 1km north of the site. There are no sensitive ecological receptors within 750m of the site.

The site consists of the following aspects:

- 1No. weighbridge.
- 2No. adjoining waste reception / treatment buildings.
- 1No. large legio-block waste storage bay.
- 1No. covered workshop.
- Site office and staff facilities.
- A number of car parking spaces.

1.3 Site Setting

The Waste Organics facility does not lie within a designated groundwater source protection zone (see Figure 1). The site lies within Flood Zone 1. This refers to an area with low probability of flooding, specifically less than a 0.1% (1 in 1,000) annual chance of a flooding from rivers or the sea (see Figure 2).

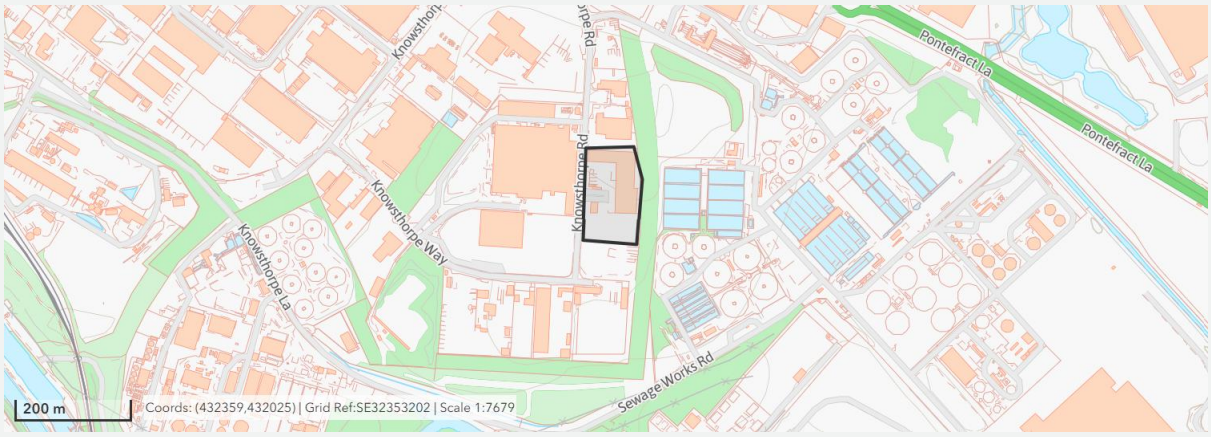


Figure 1 - Map of Groundwater Source Protection Zones

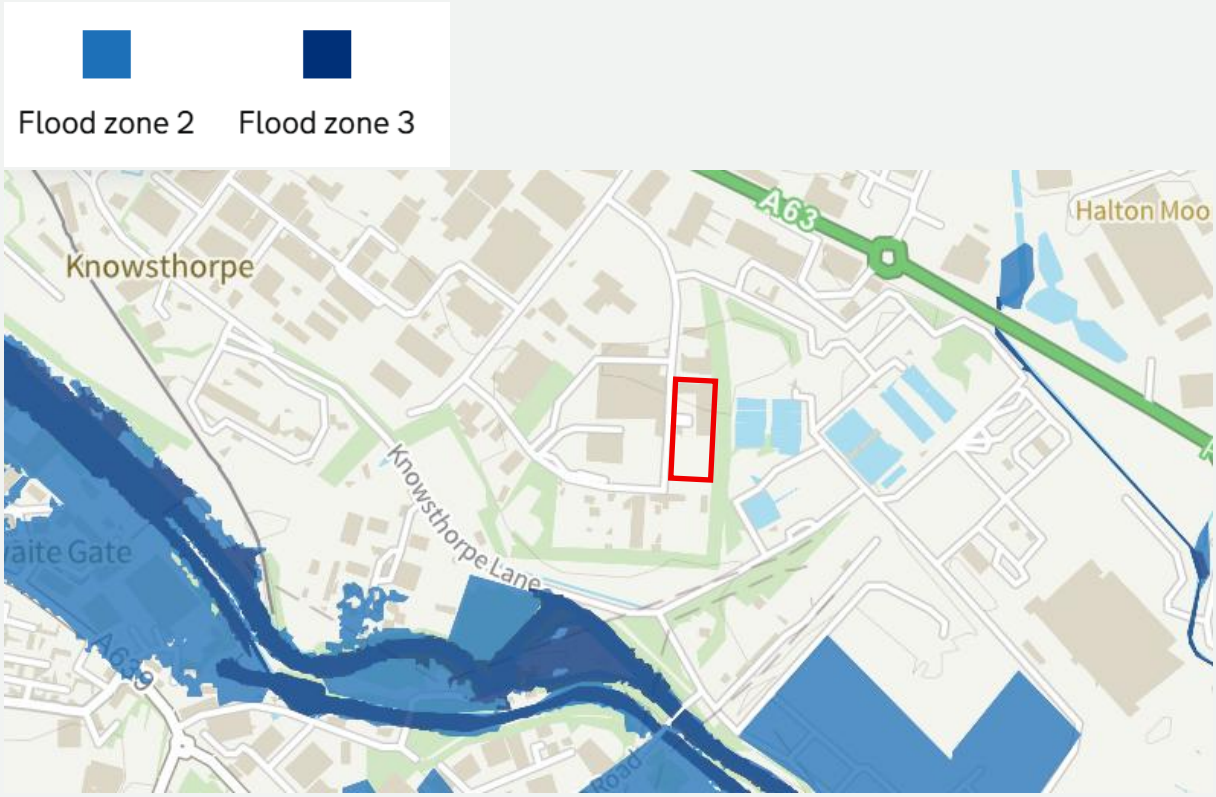


Figure 2 - Map of Flood Risk Areas

2.0 SOURCES OF LIQUIDS REQUIRING MANAGEMENT

The management of liquids at the Waste Organics site facility incorporates several sources of water that actively fall within the control of this management plan. Sources of liquids that require management control include:

- Surface water runoff from impermeable hard standing areas within the site boundary as a result of direct precipitation.
- Surface water runoff from building roofs as a result of direct precipitation.
- Surface water runoff from all areas of impermeable hard standing areas within the site boundary as a result of water use for vehicle wash-down etc.
- Surface water runoff from all impermeable hard standing areas within the site boundary from leachate derived from the processing of wastes on site. This includes all phases including: reception, storage, depackaging/attrition, pumping, mixing, off-take.
- Surface water runoff from solid biodegradable organic waste accepted onsite is confined to the solid waste reception/treatment building and its' dedicated sealed

drainage system, ensuring adherence to the relevant Animal By-Product Regulations (APBR).

3.0 DRAINAGE SYSTEM

Plans showing the drainage system for managing surface water and leachate is provided within Section 6 and Section 7.

3.1 Solid Waste Reception and Treatment Building

The site contains a large, inverted L-shaped building which is split internally into three buildings. The northern portion of the building which runs in a north to south orientation is the solid biodegradable organic waste reception and processing building i.e. Zone 1.

Solid packaged and unpackaged food waste is tipped onto the floor of the reception building. From here, the solid waste is loaded into one of 2 attritors for depackaging and particle size reduction for conversion into a pumpable form. The floor of the waste reception hall is constructed of impermeable concrete and is served by a sealed drainage system. The floor of the concrete is built with a fall from the back of the building towards the front. A drain runs across the front of the roller shutter doors, on the inside, and across the majority of the remainder of the building before turning 90 degrees towards the attritors. A sleeping policeman type bund is also located across the front of the roller shutter doors, such that the drain runs between this bund and the roller shutter door on the inside of the door This ensures the drain in that location does not get overwhelmed and is required for APHA accreditation as a means of keeping dirty and clean areas separate. Together, the drain and bund ensure that no dirty water leaves Zone 1 of the building.

Vehicles that have delivered the waste to the reception hall shall also be washed out, as shall their wheels in line with APHA requirements. All dirty water from these wash processes and any dirty water / leachate generated by the waste during storage or attrition is collected by the sealed drainage system and directed to a 10m^3 drainage pit, constructed of impermeable concrete, within this building.

The waste liquid collected by the drainage system in this building is either added to the waste in the attritors as required to produce a pumpable material or is pumped via sealed pipework to the liquid tank farm in Zone 2 of the building for the purpose of producing a blended “soup”.

3.2 Liquid Waste Reception and Treatment Building

The portion of the building which runs in an east to west orientation is the liquid waste reception and mixing building i.e. Zone 2. The floor of this building is constructed of impermeable concrete. This area contains a bunded tank farm which stores liquid wastes that are delivered to site via vehicle tanker. The table below shows the number of tanks in the tank farm, their purpose and their capacities.

Table 1 - Tank Farm Details

Tank Purpose	Capacity	Number	Total Capacity
Liquid Waste Storage	55m^3	6	330m^3
Liquid Waste Mixing	494m^3	1	494m^3
Liquid Waste Batch	218m^3	1	218m^3

The bunded area is constructed of in-situ reinforced concrete and has dimensions of 30.4m (l) x 17.17m (w) x 2m (h). Any joints in the bund wall or between the bund wall and floor are sealed using an impermeable sealant. The total volume of the bund is therefore 1,044m^3. In line with the CIRIA C736 guidance, the secondary containment bund must be capable of storing 110% of the largest tank volume or 25% of the total tank capacities, whichever is greater. Based on the capacities presented above, the greater is 110% of the largest tank volume i.e. 543m^3. The total bund capacity is nearly double that of the 110% figure. Assuming a freeboard of 250mm is maintained for surge, the secondary containment bund capacity is 942m^3 which is still significantly more than is required.

Additional to the above is a 60m^3 water storage tank located outside but adjacent to the bunded tank farm. The tank is a self-contained bunded tank constructed of glass reinforced concrete. The tank stores a mixture of mains and wash water for use as a buffer for the liquid required to operate the attritors. This tank is located on impermeable concrete.

The vehicle tankers carrying liquid waste shall park outside Zone 2. The tankers connect to the connection points in the wall of the building and the liquid waste is pumped from the vehicle tanker into one of the 6No. liquid waste storage tanks. The site SCADA system ensures that the liquid waste is only pumped into a tanker which has sufficient spare capacity to receive the waste.

The pumpable solid waste from Zone 1 and the liquid wastes in the storage tanks are mixed in the mixing tank. The waste is pumped between the tanks through sealed pipework inside the building. The “soup” produced is then stored in the separate batch tank. Vehicle tankers collect the “soup” from this tank for removal from site in the same way that liquid waste is delivered to site, only this time the waste is pumped from the batch tank to the vehicle tanker.

The bunded tank farm features a 2m^3 capacity sump to collect any minor liquid waste leaks from the tanks or connecting pipework. Any liquid that is collected in this sump is pumped back into the liquid waste storage tanks.

The third and final portion of the building is currently unused i.e. Zone 3. Should the site start accepting any other wastes that feature on the environmental permit, this portion of the building shall be re-used and the appropriate sealed drainage system installed.

3.3 Roof and Surface Water

The external areas of the site between the site entrance and the solid and liquid biodegradable organic waste reception and treatment buildings are covered with impermeable concrete which features a sealed drainage system. This directs clean surface water into the surface water drain serving Knowsthorpe Road, via a Class 1 interceptor with alarm. The area to the south of the site entrance is also served by a sealed drainage system from which the surface water is directed straight into the surface water drain serving Knowsthorpe Road. No waste related activities take place in this area currently. The southern portion of the site features made ground. This area of the site was previously used for inert waste storage and treatment but is currently redundant. Rainwater that lands on the roof of the solid and liquid biodegradable organic waste reception and treatment buildings is directed via drainpipes into the surface water drainage system which is served by the interceptor. Rainwater that lands on the other buildings on site is directed via drainpipes to the surface water drainage system which discharges directly to the surface water drain serving Knowsthorpe Road.

3.4 Collection and Disposal

All leachate and dirty water generated inside the waste reception and treatment buildings is collected via the sealed drainage system. All liquid waste collected is used in the “soup” making process such that no liquid from inside the building leaves site other than as part of the “soup”.

All surface water generated through rainfall landing on the external area of the site between the site entrance and the solid and liquid biodegradable organic waste reception and treatment buildings, including the building roof, is collected via a sealed drainage system and directed to the surface water drain serving Knowsthorpe Road, via a Class 1 interceptor with alarm.

3.5 Maintenance

Routine maintenance of the drainage system within the site will include the following:

- Clearance of growing or fallen vegetation.
- Repairing any damage caused by operational activities or burrowing animals.
- Removal of any excess accumulations of sediment.
- Temporary repairs will be carried out as appropriate, with permanent repair works to commence within 28 days of the defect being recognised, unless it is causing an immediate problem.

All maintenance activities will be recorded within the Site Diary.

4.0 CLIMATE CHANGE IMPACTS

All waste storage and treatment activities take place inside and as such there are likely to be limited impacts from climate change on containment and drainage. The exceptions are the impacts to the surface water generated on site through rainfall, or lack of.

4.1 Daily Extreme Rainfall and Average Winter Rainfall

Daily rainfall intensity could increase by up to 20% on today's values and average winter rainfall may increase by over 40% on today's averages. The impacts of these on the Waste Organics site include:

- Potential for increased site surface water and flooding.
- There is potential for drainage systems and interceptors to be overwhelmed.

Mitigation measures imposed by Waste Organics include the following:

- The site is not located within either Flood Zones 2 or 3.
- Only a small proportion of the site is at risk of flooding from 1 in 30 year, 1in 100 year or 1 in 1,000 year rain events.

- The overall direction of the movement of water will be maintained within the existing drainage
- system and the conveyance routes (flow paths) are checked for blockages or obstructions regularly as part of the site inspections.
- The only water to leave site is the clean surface water from the roads on site. All waste processing takes place within the buildings on site.

4.2 Drier Summers

Summers could potentially see up to 40% less rain than now. The impacts of these on the Waste Organics site include:

- Long periods of hot and dry weather could lead to a drought and may have an impact on water supplies for:
    - emergency water usage
    - cooling systems
    - fire fighting
    - processes that require water as input for example aggregate and soil washing plants

Mitigation measures imposed by Waste Organics include the following:

- Water level usage shall be reviewed on a regular basis. This includes assessing those systems and processes that have a critical need for water and what the baseline needs are.
- Waste water recirculation is employed so minimal clean water is required to be used in the treatment process.
- No water from site enters nearby watercourses. Clean surface water enters the foul sewer whilst dirty water collected on site is used in the “soup” production process.
- Site accepts liquid wastes which are blended with solid wastes to produce a “soup”.
- All activities take place within buildings and are therefore shaded from intense, direct sunlight.
- Regular inspection and preventative maintenance of site, plant and equipment as part of the programmed preventative maintenance schedule.

4.3 Storms

Storms could see a change in frequency and intensity. The unique combination of increased wind speeds, increased rainfall, and lightning during these events provides the potential for more extreme storm impacts.

The impacts of these on the Waste Organics site include:

- Potential for high winds to damage buildings and infrastructure and blow waste from the site.
- Potential for lightning strikes to damage buildings and infrastructure.

Mitigation measures imposed by Waste Organics include the following:

- Waste types on site are unlikely to contain litter.
- Any litter discovered will be removed and placed in secure bins.
- All activities take place within buildings and are therefore sheltered from strong winds.
- Housekeeping and cleaning measures in place to ensure particulates on external surfaces are minimised.
- During extreme stormy weather operations at the can be paused.
- Buildings are inspected at regular intervals and after a designated storm.
- Need for lightning conductors shall be assessed and installed if necessary.

5.0 SYSTEM MANAGEMENT

The following section outlines the site requirements for managing surface waters and keeping management procedures up to date and in line with current site activities.

5.1 Routine Maintenance

All drainage systems will be regularly inspected and maintained by the site manager and recorded on the site diary, at least on a weekly basis. The site manager will initiate regular inspection and cleaning of building gutters, gullies, drains and storage tanks at regular intervals.

5.2 Management Review

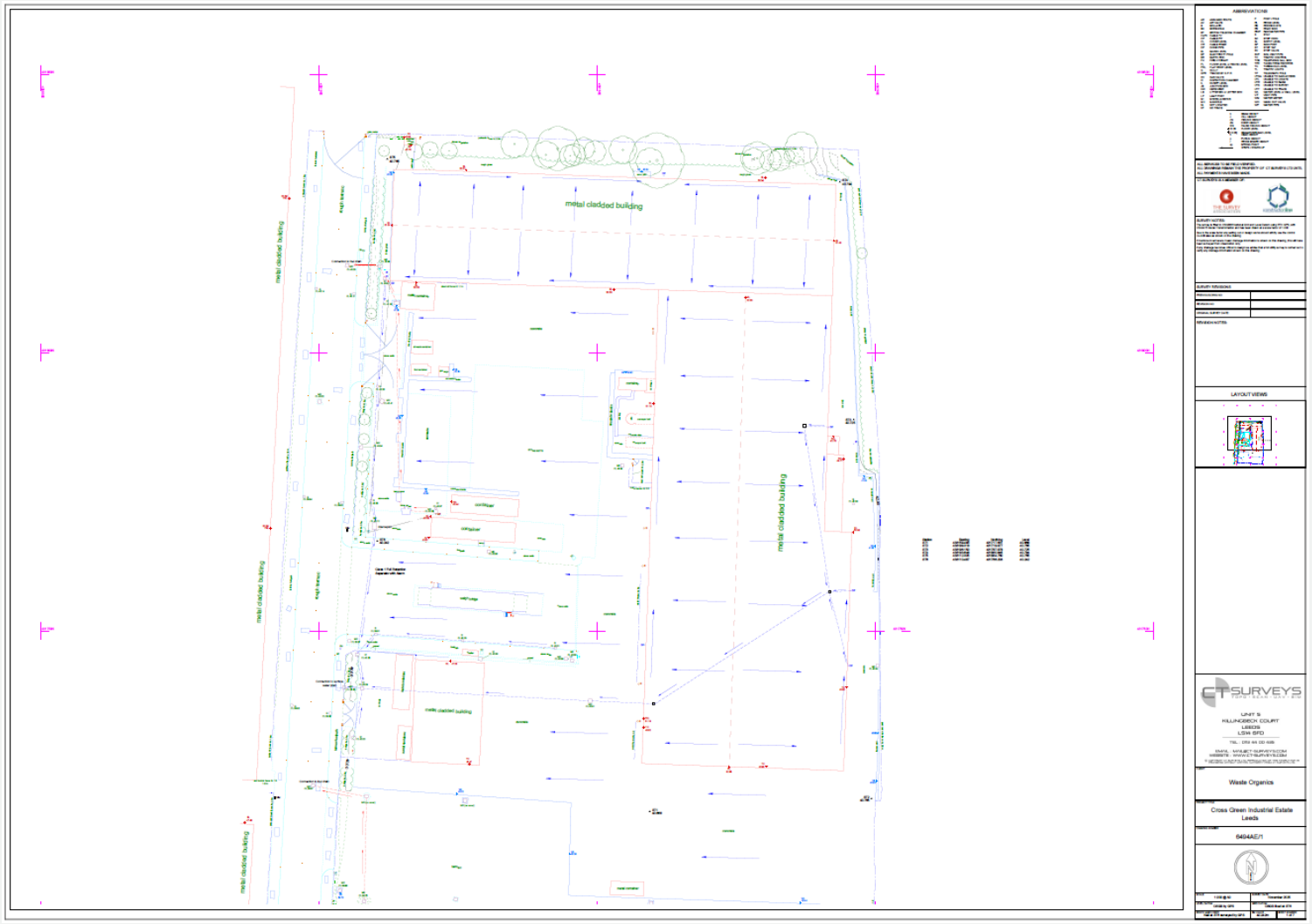
This Containment and Drainage Management Plan is to be kept up to date and in line with the Management System for the overall operational activities carried out on site. The plan will be

reviewed at least annually, or as required by changes in operational procedures or incidents that require review.

5.3 Emergencies

Emergency response to drainage and leachate system failures is provided within the Accident Management Plan.

6.0 EXTERNAL SITE DRAINAGE LAYOUT



7.0 INTERNAL SITE DRAINAGE LAYOUT