

Project details	Environmental Permit Variation Application EPR/LP3241QA Grundon Waste Management Limited – Avonmouth II
Applicant details	Grundon Waste Management Limited Thames House Oxford Road Benson Wallingford Oxfordshire OX10 6LX
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1 INTRODUCTION

Grundon Waste Management Limited (the ‘applicant’) has requested that Reva Environmental Ltd (the ‘agent’) prepares an Environmental Permit (EP) variation application, for its Avonmouth II Facility at Kings Weston Lane, Avonmouth, Bristol, BS11 9FG.

The facility is currently permitted by EPR/LP3241QA which was originally granted in November 2009 as EPR/EP3590SJ to New Earth Solutions (West) Limited. It was most recently varied (and consolidated) by Variation Notice V007 in October 2015 and was subsequently transferred in full to Grundon, on 18 January 2023.

The facility takes up an area of land that sits alongside another for which Grundon is also the current permit holder. The interaction between the facility EP boundary and the Energy Facility (the EfW) is shown on the site plan in the current EP for the facility and is presented in **Figure SS1** of this application (Supporting Statement). The site that is subject to this variation application is being reconfigured and developed as ‘Avonmouth II Waste Treatment and Transfer Station’ (WTTS). It is not currently operational.

The current EP allows the recovery and disposal of non-hazardous waste by biological treatment, in accordance with Section 5.4 Part A(1)(b)(i) of the EP Regulations and covers the entire plant from the receipt of waste to the disposal of residues resulting from the treatment process.

The applicant wishes to vary the permit to reflect the proposed operation as a hazardous and non-hazardous waste transfer station that can blend, repackage, bulk and/or shred waste for onward recovery or disposal. Full details are provided in Section 2.2.2 of the Supporting Statement.

An application is being made to vary the EP to:

- Add a new Listed Activity (activity ref. A1) to allow the receipt of hazardous waste for shredding prior to transfer off site for onward disposal or recovery. This falls under Section 5.3 Part A(1)(a)(ii).
- Add a new Listed Activity (activity ref. A2) to allow the receipt of hazardous waste for blending prior to transfer off site for onward disposal or recovery. This falls under Section 5.3 Part A(1)(a)(iii).
- Add a new Listed Activity (activity ref. A3) to allow the receipt of hazardous waste for bulking prior to transfer off site for onward disposal or recovery. This falls under Section 5.3 Part A(1)(a)(iv).
- Add a new Listed Activity (activity ref. A4) to allow the storage of hazardous waste with a capacity >50 tonnes. This includes the storage of hazardous waste pending transfer (without treatment) if required. This falls under Section 5.6 Part A(1)(a).
- Add a new Listed Activity (activity ref. A5) to allow the treatment of hazardous waste in the battery shredding/recycling unit with a capacity of >10 tonnes per day. This falls under Section 5.3 Part A(1)(a)(ii).
- Add a new Listed Activity (activity ref. A6) to allow the receipt of hazardous waste for processing through the de-packaging unit (crushing of small packages containing liquids) with a capacity of >10 tonnes per day.
- Add a new Waste Operation (activity ref. A7) to allow the receipt of non-hazardous waste for blending and/or bulking with a capacity less than 50 tonnes per day.
- Add a new Waste Operation (activity ref. A8) to allow the receipt of non-hazardous waste for blending and/or bulking with a capacity <75 tonnes per day as a pre-treatment for incineration.

- Add a new Waste Operation (activity ref. A9) to allow the receipt of non-hazardous waste for shredding with a capacity <50 tonnes per day pending disposal.
- Add a new Waste Operation (activity ref. A10) to allow the receipt of non-hazardous waste for shredding with a capacity <75 tonnes per day as a pre-treatment for incineration.
- Add a new Waste Operation (activity ref. A11) to allow the receipt of non-hazardous waste for processing through the de-packaging unit (crushing of small packages containing liquids) with a capacity <75 tonnes per day pending transfer off-site for disposal/recovery.
- Add a new Directly Associated Activity (DAA) (activity ref. A15) to allow the management of waste water (process water from the cleaning of waste containers as part of the repackaging activities).

Note: activities A12 – A14 are existing activities covered by the EP for storage of non-hazardous waste pending recovery, surface water collection, and the storage of raw materials.

There is no requirement to increase the EP boundary to accommodate the new activities.

A revised internal layout plan for Building 2 has been generated to present the proposed activities (and to confirm storage capacities by both no. of bins/pallets and tonnage) and is provided in **Appendix E** of this variation application (drawing ref. DG/EN/AVO/SK/1183, Issue 4).

The hazardous waste transfer activity will be limited to Building 2 identified in the Figure above; the transfer of non-hazardous waste can be carried out in any of Buildings 2, 3, 4 or 5 (as is currently permitted); this matches the existing provisions for these buildings.

Question 6 of EA application form Part C2 requires the provision of an environmental risk assessment (ERA). Whilst changes made for a variation application can usually be addressed with an ERA addendum that builds on the existing ERA for the permitted site, in this case the changes proposed are significant in terms of what is currently permitted and has been risk assessed already. A new, standalone, risk assessment has therefore been completed; this is a qualitative assessment and follows the EA’s source-pathway-receptor model.

It sets out the risks of potential failure or incident scenarios related to the proposed processes and assesses these in terms of the potential impact on any sensitive receptors.

1.1 Site Setting

The site is in a heavy industrial area, located on the former mudflats of the Severn Estuary, which is located approximately 1 km to the west of the site. It lies to the west of the M5 with good links to the M5 and the M49. The closest residential area is to the south of the site, at some 1.8 km.

The site setting is summarised in Table ERA1.

Table ERA1: Site Setting

Direction	Local Setting
Northern Boundary	<ul style="list-style-type: none"> • The site is bounded by Zinc Road which provides access off Boundary Road and Kings Weston Lane to the wider industrial estate area • To the north of Zinc Road are more industrial premises, primarily comprising warehousing/factories and parking/yard areas • A number of Local Wildlife Sites are also listed (see Section 1.2.2 below) – the closest to the northern boundary is Kings Weston Lane Rhine which runs SE to NW at approximately 1 km to the NE.

Eastern Boundary	<ul style="list-style-type: none"> • Immediately adjacent is a waste facility, owned and operated by the applicant for this Avonmouth II facility • Kings Weston Lane lies approximately 800 m to the east • The M49 runs in a generally north to south direction to the east of the site at approximately 2 km • To the immediate southwest is an open area of grassland with an access route/footpath across it • Beyond the area of grassland there are more industrial sites and fields that reach to Kings Weston Road
Southern Boundary	<ul style="list-style-type: none"> • Other commercial premises lie immediately to the south, extending to the junction between the A4 and M49. These include heavy industrial sites as well as smaller light commercial sites • The closest residential area is at 1.8 km to the south of the site, beyond the A4 • Avonmouth Railway Station is approximately 1.8 km to the south of the site • The Avon Gorge Woodlands (a SAC) lie approximately 4.5 km to the southwest, to the north of the River Avon
Western Boundary	<ul style="list-style-type: none"> • The site is along the western edge of the developed business area/industrial estate; • To its immediate west is a commercial property and car parking/yard, beyond which is the A403 St Andrews Road (and St Andrews Road Rhine) • Beyond the A403 is a band of commercial properties, then a railway line • Beyond the railway line is Royal Edward Dock <p>Details of the Severn Estuary, which lies to the west, are provided in 1.2.2 below.</p>

1.2 Sensitive Receptors

1.2.1 General

Key sensitive receptors are considered to be those within 1 km of the site; the potential impact to these from certain sources will depend on the weather conditions.

Figure ERA1 presents the wind rose for the area. This has been sourced from a station located at Bristol airport which is the closest to the application site and lies approximately 13 km to the south.

The perceived impact at receptors located down-wind are likely to be more than at those located cross or up-wind for certain sources like dust, litter, odour, noise. Some receptors are more sensitive than others, for example a residential area is likely to be more sensitive than an industrial estate.

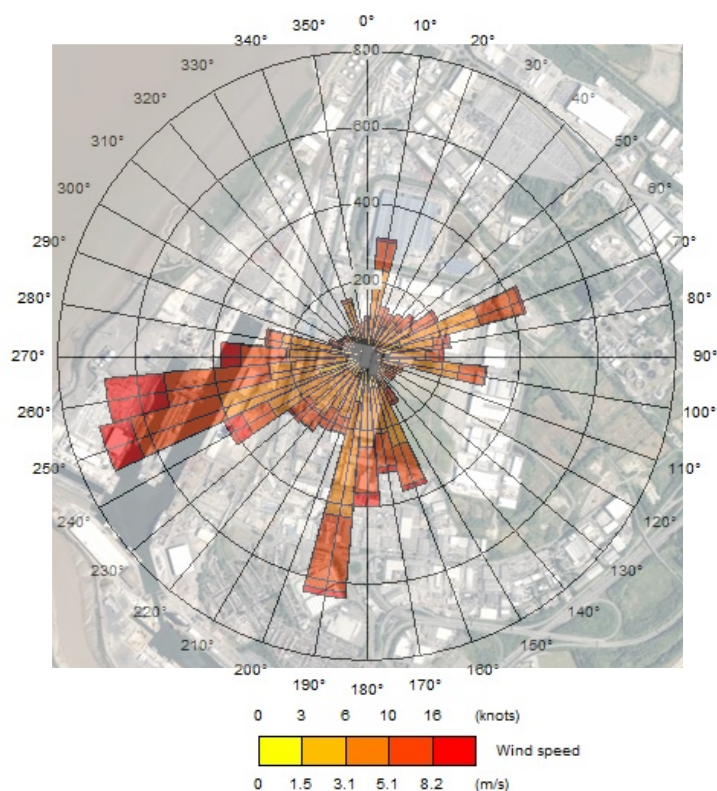


Figure ERA1: Wind Rose

Table ERA2: Sensitive Receptors within 2 km

Receptor	Distance at closest point	Direction	Receptor Type	Relative Risk of Impact
Residential Properties	1.8 km	South	Residential properties – potential all-day presence	Moderate
Workers in other premises in the Industrial Estate	Immediately adjacent	North, East, South, West	Commercial/industrial workplace	Moderate
Workers in other premises in the Industrial Estate, beyond 1 km	1 km +	North, East, South, West	Commercial/industrial workplace	Low
Local Wildlife Site – St Andrews Road Rhine	0.25 km	West	'A' Road (A403) with footpath used by transient walkers/public	Moderate

1.2.2 Nature Conservation Sites

The pre-application advice from the EA included a habitat screening assessment (a copy of which is provided in Appendix B of the Variation Application). The following features were identified as being within the applicable screening distance and have therefore been considered in this ERA:

- Severn Estuary Special Area of Conservation (SAC). The Severn Estuary is also designated as a Special Protection Area (SPA), a Ramsar site, a Site of Special Scientific Interest (SSSI), and a Local

Wildlife Site (LWS). It is a designated migratory route for protected fish and lies largely to the west of the site (within 1 km at its closest edge) and inland to the south of the site.

- The SAC designation applies to a large area (73,714 hectares) and is characterised as comprising of predominantly tidal rivers, estuaries, mudflats, sandflats, and lagoons (99%) with some salt marshes/pastures/steppes (1%). The primary reason for the SAC designation is its estuarial classification, and the presence of mudflats and sandflats that are not covered by seawater at low tide, and the Atlantic salt meadows. The area is considered to be one of the best for the latter in the UK. It also has sandbanks which are slightly covered by seawater all the time, and reefs. The species that are a primary reason for its classification are sea lamprey, river lamprey and twaite shad. These are fish that have a permanent presence in the Severn Estuary, and for which this is considered to be one of the best areas in the UK.

The area itself presents one of the best examples of its kind in the UK and supports large, permanently present, species. The threats to the area include human activities affecting hydraulic conditions, changes in abiotic conditions, and urbanisation/industrial activities. Given this, it is considered that this site would be sensitive to dust, litter, odour, noise and vibration, water contamination (through deposition or groundwater), and fire and pests/scavengers.

- The SPA designation applies to an area of nearly 25,000 hectares of the estuary and was classified in 1995 following identification as having national and international importance for the breeding, feeding, wintering and migration of rare and vulnerable species of birds. This includes Bewick's Swan (Annex I species); Gadwall, Shelduck, Redshank, Dunlin, and European white-fronted goose (regularly occurring migratory species); and Spotted redshank, curlew, whimbrel, grey plover, ringed plover, tufted duck, pochard, pintail, teal and wigeon (internationally important assemblage >20,000 wintering waterfowl). The presence of these species are supported by the intertidal mudflats and sandflats, the salt marsh, and hard substrate habitats. The Severn is one of the most important estuaries in the UK for overwintering wildfowl and waders, especially when severe weather conditions affect sites further north and east.
- The Ramsar designation applies to an area of over 24,000 hectares. It is of particular importance for staging nationally important numbers of waterbirds, including *Tadorna tadorna* and *Numenius phaeopus*. It also supports internationally important numbers of various species of wintering waterbirds, as well as being important for several species of fish which migrate between sea and river via the estuary. Small patches of a nationally rare plant (*Lythrum hyssopifolia*) are found in the grassland zone.
- The SSSI designation applies to an area of approximately 15,000 hectares of foreshore and intertidal habitat which forms part of a larger network including the Upper Severn Estuary SSSI and Bridgwater Bay SSSI. There are three island SSSIs of Sully, Flat Holm, and Steep Holm. The features for which it has been designated are also protected as a SPA, SAC and Ramsar site (as described above).
- Avon Gorge Woodlands Special Area of Conservation (SAC). This is an area (of 151 hectares) that lies to the southwest of the site, at approximately 4.5 km at its closest edge. It is characterised as comprising of predominantly broad-leaved deciduous woodland (70%) with the remaining features including heath/scrub, humid and Mesophile grassland, coniferous woodland, mixed woodland, and inland rocks/scree/sands/permanent snow and ice.

The threats to the area include changes in biotic conditions, and invasive non-native species. The area is not designated for reasons (either primary or not) of supporting habitats, however, given the importance of the site due to its high concentration of small-leaved lime and other

rare/uncommon plants, it is considered that this site would be sensitive to dust, litter, water contamination (through deposition or groundwater), and fire and pests/scavengers.

- Local Wildlife Sites (LWS). The pre-application advice lists thirteen separate sites that fall within 2 km of the applicant site. The closest of these is the St Andrews Road Rhine which runs to the west within 250 m. The next closest two are the Severn Estuary to the west (which is covered under its SPA, SAC, Ramsar, SSSI designations above) and Kings Weston Lane Rhine which is approximately 1 km to the northeast.

These sites have been taken into consideration in the risk assessment below.

2 RISK ASSESSMENT

Table ERA3: Risk Screening

Hazard	Receptor	Harm	Pathway	Likelihood of Exposure	Consequence	Magnitude of Risk	Justification of Magnitude	Control Measures	Residual Risk
Releases of particulate matter (dusts)	Local human population/presence, the Severn Estuary. The closest residential receptors are 1.8 km to the south of the site; the closest commercial receptors are the other units on the estate; ecological sites – the closest is St Andrews Road Rhine Local Wildlife Site at 250 m to the west of the site	Nuisance - dust on cars, clothing etc.	Transportation through air then inhalation or deposition	Low	High	Low	Permitted wastes are not generally dusty.	Wastes are delivered in sealed containers. Containers are subject to visual inspection. Doors to the building remain closed outside of loading/offloading times. No raw materials used are dusty. Plant is subject to scheduled maintenance and service.	Low
		Harm to human health - respiratory irritation and illness; harm to ecological features through toxic contamination or smothering		Low	Low	Low			Very Low
Releases of infectious micro-organisms (bioaerosols) from waste containers	Workers and visitors within the building, local human population/presence	Harm to human health - respiratory irritation and illness	Transportation through air then inhalation	Low	High	Medium	Whilst clinical waste can be infectious it is all contained within the UN approved containers in which it is collected.	Waste is only accepted in appropriate containers. Housekeeping procedures include regular disinfection. Treatment is within the building and under LEV which is filtered	Low

Hazard	Receptor	Harm	Pathway	Likelihood of Exposure	Consequence	Magnitude of Risk	Justification of Magnitude	Control Measures	Residual Risk
								prior to release via exhaust stack.	
Fire from waste or fuel storage and/or processing of waste	Local human population/presence, the Severn Estuary. The closest residential receptors are 1.8 km to the south of the site; the closest commercial receptors are the other units on the estate; ecological sites – the closest is St Andrews Road Rhine Local Wildlife Site at 250 m to the west of the site	Respiratory irritation, illness and nuisance to local population. Injury to staff, fire fighters or arsonists / vandals. Pollution of water or land from run-off of contaminated fire water. Harm to ecological features through toxic contamination or smothering	Air transport of smoke. Spillages and contaminated firewater by direct run-off from site and via surface water drains and ditches	Low	High	Medium	The impact of a fire on the immediate local area can be significant, and the pollution requiring short to medium term remediation. Diesel tank is located outside of the EP boundary (at the lorry park 'fuel island', remote from the storage of waste, and subject to scheduled maintenance and service	Wastes are delivered in sealed containers. Containers are subject to visual inspection. Waste is prioritised in date order. Storage is all within the building. Regular inspections and maintenance of key process plant and equipment (following planned preventative maintenance programme). Thermal cut outs on applicable equipment (e.g. electrical drives and inverters). FLT's are battery powered not diesel fuelled. All reasonable precautions will be taken to prevent the outbreak of fire. In the first instance site staff will extinguish the fire where possible, if required the fire brigade will be contacted.	Low

Hazard	Receptor	Harm	Pathway	Likelihood of Exposure	Consequence	Magnitude of Risk	Justification of Magnitude	Control Measures	Residual Risk
								Pollution control measures including impermeable hardstanding and surface water management infrastructure provides protection in terms of providing storage capacity for fire water. Water will be tested prior to discharge following fire to identify if it can be discharged.	
Litter	Local human population/presence, the Severn Estuary. The closest residential receptors are 1.8 km to the south of the site; the closest commercial receptors are the other units on the estate; ecological sites – the closest is St Andrews Road Rhine Local Wildlife	Nuisance, loss of amenity and harm to wildlife (disturbance)	Air transport then deposition	Low	Medium	Medium	It is acknowledged that local residents and habitat receptors are often sensitive to litter emissions however permitted wastes are not litter-generating.	Wastes are delivered in sealed containers. Containers are subject to visual inspection. Doors to the building remain closed outside of loading/offloading times.	Low

Hazard	Receptor	Harm	Pathway	Likelihood of Exposure	Consequence	Magnitude of Risk	Justification of Magnitude	Control Measures	Residual Risk
	Site at 250 m to the west of the site								
Waste and mud on local roads	Local human population/presence, the Severn Estuary. The closest residential receptors are 1.8 km to the south of the site; the closest commercial receptors are the other units on the estate. Site access is off Zinc Road to the north which joins Kings Weston Lane at approximately 800 m from the estate entrance	Nuisance, loss of amenity, road traffic accidents	Vehicles entering and leaving the site	Low	Medium	Medium	Road safety, local residents often sensitive to mud on roads.	During wet weather, daily inspection will identify if there are any areas of build-up of mud on internal and local roads and any issues will be cleared as soon as practicable; the facility and site roads are constructed of concrete; all vehicles entering and leaving the site are fully enclosed; any complaints will be recorded, and an investigation will be undertaken, and findings acted upon.	Low
Odour	Local human population/presence, the Severn Estuary. The closest residential receptors are 1.8 km to the south of the site; the closest commercial	Nuisance, loss of amenity	Air transport then inhalation	Medium	Medium	Medium	Local residents and public area users are often sensitive to odour, permitted waste types are potentially odorous	Wastes are delivered in sealed containers. Containers are subject to visual inspection. All vehicles entering and leaving the site are fully enclosed. Doors to the building remain closed	Low

Hazard	Receptor	Harm	Pathway	Likelihood of Exposure	Consequence	Magnitude of Risk	Justification of Magnitude	Control Measures	Residual Risk
	receptors are the other units on the estate.						but the raw materials are not	outside of loading/offloading times. Air extraction operates at all times and extract filtered for VOCs. OMP in place and reviewed.	
Noise and vibration	Local human population/presence, the Severn Estuary. The closest residential receptors are 1.8 km to the south of the site; the closest commercial receptors are the other units on the estate; ecological sites – the closest is St Andrews Road Rhine Local Wildlife Site at 250 m to the west of the site	Nuisance, loss of amenity; harm to ecological features through disturbance	Noise through the air and vibration through the ground	Medium	Medium	Medium	Local residents often sensitive to noise and vibration but closest residents are 1.8 km from the site and the site is within an existing 24/7 operational industrial area.	The noise design specification for the plant is such that employees are protected; plant does not exceed 80 dBA at 1 m from the noise source. Operations are within a fully enclosed building. Any complaints will be recorded, and an investigation will be undertaken and finding acted upon. Audible high-level alarms on process plant are within the confines of the building.	Low
Scavenging animals (e.g. rats) and	Local human population/presence, the Severn Estuary. The closest residential receptors	Harm to human health - from waste carried off site and faeces.	Air and over land	Low	Medium	Medium	Permitted wastes and raw materials are unlikely to	Wastes are delivered in sealed containers. Containers are subject to visual inspection. All vehicles entering and	Low

Hazard	Receptor	Harm	Pathway	Likelihood of Exposure	Consequence	Magnitude of Risk	Justification of Magnitude	Control Measures	Residual Risk
scavenging birds	are 1.8 km to the south of the site; the closest commercial receptors are the other units on the estate; ecological sites – the closest is St Andrews Road Rhine Local Wildlife Site at 250 m to the west of the site	Nuisance and loss of amenity. Harm to ecological features through predation					attract scavenging animals and birds	leaving the site are fully enclosed. Doors to the building remain closed outside of loading/offloading times. Pest control measures are in place.	
Pests (e.g. flies)	Local human population/presence, the Severn Estuary. The closest residential receptors are 1.8 km to the south of the site; the closest commercial receptors are the other units on the estate; ecological sites – the closest is St Andrews Road Rhine Local Wildlife Site at 250 m to the west of the site	Harm to human health, nuisance, and loss of amenity; Harm to ecological features through predation	Air and over land	Low	Medium	Medium	Permitted wastes and raw materials are unlikely to attract pests	Wastes are delivered in sealed containers. Containers are subject to visual inspection. All vehicles entering and leaving the site are fully enclosed. Doors to the building remain closed outside of loading/offloading times. Pest control measures are in place.	Low

Hazard	Receptor	Harm	Pathway	Likelihood of Exposure	Consequence	Magnitude of Risk	Justification of Magnitude	Control Measures	Residual Risk
Spillage of liquids	Local human population/presence, the Severn Estuary. The closest residential receptors are 1.8 km to the south of the site; the closest commercial receptors are the other units on the estate; ecological sites – the closest is St Andrews Road Rhine Local Wildlife Site at 250 m to the west of the site	Harm to human health and animal health	Via drains	High	Medium	Medium	Permitted wastes do include liquids.	Storage of liquid effluent is in appropriate containers. Treatment and storage is within the building. Visual inspection of integrity, in a dedicated area of impermeable hardstanding, moved only by trained forklift operators; any spillage would be contained within the building and surface water (sump) system.	Low
Flooding of site	Local human population/presence, the Severn Estuary. The closest residential receptors are 1.8 km to the south of the site; the closest commercial receptors are the other units on the estate; ecological sites – the closest is	Waste and/or raw materials washed off site may contaminate downstream receptors	Flood waters flowing over land and soaking into the ground	Medium	Medium	Medium	Permitted waste types are hazardous. Site close to Severn Estuary and within a flood plain	Waste is fully contained at all stages and stored in mobile containers when not being treated so can be easily removed in a flood event.	Low

Hazard	Receptor	Harm	Pathway	Likelihood of Exposure	Consequence	Magnitude of Risk	Justification of Magnitude	Control Measures	Residual Risk
	St Andrews Road Rhine Local Wildlife Site at 250 m to the west of the site								
Arson and / or vandalism causing the release of polluting materials to air (smoke or fumes), water or land.	Local human population/presence, the Severn Estuary. The closest residential receptors are 1.8 km to the south of the site; the closest commercial receptors are the other units on the estate; ecological sites – the closest is St Andrews Road Rhine Local Wildlife Site at 250 m to the west of the site	Respiratory irritation, illness and nuisance to local population. Injury to staff, fire fighters or arsonists/vandals. Pollution of water or land. Harm to ecological features through toxic contamination or smothering	Air transport of smoke. Spillages and contaminated firewater by direct run-off from site and via surface water drains and ditches.	Medium	High	High	The impact of a fire on the immediate local area can be significant, and the pollution requiring short to medium term remediation	Site is secure by palisade fencing and lockable gates; there is a fire alarm and CCTV. During operational hours access is only granted to authorised vehicles and visitors; pollution control measures including impermeable hardstanding and surface water management infrastructure provide protection in terms of providing storage capacity for fire water. Water will be tested prior to discharge following fire to identify if it can be discharged.	Low

3 CONCLUSION

Further details on the control measures are provided in the BAT Assessment completed for the variation application (Appendix K of the variation application, ref. GR_2023.02/06). These include details on:

- Waste pre-acceptance
- Waste acceptance
- Waste storage and handling
- Use of raw materials
- Treatment
- Emissions

On the basis of the assessment above, which follows the H1 approach for risk assessment, it is considered that the control measures proposed to be implemented for the new activities, are appropriate.

The ERA is a live document and will be subject to regular review throughout the life of the permitted operations. It will also be amended, if required, following any significant change to operations, an incident resulting in an environmental impact, and/or any substantiated complaints.