

Report Details	Reference C2-6 Environmental Risk Assessment V1.0 UP3909SG
Head Office Address	Cliniwaste Health South Limited 35 Duchess Road Rutherglen Glasgow G73 1AU
Site details	Cliniwaste Nottingham Unit A Crossgate Drive Queens Drive Industrial Estate NG2 1LW
Submitted to:	Permitting & Support Centre Environmental Permitting Team Environment Agency Quadrant 2 99 Parkway Ave Parkway Business Park Sheffield S9 4WF Email: psc@environment-agency.gov.uk
Date	May 2024
Author	Kerry Burton Kerry.burton@cliniwaste.co.uk

Contents

1. Introduction.....	3
2. Site Setting.....	4
3. Site Map with Storage Locations and Emission Points.....	6
4. Environmental Risk Assessment.....	7

1. Introduction.

This application relates to an existing installation operated by Cliniwaste Health South Limited ('Cliniwaste') at the Crossgate Drive Clinical Waste Treatment, which is hereafter referred to as "the installation". Cliniwaste is applying for a variation to its existing Environmental Permit (Reference: **EPR/UP3909SG**) to accommodate several operational changes at the installation:

1. Introduction of an additional waste shredder to facilitate the shredding of offensive waste (this activity is already permitted) this additional shredder, will be used in contingency for the clinical hazardous waste streams. By shredding the offensive waste and blending it with the post treated waste, will allow for innovative methodologies of disposal where plastics are able to be recovered. This supports the NHS strategy of 60:20:20, where an increased generation of offensive waste is expected to be seen and diverted from landfill.
2. Upgrades have already been made to the existing exhaust system on the autoclave, where;
 - a. The efficiency of the boiler has been optimised through a closed loop heat recovery process in which final contaminated energy used in the process from the autoclave is recovered to the start of the cycle to reduce overall energy used in the complete process. This will result in no air emissions from the autoclave exhaust.
 - b. Due to the proposed variation in point 3, the effluent from any operation within the autoclave will be captured in an on-site holding tank. The purpose of the holding tank is to reduced air emissions and will be fitted with a three-way valve. The valve will be able to;
 - i. Ensure an enclosed capture system for water potentially contaminated with pharmaceutical waste and sent for off-site disposal until testing requirements are confirmed with the local water board. This is listed as a directly associated activity.
 - ii. Once the testing requirements are confirmed and listed within the discharge consent license, the water effluent can be diverted to sewer utilising the three-way valve.
3. Add additional European Waste Codes to the activity references AR1 & AR2 which is the shredding and autoclaving process, to enable additional waste streams to be treated.
 This variation seeks to add the addition of infectious and medicinally contaminated sharps waste. This variation will allow these wastes to be treated through the autoclave and diverted from high temperature incinerators, where the capacity is much needed due to ageing infrastructure and lack of investment in new incinerators. The total capacity to be shredded and treated waste will need to change to reflect the operational capacity of the autoclave and the new activities proposed, these activities are listed within table 2.1 in this document.
4. Add additional European Waste Codes to the activity AR3/8 to include the acceptance and storage of a fuller suite of waste produced at clinical waste facilities.
5. Vary the storage of treated waste to allow operational flexibility. The storage capacity would include the need to store the waste in compacted bales pending off site transfer

for recycling/recovery, in a dedicated area (area 10b on the site map) or short term within a curtain sided trailer (area 10a on the site map) pending off site transfer.

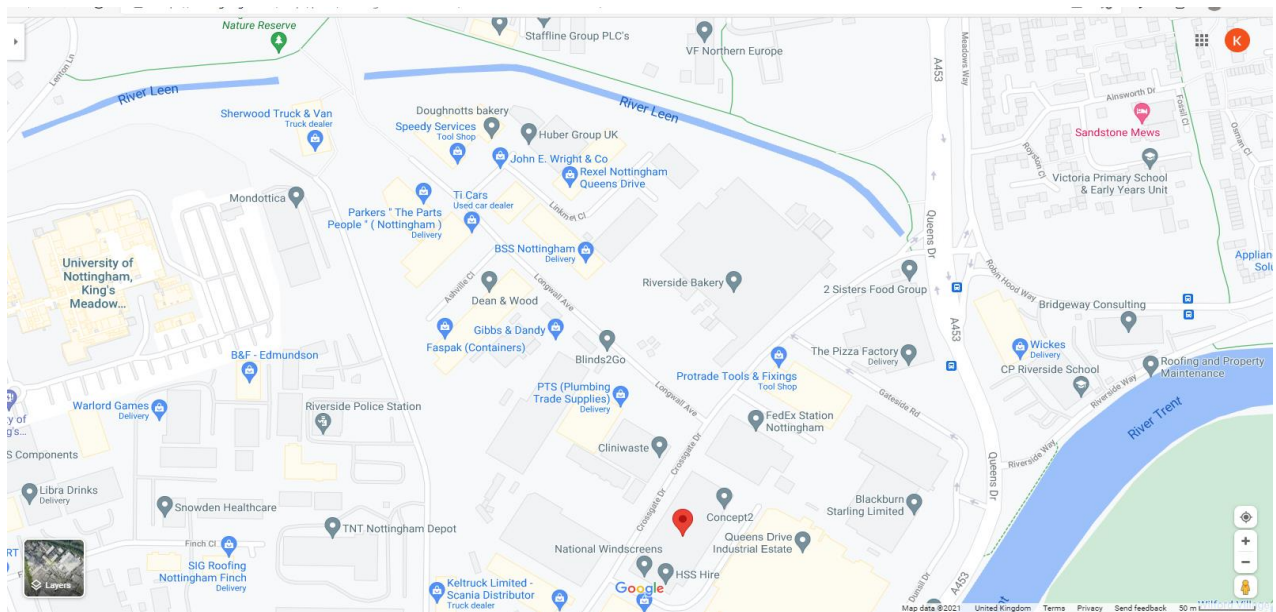
Part C2, Q6 requires the provision of an environmental risk assessment, and this is provided in section 3 of this document.

2. Site Setting.

The facility is in the Queens Drive Industrial Estate which is approximately 0.49ha and located to the Northeast of the A453. Queens's drive comprises of a vast number of industrial and commercial units which surround our premises in all directions. There is a local nature reserve 497metres northwest of the vicinity, which is a habitat for wildflowers and the river Leen runs to the 315 metres to the Northeast of the facility.

The nearest residential property is over the river Trent riverbank which is approximately 500metres southeast of our facility.

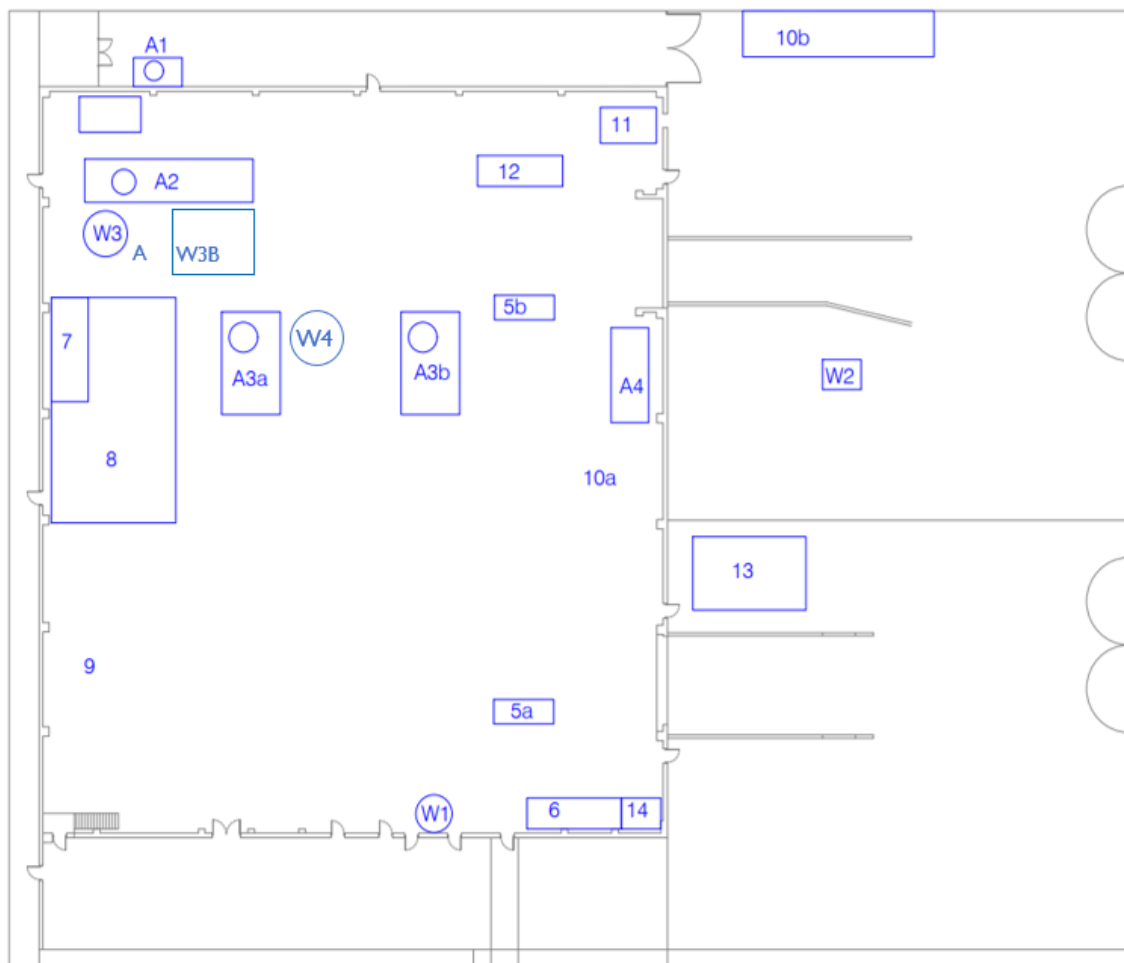
OS NGR Grid References: SK562380, X 456263, Y 338066



Below is a table of sensitive receptors within a 1km radius of the Nottingham facility.

Sensitive Receptors within 1km of NG2 ILW				
Receptor	Distance at closest point (metres)	Direction	Type of Receptor	Risk of odour impact.
Eatery- Mr T's	2	Southeast	Public eatery serving take away food	High
Industrial Units	Each way surrounding the business	North, East, South and West.	Commercial/industrial workplace, some are open to the public all day	High/ Moderate
River Trent	312	Southeast	Multi-user path and waterways. Bio-diverse habitat of freshwater sponges to an array of vertebrates.	Low
River Leen (SINC) Sites of importance for nature conservation.	315	Northeast	Habitats include marsh and flood plain, grassland and species of water vole and crayfish. Multi-user path linking the Trent and Nottingham Canal. Public Open space	Low
Kings Meadow Nature Reserve - Local Nature Reserve (LNR)	497	Northwest	Habitat for wildflowers.	Low.
Residential Properties-The Meadows	750	Southeast	Residential properties- potential all day presence and home workers.	Low
Place of Worship- St Wilfreds	850	Southeast	Public place of worship, transient use all day.	Low
Residential Properties- Wilford Crescent/ Main Road	900	Southeast	Residential properties- potential all day presence and home workers.	Low

3. Site Map with Storage Locations and Emission Points



Location Map Area	Description
A1	Boiler
A2	Autoclave
A3A / A3B	Shredder/s
A4	Bin Wash
W2	Surface Water Drain
W3	Condensate Holding Tank
5A / 5B	Weighing Scales
6	Quarantine Area
7	Fridge
8	Non-Hazardous Waste Storage Area
9	Hazardous Waste Storage Area
10A 10B	Internal Storage for Bales of Treated/Shredded Material Curtain Sided Trailer for bales of Treated/Shredded Material
11	Compactor Skip for Treated/Shredded Material
12	Baler & Wrapper for Treated/Shredded Material
13	Enclosed Roro for Un-Shredded Offensive Waste
14	Raw Materials Storage
Emission Points	Description
A1	Boiler Exhaust Stack
A2	Autoclave Exhaust (Emergency Vent Only)
A3 A & B	Shredder One (A3B) & Shredder Two (A3A)
A4	Bin Wash
W1	Water Sampling Location for W1 on Site Drainage Plan: Boiler Blow Down, Autoclave Condensate, Bin Washing Effluent & Domestic Effluent.
W2	Surface Water on Drainage Plan: Clean Uncontaminated Roof & Yard Water.
W3A	Condensate Water/Process Effluent Holding Tank (Discharge to Sewer)
W3B	2 x IBCs for Effluent Generated Whilst Processing Yellow Waste
W4	Liquor containment point, from any liquid residues from shredding the waste (IBC)

4. Environmental Risk Assessment

What do you do that can harm & what could be harmed?			Managing The Risk	Assessing The Risk		
Hazard. <i>What has the potential to cause harm?</i>	Receptor <i>What is at risk? What needs to be protected?</i>	Pathway <i>How can the hazard get to the receptor?</i>	Risk Management. <i>What measures have been implemented to reduce the risk?</i>	Possibility of Exposure <i>How likely is this contact?</i>	Consequence <i>What is the harm that can be caused?</i>	What is the Overall Risk? <i>What is the risk that still remains? The balance and probability and consequence.</i>
Spillage	Immediate area – air, land, water.	Direct contact	<p>Training in unloading practices including accident/spill procedures.</p> <p>Under manual control, continual observation.</p> <p>Impervious surfaces outdoors.</p> <p>Spill kits readily available, checked and recorded in site diary.</p> <p>Waste kept in original containers on impermeable surface with raw materials being kept on banded pallets.</p> <p>Site walk around/spillages recorded in site diary.</p> <p>Incident response plan in place</p> <p>Process effluent generated from autoclaving yellow sharps, will be diverted to an IBC, which is stored on a banded pallet. The IBC is fitted with a high alarm and are opaque in colour, offering a visual and audible alarm to operators to ensure these do not overflow. (W3B on the map)</p>	Medium	Harm to the environment: including local waterways	Low
Odour	Immediate area – air, land, water.	Direct contact	<p>Odour management plan in place for all waste streams and operations.</p> <p>Odour complaint investigation form</p> <p>Sniff test performed daily and recorded within the site diary</p> <p>Non-conforming waste procedure, fridge to preserve anatomical or malodourous waste.</p> <p>Shredding occurs in a closed vessel fitted with a HEPA filter</p> <p>No VOC's presented from the autoclave due to the condenser system.</p> <p>Shredded/treated waste baled and wrapped or compacted in an enclosed container.</p> <p>Doors closed when not in use</p> <p>Waste delivered in bags, containers, and UN approved packages.</p>	Medium	Odour nuisance	Low
Emissions from autoclave during emergency venting	Immediate area – air, land	Direct contact	<p>No exhaust emissions will be vented during normal operations due to the condensate recovery system, which reduces the steam from aerolised liquid to liquid effluent.</p> <p>Should an abnormal operating condition occur, this will be where the autoclave is over pressurised and needs to release the 'contained energy' very quickly to prevent an explosion, the emergency vent releases at around 10 bars of pressure.</p> <p>The autoclave is tested annually under the pressure systems regulations.</p> <p>Working pressure of the autoclave is 3 bar.</p> <p>Maintenance on the autoclave,</p> <p>Daily inspections are recorded.</p> <p>Operators trained in pressure awareness and use of the autoclave.</p> <p>Should this event occur, the regulator will be informed and given a report of the incident.</p>	Low	Harm to the environment and public	Very low

Emission releases from the main building when opening and closing doors.	Immediate area – air. Air, surface runoff, direct contact.	Direct contact	All waste and residue handling activities will be undertaken within a covered building and within enclosed storage areas. There is minimal potential for dust arisings due to the type of waste. All shredding is done in an enclosed vessel with HEPA filter and particulate monitoring carried out in line with permit conditions.	Low	Nuisance and dust.	Very low
Emission of combustion gasses (gas burner)	Atmosphere, ozone layer	Air	Modern energy efficient design of gas fired boiler. Subject to planned preventative maintenance regime to ensure efficient use	Medium	Emission of greenhouse gasses	Low
Steam Leak to plant and/or building	Noise, heat, visual	Air	Statutory design, fabrication and inspection standards for steam systems. Controls and alarms for pressure. Routine operator checks.	Low	Noise annoyance	Very low
Noise and vibration from plant items such as the waste treatment processes, steam boiler, stack exhaust, forklift trucks etc.	Immediate area.	Sound propagation through air and the ground.	Majority of the plant items are installed inside the building, roller shutter doors closed. Regular maintenance of plant items. Noise level checks will be carried out regularly in operational areas and recorded in the site diary.	Low	Noise annoyance	Very low
Vandalism	Immediate area.	Land, air & water	24/7 security, controlled entrance to the site, visitor log, perimeter fence, CCTV.	Low	Harm to the environment	Low
Pests, scavengers, and flies	Vast area.	On the animal through flight.	Vermin control in place and records kept Daily site inspection and recorded on the site diary Waste kept in bags/containers/wrapped	Low	Harm to the environment	Low
Noise from vehicle movements	Immediate area.	Sound propagation through air and the ground.	Waste deliveries will typically occur during daytime periods. Waste vehicle movements at night will be limited. Noise level checks will be carried out regularly in operational areas and recorded in the site diary. The installation is within an industrial area where frequent HGV deliveries occur.	Medium	Noise annoyance	Medium-Low
Exhaust Emissions from vehicles	Immediate area and vast area when completing collections/deliveries	Dispersion through air	Vehicle Maintenance, Vehicle Defect reporting, Supervision and driver assessments. Vehicles tracked and monitoring system which provides emission improvement data. Use of AdBlue to reduce vehicle emissions. Plastic Vehicle bodies used. 99% LGV/HGV fleet have Euro6 engines. 75% company cars are electric	High-Medium	Harm to the environment	Medium
Litter from site	Immediate area.	Air, direct contact	Business waste collections in place. Netting surrounds the perimeter fence to capture smaller particulate that may be dispersed. Waste kept inside enclosed containers and nature of the waste does not produce dust Pest control visits in place and recorded. Daily sites walk around recorded in the site diary and recorded against site litter on the form. COTC holder on site.	Medium	Harm to the environment	Low

Fire from storage and/or processing of waste	Immediate area- air Injury to staff, firefighter and local population	Air, direct contact	Fire detection systems in place: heat detection. Fire marshals on each shift. Incident management plan in place, Fire Risk Assessment, Emergency Procedures, Housekeeping and Smoking policies. Security, SSoW. fire extinguishers/doors/emergency lighting checked as minimal requirements.	High-Medium	Harm to the environment Respiratory irritation, illness and nuisance to local population. Pollution of water or land.	Medium
----------------------------------------------	--------------------------------------------------------------------------	---------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------	--------------------------------------------------------------------------------------------------------------------------	--------