


<b>Project details</b>	Environmental Permit Variation Application – EPR HP3638WW/A005 O.C.O Technology Limited – Avonmouth Aggregate Production Facility
<b>Applicant details</b>	O.C.O Technology Limited Avonmouth Aggregate Production Facility Off Central Avenue Hallen Avonmouth BS10 7SD
<b>Report details</b>	<b>EP Variation Application – Appendix E: Environmental Risk Assessment</b> <b>Document reference: OCO_2020.03/03_v2</b>
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## 1 Introduction

O.C.O Technology Ltd (the 'applicant') has requested that Reva Environmental Ltd (the 'agent') prepares an Environmental Permit (EP) variation application, for its aggregate production facility off Central Avenue, Hallen, Avonmouth, BS10 7SD. The centre of the site is as NGR ST 53828 83207.

The facility treats air pollution control (APC) residues to create an aggregate that can be used in block manufacture. This is currently carried out in two production lines which can operate in parallel. APC residues are delivered in powder tankers and transferred into silos, then into a reactor where they are treated with carbon dioxide to lower the pH and reduce the leachability of some heavy metals. The material is then mixed with cement, sand, and water to turn it into pellets. The pellets are stored appropriately and used to make blocks. Processing is all carried out in a building.

The facility is currently authorised by EP ref. EPR/HP3638WW which was originally granted in September 2015, and most recently varied (V004) in December 2020.

The applicant is submitting a variation application (V005) to install a third treatment line at the site. The line is an exact duplicate of the two existing treatment lines, will process the same permitted wastes, and will utilise the same permitted raw materials to produce the aggregate. It will be located to the north of the two existing production lines, within the existing building footprint. The objective of the variation application is to obtain a varied EP which enables:

- Inclusion of the third line as an additional listed activity under S5.3 Part A(1)(a)(vi) in Table S1.1;
- Increase of the total storage limit for hazardous waste specified against AR3 in Table S1.1. The current EP limits storage to 1,750 tonnes of waste at any one time. This is in 8 storage silos. The proposal includes the addition of 4 more storage silos, an increase of 50%. The storage limit is therefore to be increased to 2,625 tonnes. The additional storage silos would be located on a dedicated pad to the west of the existing silo pad, where the EP currently allows water and CO<sub>2</sub> storage;
- Increase of storage of binder. This is currently permitted in one silo, adjacent to the waste silos, which has a capacity of approximately 125 m<sup>3</sup>. The permitted quantity is limited to 150 tonnes. The proposal includes an additional binder silo to be placed on an extension to the existing silo pad foundation immediately to the south of the existing silo, increasing the total storage capacity to 400 tonnes;
- Increase of storage of filler. This is currently permitted in a storage bay that has a capacity of approximately 400 m<sup>3</sup> and two additional bays No.1 and No.2 which have never been used. This application seeks to surrender both the area of the primary storage bay and the unused areas. The currently used bay will become new Aggregate Storage Bay 1 (not covered by the EP as it is a product not a waste) and a new larger bay will be built for filler which will have a capacity of 880 m<sup>3</sup> (an overall increase of 480 m<sup>3</sup>). Any one of the available Aggregate Bays 4 to 7 can also be used for filler storage; noting that only one would be used at any time. This would allow O.C.O to retain sufficient filler for the times when quarries close but the aggregate facility remains open. This is a further 400 m<sup>3</sup>. This equates to a total filler capacity of 1,280 tonnes (compared to the current permitted limit of 700 tonnes);
- Increase of CO<sub>2</sub> storage. The current EP allows for two tanks although the applicant has only built one; the EP allows total storage of 50 tonnes. The existing tank will be removed, and a new pad installed to the east of the process building which can accommodate 2 new tanks. The current storage limit is for 2 tanks so the permitted physical infrastructure will remain unchanged, however the capacity is doubled to 100 tonnes (each tank is 50 tonnes);

- Inclusion of new emission points in Tables S3.1 for the vents on the four new waste silos, and one new binder silo.

Question 6 of EA application form Part C2 requires the provision of an environmental risk assessment. The existing qualitative risk assessment (which was generated in 2015 for the original EP application) has been revisited and updated for the facility as a whole; the risk assessment methodology follows a source-pathway-receptor model. It also includes consideration of the habitat sites that have been identified in the pre-application advice provided by the EA (a copy of which is provided in Appendix A of the 2022 variation application, V005).

The risk assessment is presented in Table ERA3.

## 1.1 Site Setting

The facility is located in an industrial park, close to the mouth of the River Severn (Severn Beach) where it joins the Bristol Channel. The park fills the area bordered by Severn Road to the south and west, and the M49 which runs along the eastern boundary in a south to north direction joining the M4 motorway to the north. The O.C.O site is on the western edge of the park.

The site setting is summarised in Table ERA1.

**Table ERA1: Site Setting**

Direction	Local Setting
Northern Boundary	<ul style="list-style-type: none"> <li>• The site is bounded by Central Avenue which provides access off Severn Road (A403) to the wider industrial estate area</li> <li>• To the north of Central Avenue are more industrial premises, including a quarry, beyond which an area of woodland borders it up to Severn Road approximately 750 m to the north of the site</li> <li>• The eastern part of the industrial area to the north is labelled Western Approach Distribution Park and is taken up by large distribution warehousing with associated car parking</li> <li>• Immediately beyond Severn Road is a medium sized residential area which includes a primary school. The closest house is immediately to the north of Severn Road, at approximately 1.25 km and the residential area extends northwards, following the line of the Severn Estuary as far as the M49/M4 junction at 3 km to the north of the site</li> <li>• A number of Local Wildlife Sites are also listed (see Section 1.2.2 below) – the closest to the northern boundary is an area of grassland with woodland coverage, some 1.5 km away beyond Severn Road, thought to be Gypsies Platt</li> <li>• The River Wye SAC joins the River Severn some 8 km to the north</li> <li>• To the east of the LWS, there is a large solar farm</li> </ul>
Eastern Boundary	<ul style="list-style-type: none"> <li>• Other commercial premises lie immediately to the east of the site and continue up to the M49 which borders the estate</li> <li>• The M49 runs in a generally north to south direction to the east of the site at approximately 2 km</li> <li>• Several isolated residential properties lie beyond the M49 to the east, the closest of which is approximately 2.2 km</li> <li>• The town of Easter Compton is the largest of the residential areas to the east and this lies at approximately 3 km</li> <li>• Beyond the M49, the various small residential areas are set in open fields, demarcated by hedge rows and fences</li> </ul>

	<ul style="list-style-type: none"> <li>• A small zoo is located just over 4 km to the southeast, close to the M5</li> </ul>
Southern Boundary	<ul style="list-style-type: none"> <li>• Other commercial premises lie immediately to the south, extending many kms, following the boundary of the Severn Estuary. These include heavy industrial sites as well as smaller light commercial sites</li> <li>• The closest residential property appears to be an isolated property at 2.8 km from the site</li> <li>• Several protected species are listed in the EA screening advice for the application as being within 500 m of the site; these are some 250 m to the south, in an open area of land with some trees and shrubs present.</li> <li>• A number of Local Wildlife areas are also listed (see Section 1.2.2 below) – the closest to the southern boundary are in an area of fields some 2.5 km to the south, beyond Severn Road</li> <li>• The Avon Gorge Woodlands (a SAC) lies approximately 9.5 km to the south, to the north of the River Avon</li> </ul>
Western Boundary	<ul style="list-style-type: none"> <li>• The site is along the western edge of the developed business area;</li> <li>• To its immediate west is a land drain (rhine) and grassed area, beyond with is the A403 (Severn Road)</li> <li>• Beyond the A403 is a railway line, then a grassed area that becomes the sand banks of the Severn Estuary at approximately 250 m</li> </ul> <p>Details of the Severn Estuary 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 the met office ([www.metoffice.gov.uk](http://www.metoffice.gov.uk)) and is from a station located at Bristol airport which is the closest to the application site.

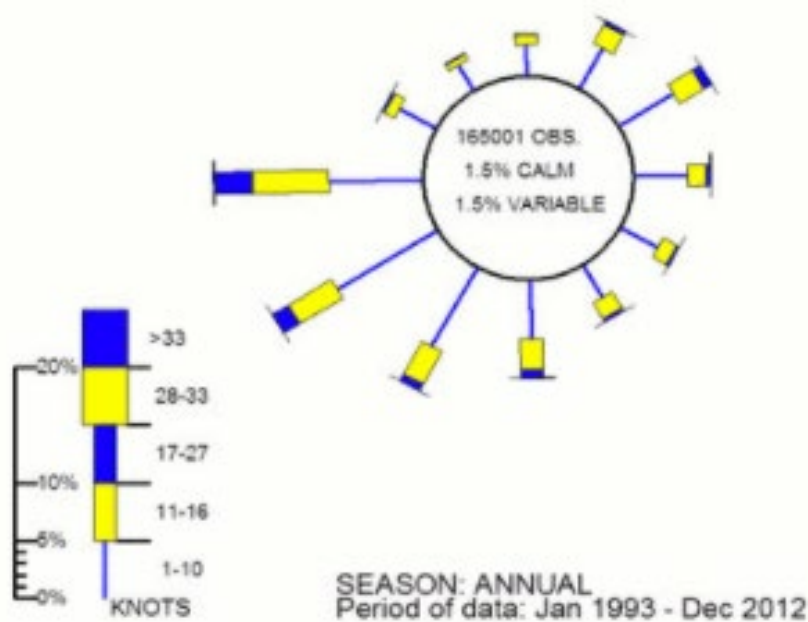


Figure ERA1: Wind Rose

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.

Table ERA2: Sensitive Receptors within 2 km

Receptor	Distance at closest point	Direction	Receptor Type	Relative Risk of Impact
Residential Properties	1.25 km	North	Residential properties – potential all-day presence	Moderate
Workers in other premises in the Industrial Estate	Immediately adjacent	North, East and South	Commercial/industrial workplace	Moderate
Workers in other premises in the Industrial Estate, beyond 1 km	1 km +	North, East and South	Commercial/industrial workplace	Low
Local Wildlife Site – Gypsies Platt	1.5 km	North	Open land – used by transient walkers/public	Low

### 1.2.2 Nature Conservation Sites

The pre-application advice from the EA (25 March 2021) comprised a nature and heritage conservation screening report. The following features were identified as being within the applicable screening distances and have therefore been considered in this ERA:

- Severn Estuary (England and Wales) Special Area of Conservation (SAC), Special Protection Area (SPA), Ramsar, and Site of Special Scientific Interest (SSSI). This is an area that consists of tidal rivers, mud flats, sand flats, lagoons, salt marshes, salt pastures and salt steppes.

- The SAC designation applies to an area of over 73,000 hectares or which 98% is designated marine area. 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. Whilst the JNCC doesn't provide any description for the Annex II species that are a primary reason for the designation, they are identified broadly as being sea lamprey, river lamprey and twaite shad (permanent presence); and the area is considered to be one of the best for these in the UK.

Threats to the SAC are identified as being those that relate to physical intrusion/disturbance.

- 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).
- The River Wye SAC designation (England and Wales designations) lies to the north of the site at about 8 km. It joins the River Severn near Beachley Point. According to the Joint Nature Conservation Committee (JNCC) this is an area of over 2.1 hectares and is a river channel that is largely unmodified, including some excellent gorges and significant areas of associated woodland. The primary reason for designation is the presence shales and sandstone, with bryophyte-dominated vegetation and extensive *Ranunculus* beds. There is a varied water-crowfoot flora and an exceptional range of aquatic flora. It supports white-clawed crayfish, sea lamprey, brook lamprey, river lamprey, twaite shad, Atlantic salmon, bullhead, and otter.
- Avon Gorge Woodlands SAC. This lies to the south of site; its closest edge is at approximately 9.5 km away. According to the JNCC this is an area of 151 hectares and is representative of *Tilio-Acerion* forests in south-west England, on the limestone cliffs and screes of a large river gorge. It is important because of the high concentration of small-leaved lime, compared with other sites in the region; the presence of rare whitebeams including two unique to the Avon Gorge; and other uncommon plants such as green hellebore. Other characteristic species include soft shield-fern and hart's-tongue. Species-rich transitions to scrub and grasslands are associated with the woodland. Small groves of yew also occur on some of the stonier situations.

- Local Wildlife Sites (LWSs) as follows:
  - Severn Estuary (New Passage to Chittening Warth). This is designated for the saltmarsh and mudflats;
  - Impool, Middle Compton and Upper Compton Rhines;
  - Gypsies Platt. This is an area of neutral grassland and species rich hedgerows to the north of the site;
  - Moorhouse Ram and Stuppil Rhines.

Given that the areas support wildlife and have parts that can be accessed by the public, it is considered that these sites would be sensitive to dust, litter, odour, noise and vibration, fire and pests/scavengers.

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

Table ERA3: Risk Assessment

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, livestock and wildlife. - the closest residential receptors are some 1.25 m to the north of the site; the closest commercial receptors are the other units on the estate; ecological sites – the closest is Gypsies Platt LWS at 1.5 km to the north of the site	Nuisance - dust on cars, clothing etc.	Transportation through air then inhalation or deposition	Medium	Low	Medium	Permitted waste types are hazardous and are fine dusts (as are so if inhaled, the consequence could be high.	Waste and binders are delivered in sealed powder tankers. Transfer into silos is managed through driver induction & training in discharge of waste materials, use of appropriate couplings which are subject to regular inspection and maintenance. Silos are self-testing before each delivery ensuring capacity is available to receive the load and that the discharge pressures are within the correct operating limits. Automatic shut-off if any safety system is breached. Waste silos subject to regular inspection and maintenance and incorporate dust filters. Movement of untreated waste from silos is via sealed systems into the enclosed mixing chamber. At this stage water is added as well as the CO2 allowing the	Very Low
		Harm to human health - respiratory irritation and illness; harm to ecological features through toxic contamination or smothering		Low	High	Medium	Raw materials are similar (e.g. cement), with sand being delivered in sheeted vehicles and directly into dedicated, covered, storage areas.  The likelihood of dust being generated is low and any potential for dust generation is appropriately mitigated through a dust suppression system and operational control procedures.		Low



Hazard	Receptor	Harm	Pathway	Likelihood of Exposure	Consequence	Magnitude of Risk	Justification of Magnitude	Control Measures	Residual Risk
								<p>subsequent movement of material to be via conveyors (as it is no longer a fine dust) but within the confines of the process building. The building has roller shutter doors, these are kept open as needed, to prevent dust build up in the building.</p> <p>Incoming filler material is delivered in sheeted tipper trucks and is delivered directly into dedicated, covered, storage areas. The site is kept clean (mechanical road sweeper) and dampened down if necessary; the Team Leader is responsible for undertaking daily inspection of the site; this will include identification of any potential or actual dust emissions, and actions will be taken if required. Grey water dust suppression system available if required.</p>	

Hazard	Receptor	Harm	Pathway	Likelihood of Exposure	Consequence	Magnitude of Risk	Justification of Magnitude	Control Measures	Residual Risk
Fire or explosion from release of hydrogen gas from storage of IBA	Local human population and local environment - the closest residential receptors are some 1.25 m to the north of the site; the closest commercial receptors are the other units on the estate; ecological sites – the closest is Gypsies Platt LWS at 1.5 km to the north 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. Hydrogen gas can be released from incinerator bottom ash (IBA) during the ageing process.	IBA is received at the site and placed in silos. The silos are not hermetically sealed as the filters allow venting of the silo to atmosphere; this means the hydrogen gas cannot accumulate in the silo creating an explosive atmosphere. Because the process is continuous and 24/7, no waste material is stored for a prolonged period of time in the silo, therefore the IBA will not have the opportunity to age and generate hydrogen. Pre-acceptance procedures require testing of waste materials and for IBA type materials this testing includes one for hydrogen gas evolution. If this test identifies that hydrogen evolution is likely within a 2 week typical maximum storage period, the silo will be made intrinsically safe	Low

Hazard	Receptor	Harm	Pathway	Likelihood of Exposure	Consequence	Magnitude of Risk	Justification of Magnitude	Control Measures	Residual Risk
								prior to accepting the material.	
Litter	Local human population/presence, livestock and wildlife. There are several surface water features (including land drains) within 250 m of the Site boundary, the closest residential receptors are some 1.25 m to the north of the site; the closest commercial receptors are the other units on the estate; ecological sites – the closest is Gypsies Platt LWS at 1.5 km to the north of the site	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. Waste that could generate litter will be limited to office and welfare facilities so small scale and managed in standard bins.	It is not anticipated that litter will be an issue at the site. The Team Leader is responsible for undertaking daily inspection of the site; this will include identification of any potential or actual litter emissions, and actions will be taken if required.	Low
Waste and mud on local roads	Local human population/presence - the closest residential receptors	Nuisance, loss of amenity,	Vehicles entering and	Low	Medium	Medium	Road safety, local residents often	The Team lead daily inspection will identify if there are any areas of build-up of mud on internal	Low

Hazard	Receptor	Harm	Pathway	Likelihood of Exposure	Consequence	Magnitude of Risk	Justification of Magnitude	Control Measures	Residual Risk
	are some 1.25 km to the north of the site; the closest commercial receptors are the other units on the estate. Site access is off Central Avenue which joins the A403 approximately 500 m (following the route) from the site entrance	road traffic accidents	leaving the site				sensitive to mud on roads.	and local roads and any issues will be cleared as soon as practicable; the facility and site roads are constructed of concrete and suitable road sweeping equipment will be used to ensure site roads kept clear and tidy; all vehicles entering and leaving the site are covered or fully enclosed; any complaints will be recorded in the site diary; an investigation will be undertaken and findings acted upon. If EA perceives that mud is an issue, then a management plan will be implemented as required by the permit.	
Odour	Local human population/presence - the closest residential receptors are some 1.25 m to the north of the site; the closest	Nuisance, loss of amenity	Air transport then inhalation	Medium	Medium	Medium	Local residents often sensitive to odour, permitted waste types are not generally odorous; nor are the raw materials (filler,	APCr does not have an odour, nor do the other wastes or raw materials. The APCr and IBA is discharged into the delivery tankers directly from the permitted EfW facilities	Low

Hazard	Receptor	Harm	Pathway	Likelihood of Exposure	Consequence	Magnitude of Risk	Justification of Magnitude	Control Measures	Residual Risk
	commercial receptors are the other units on the estate; ecological sites – the closest is Gypsies Platt LWS at 1.5 km to the north of the site						binder, CO2), however reactions within the process have the potential to generate ammonia (as a result of the waste source process overdosing ammonia for NOx abatement).	therefore is a controlled source and will not be contaminated with any non-permitted waste. Every delivery is sampled prior to discharge (for compliance with specification). Filters in the silo inlet pipework to ensure that no foreign bodies are allowed into the process. The building has roller shutter doors and these will be kept open as needed, to prevent ammonia build up in the building. Operatives undertaking confined space cleaning are potentially exposed but are required to wear full face respirators for this activity.	
Noise and vibration	Local human population/presence, livestock and wildlife - the closest residential receptors	Nuisance, loss of amenity; harm to ecological features	Noise through the air and vibration through the ground	Medium	High	High	Local residents often sensitive to noise and vibration, closest residents are 1.25 km from the site but the	The noise design specification for the plant is such that employees are protected; plant does not exceed 80 dBA at 1 m from	Medium

Hazard	Receptor	Harm	Pathway	Likelihood of Exposure	Consequence	Magnitude of Risk	Justification of Magnitude	Control Measures	Residual Risk
	are some 1.25 m to the north of the site; the closest commercial receptors are the other units on the estate; ecological sites – the closest is Gypsies Platt LWS at 1.5 km to the north of the site	through disturbance					site is within an existing 24/7 operational industrial area.	the noise source. Operations are within a fully enclosed building. Any complaints will be recorded, and an investigation will be undertaken and findings acted upon. White noise reversing beepers utilised on plant. Audible high-level alarms on process plant are within the confines of the building.	
Scavenging animals and scavenging birds	Local human population/presence, livestock and wildlife. - the closest residential receptors are some 1.25 m to the north of the site; the closest commercial receptors are the other units on the estate; ecological sites – the closest is Gypsies Platt LWS at	Harm to human health - from waste carried off site and faeces. Nuisance and loss of amenity. Harm to ecological features through predation	Air and over land	Low	Medium	Medium	Permitted wastes and raw materials will not attract scavenging animals and birds	Pests and vermin are not expected to be an issue at the site; the waste is not biodegradable so should not attract scavenging animals and birds; regular monitoring of the Site will be undertaken; any complaints will be recorded within the Site diary and an investigation will be undertaken and findings acted upon.	Low

Hazard	Receptor	Harm	Pathway	Likelihood of Exposure	Consequence	Magnitude of Risk	Justification of Magnitude	Control Measures	Residual Risk
	1.5 km to the north of the site								
Pests (e.g. flies)	Local human population/presence, livestock and wildlife. - the closest residential receptors are some 1.25 m to the north of the site; the closest commercial receptors are the other units on the estate; ecological sites – the closest is Gypsies Platt LWS at 1.5 km to the north 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 non-biodegradable and will not attract pests	Pests and vermin are not expected to be an issue at the Site; the waste is not biodegradable so will not attract scavenging animals and birds; regular monitoring of the Site will be undertaken; any complaints will be recorded within the Site diary and an investigation will be undertaken and findings acted upon	Low
Spillage of liquids, leachate from waste, contaminated rainwater run-off	All surface waters close to and downstream of site, land, and groundwater.	Acute effects: oxygen depletion, fish kill and algal blooms.	Direct run-off from site across ground surface, via surface water drains; transport	Low	Medium	Medium	Permitted waste types do not include sludges or liquids, nor are stored in the open air where rainfall can generate a leachate.	Surface water from the waste silo pad will be captured by the surface water management system and pumped to a storage tank for use in the process. Water collected in the aggregate stockyard and screening area will be	Low

Hazard	Receptor	Harm	Pathway	Likelihood of Exposure	Consequence	Magnitude of Risk	Justification of Magnitude	Control Measures	Residual Risk
from waste e.g. containing suspended solids.			through soil / groundwater					directed via a wedge pit/silt trap system prior to being fed to the underground attenuation tank prior to discharge to public sewer. The hardstanding will be inspected on a regular basis and remediation undertaken if required. In the event of any spillages on site, the cut off valve will be used to isolate the attenuation tank so that there is no discharge off site until testing has been carried out on the contents.	
Flooding of site	Local human population/presence, livestock and wildlife. There are several surface water features (including land drains) within 250 m of the Site boundary, - the closest residential receptors are some	Waste and/or raw materials washed off site may contaminate downstream receptors	Flood waters	Low	Medium	Medium	Permitted waste types are hazardous, the site is at low risk of flooding from rivers/the sea (ref. gov.uk)	Waste is fully contained at all stages, silos are on a plinth, raised off the ground. A flood risk assessment has not been produced for the facility as part of the planning application process as it was screened out.	Low



Hazard	Receptor	Harm	Pathway	Likelihood of Exposure	Consequence	Magnitude of Risk	Justification of Magnitude	Control Measures	Residual Risk
	1.25 km to the north of the site; the closest commercial receptors are the other units on the estate								
Arson and / or vandalism causing the release of polluting materials to air (smoke or fumes), water or land	Local human population/presence, livestock and wildlife. - the closest residential receptors are some 1.25 m to the north of the site; the closest commercial receptors are the other units on the estate; ecological sites – the closest is Gypsies Platt LWS at 1.5 km to the north of the site	Respiratory irritation, illness and nuisance to local population. Injury to staff, fire fighters or arsonists/vandals. Pollution of water or land.	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. Permitted waste types do not include flammable materials	The Site will be made secure by palisade fencing and gates approximately 2.4 m high; lockable ladder guards on silos to prevent access, the Site will be made secure out of hours; there is a fire alarm; the site will have CCTV. Intercom system at entrance during operational hours will only grant access to authorised vehicles and visitors; the site will have CCTV covering general operating areas; the location of the site is in an industrial area; the distance from residential receptors and therefore human presence is great. Pollution control measures	Medium

Hazard	Receptor	Harm	Pathway	Likelihood of Exposure	Consequence	Magnitude of Risk	Justification of Magnitude	Control Measures	Residual Risk
								including impermeable hardstanding and surface water management infrastructure provides protection in terms of providing storage capacity for fire water, including a cut off valve to prevent discharge from the underground attenuation tank. Water will be tested prior to discharge following fire to identify if it can be discharged.	
Accidental fire causing the release of polluting materials to air (smoke or fumes), water or land.	Local human population/presence, livestock and wildlife. - the closest residential receptors are some 1.25 m to the north of the site; the closest commercial receptors are the other units on the estate; ecological sites – the closest is	Respiratory irritation, illness and nuisance to local population. Injury to staff or fire fighters. Pollution of water or land.	Air transport of smoke. Spillages and contaminated firewater by direct run-off from site and via surface water drains and ditches.	Medium	High	High	Permitted waste types unlikely to include flammable materials	The permitted waste types (and raw materials) are not flammable. 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). Lightning protection	Medium

Hazard	Receptor	Harm	Pathway	Likelihood of Exposure	Consequence	Magnitude of Risk	Justification of Magnitude	Control Measures	Residual Risk
	Gypsies Platt LWS at 1.5 km to the north of the site							<p>systems in place on building, cement silo and APCr/IBA silos.</p> <p>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. Any hot works are completed under the permit to work system including a 30 minutes 'fire watch' following any hot works. Pollution control measures including impermeable hardstanding and surface water management infrastructure provides protection in terms of providing storage capacity for fire water, including a cut off valve to prevent discharge from the underground attenuation tank. Water will be tested</p>	

Hazard	Receptor	Harm	Pathway	Likelihood of Exposure	Consequence	Magnitude of Risk	Justification of Magnitude	Control Measures	Residual Risk
								prior to discharge following fire to identify if it can be discharged.	

## 2 Conclusion

Further details on the control measures are provided in the BAT Assessment completed for the variation application (Appendix F of the variation application, ref. O.C.O\_2020.03/04). These include details on:

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

On the basis of this and the assessment above, which follows the H1 approach for risk assessment, it is considered that the control measures that are either already in place at the site for the current permitted activities or are 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.