



## Environmental Risk Assessment

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Ellough Energy Recovery Facility

**V.C Cooke Limited**

CRM.0157.001.PE.R.005



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## Environmental Risk Assessment – CRM 0157 001 PE R 005

Project:	Ellough Energy Recovery Facility
For:	V.C Cooke Limited
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## 1.0 Introduction

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### 1.1 Introduction

- 1.1.1 This Environmental Risk Assessment has been prepared to support an Environmental Permit application, for a Small Waste Incineration Plant (SWIP) to be located at Ellough Energy Recovery Facility, Ellough Road, Beccles, NR34 7TQ (the 'Facility').
- 1.1.2 The plant will process up to 24,369 tonnes of RDF from the Operator's adjacent Permitted Waste Transfer Station. The plant will accept feedstock defined within Article 3.1 of the Waste Framework Directive (non-hazardous RDF). The fuel will be combusted in a Hurst solid fuel combustor with associated boiler and steam turbine generator to produce heat and power for the adjacent waste transfer station and industrial estate with any excess electricity exported to the grid.
- 1.1.3 Once the operation has commenced, the combustor, boiler and turbine will operate continuously. An anticipated plant uptime of 8432 hours per year has been calculated considering downtime for planned maintenance and cleaning.
- 1.1.4 The Operator will be V.C Cooke Limited, hereby referred to as the 'Operator'. This report has been prepared in response to questions 5.2, 6.2, 6.5, 6.8, 6.12 and 6.13 on East Suffolk Council's Small Waste Incineration Plant (SWIP) application form.

### 1.2 Overview of Processes

- 1.2.1 The Operator is applying for a Part A(2) Permit to operate a SWIP comprising a Hurst solid fuel combustor with associated boiler and steam turbine generator, which will utilise the RDF produced by the adjacent Ellough Waste Transfer Station. The Facility will be operated by V.C Cooke Limited to produce heat and power for the adjacent industrial estate. Full details of the proposed operations are provided in the 'Operational Techniques and Monitoring Plan' referenced CRM.0157.001.PE.R.006.
- 1.2.2 RDF feedstock is delivered into the Facility by articulated lorry from the adjacent site and tipped directly onto a walking floor. The walking floor will feed the RDF onto a conveyor which will transfer it to a metering bin.
- 1.2.3 The furnace is fed by a screw feeder system fitted to the fuel metering bin, which continuously transfers the feedstock onto a sloped reciprocating grate. The feedstock on the reciprocating grate is subsequently dried, gasified and combusted as it passes through the furnace. The temperature in the furnace is controlled at nominally 1,067°C.
- 1.2.4 The heat produced by the combustion of feedstock is used to produce steam in a firetube boiler. The steam produced is then used to drive a steam turbine generator to produce electricity.

### 1.3 Scope of Assessment

- 1.3.1 Assessments have been carried out to determine the environmental risks from the proposed SWIP. The assessments have been carried out in accordance with National, European and International legislation, statutory and non-statutory guidance documents including:
- Environmental Permitting Technical Guidance PG13/1 (20) Draft Reference document for the operation of small waste incineration plants (referred to as 'PG1/3'); and

- Risk assessments for your environmental permit, Environment Agency (EA), last updated 31 August 2022.

1.3.2 The objectives of the assessment process are as follows:

- Identify potential risks that the activity may present to the environment.
- Screen out those that are insignificant and don't require detailed assessment.
- Where appropriate, identify potentially significant risks and undertake detailed assessment.
- Identify control measures required to minimise risks.
- Report the findings of the assessment.

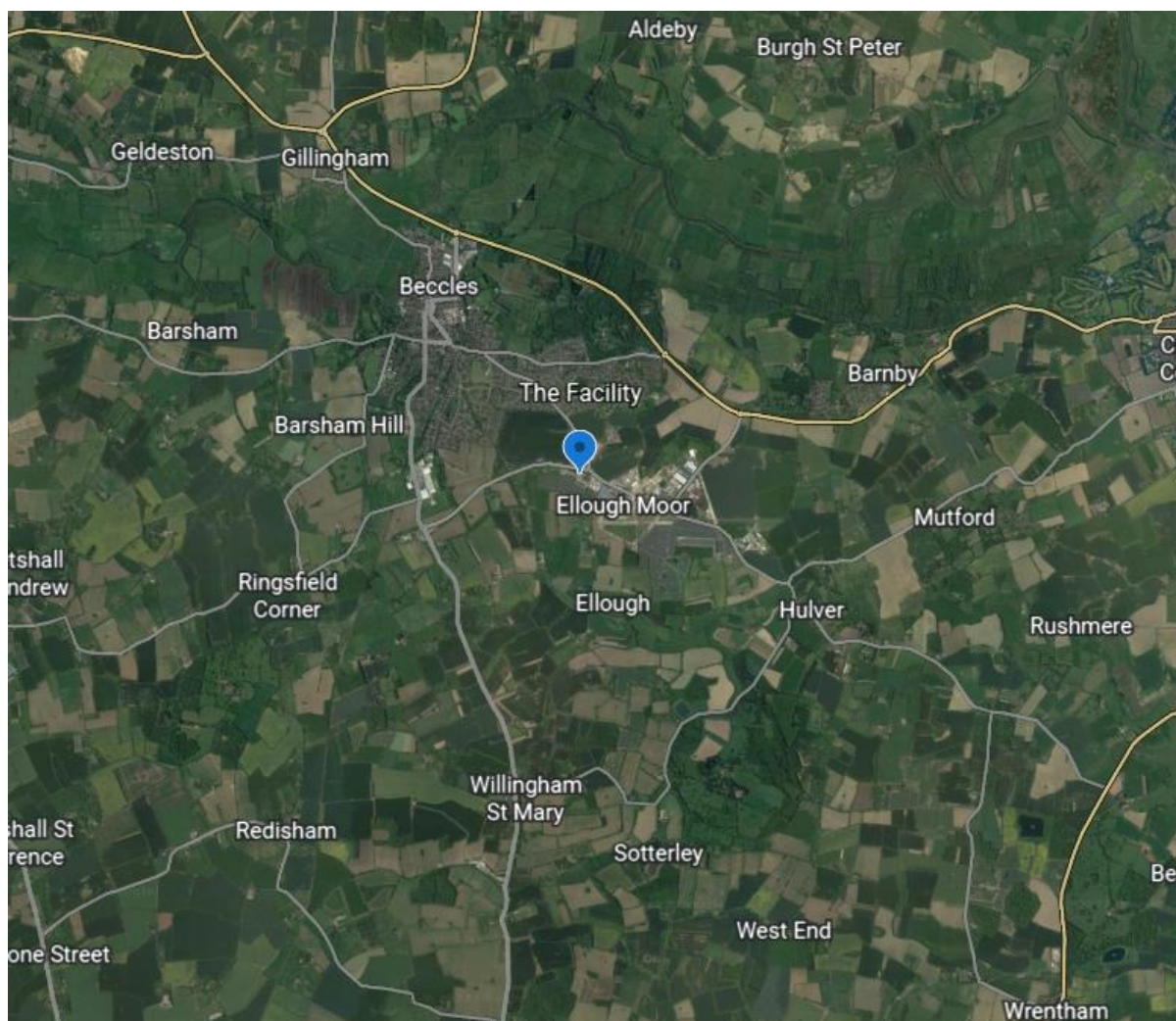
1.3.3 This report contains justification for all risk assessments completed or screened out from requiring further consideration and provides an overall assessment of the impact of the proposed Facility.

## **1.4 Facility Location and Environmental Setting**

1.4.1 The proposed facility will be located at Ellough Energy Recovery Facility, Ellough Road, Beccles, NR34 7TQ.

1.4.2 The National Grid Reference (NGR) for the Facility is: TM 44079 88422. The Facility covers an area of approximately 1.15ha and is located within the wider Ellough Waste Transfer Station. Figure 1.4.1 below illustrates the Facility location.

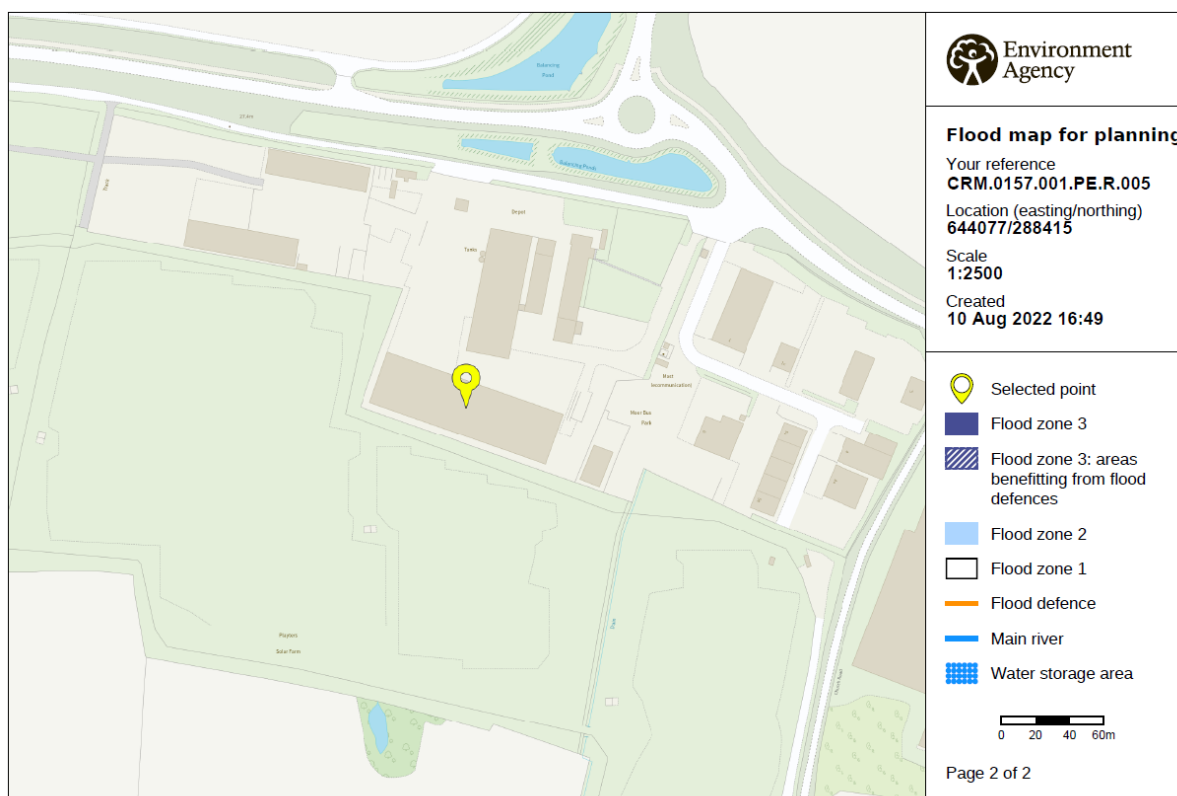
**Figure 1.4.1: Facility Location**



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1.4.3 A review of the flood map for planning on the Gov.UK website indicates that the application site is located within a Flood Zone 1, as shown by Figure 1.4.2 below. Land lying within Flood Zone 1 has a low probability of flooding.

**Figure 1.4.2: Flood Map**



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- 1.4.4 The proposed facility is located over a Principal aquifer in the bedrock geology and a Secondary undifferentiated aquifer in the superficial deposits. The groundwater vulnerability beneath the Facility is medium and the Facility is also located within a groundwater Source Protection Zone (SPZ) III.
- 1.4.5 The nearest surface water feature is a pond, located approximately 18m north of the proposed facility. The nearest main river to the proposed facility is an unnamed tributary of the River Waveney approximately 651m to the north northeast.
- 1.4.6 There are no Special Protection Areas (SPA), Special Areas of Conservation (SAC), Sites of Special Scientific Interest (SSSI), Ramsar sites, National Nature Reserves (NNR) or Local Nature Reserves (LNR) within 2km of the proposed facility.
- 1.4.7 The nearest designated site to the proposed facility is Sotterley Park SSSI located approximately 2,973m to the southeast. In addition, the Broads National Park and Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB) are situated approximately 2,070m north and 2,577m east southeast of the proposed facility, respectively.
- 1.4.8 There are a total of four Local Wildlife Sites (LWS), named as County Wildlife Sites (CWS) locally, within 2km of the proposed facility. The nearest CWS is located at Ellough Airfield approximately 1,320m east southeast of the proposed facility. Further details on the nearby CWS's are provided within section 1.5 below.
- 1.4.9 The nearest human sensitive receptors are employees of and visitors to Ellough Waste Transfer Station immediately to the north, east and west of the proposed facility.
- 1.4.10 The nearest residential property is located 483m to the south of the proposed facility on Church Road.



## 1.5 Nearby Sensitive Receptors

1.5.1 Nearby receptors within 2,000m of the application site have been identified. Key receptors that have the potential to be impacted by emissions from the Facility are summarised in Table 1.5.1 below.

1.5.2 There are no SPAs, SACs, SSSIs, Ramsar sites, NNRs or LNRs within 2km of the proposed facility based on a search carried out using Defra's Magic Map facility and the Wildlife Trusts website.

1.5.3 There are four County Wildlife Sites (CWS) within 2km of the proposed facility and these are Ellough Airfield, Ellough Churchyard, Ellough Grove North and Beccles Common. The CWS's are located approximately 1,320m east southeast, 1,656m south, 1,908m east southeast and 1,958m north, respectively.

1.5.4 The prevailing winds at the proposed facility are from the south southeast (based on daily observations data sourced from the Southwold weather station, located approximately 13.5km southeast of the application site (based on data provided by [www.windfinder.com](http://www.windfinder.com)). Further details on the weather station data are presented within Appendix B.

**Table 1.5.1: Sensitive Receptors**

Receptor	Type	Distance from site boundary (m)	Direction
Bedrock geology Principal Aquifer	Hydrological	On site	-
Superficial geology Secondary (Undifferentiated) Aquifer	Hydrological	On site	-
Agricultural land	Agricultural	0	S and W
Ellough waste transfer station	Commercial	0	N, E and W
Moor Business Park	Commercial	0	W
Pond	Hydrological	18	N
Unnamed drainage ditch	Hydrological	36	E
Pond	Hydrological	48	N
Pond	Hydrological	64	NNE
Ellough industrial estate	Commercial	190	W
Excalibur House industrial estate	Commercial	198	N
Boasts industrial estate	Commercial	464	N
Residential property	Residential	500	S
Playters New farm	Residential / agricultural	539	S
Residential properties off Cucumber Lane	Residential	640	WSW
Unnamed tributary of the River Waveney	Hydrological	651	NNE
Ellough Park raceway	Commercial	734	SE
Beccles town	Residential	760	N
Landoc caravan site	Residential	768	W
Residential properties at Dragonfly Hollow	Residential	938	SSW

Chenery's farm	Residential / agricultural	939	WSW
Woodlands caravan site	Residential	1104	S
Turkey rearing farm	Agricultural	1198	SE
Ellough Hall cottages	Residential	1318	SSE
Ellough Airfield CWS	Ecological	1320	ESE
Beccles Airfield	Commercial	1529	ESE
Residential properties off London Road	Residential	1629	SW
Marlborough farm	Residential / agricultural	1641	SW
Hill farm	Residential / agricultural	1654	SE
Ellough churchyard CWS	Ecological	1656	S
Glebe farm	Residential / agricultural	1665	S
Hall farm	Residential / agricultural	1739	NE
Residential properties off Lowestoft Road	Residential / agricultural	1769	NE
Ellough Grove North CWS	Ecological	1908	ESE
Musk farm	Residential / agricultural	1932	NE
Marsh farm	Residential / agricultural	1957	SE
Beccles Common CWS	Ecological	1958	N

## 2.0 Environmental Risk Assessments

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### 2.1 Scope of Assessments Completed

2.1.1 This ERA identifies the following potential risks to the environment which must be considered and included in the assessment, if they are likely to be present:

- point source releases to air;
- point source discharges to Surface waters;
- point source discharges to sewer;
- point source discharges to Ground or groundwater;
- odour impacts;
- noise and vibration impacts;
- impacts from accidents;
- fugitive emissions to air, land, surface waters and to groundwater; and
- disposal or recovery of wastes produced on site.

2.1.2 This ERA has been compiled to determine the environmental risks posed by the proposed facility and to ensure there are no significant impacts on the environment or human health, in accordance with regulatory guidance. Appropriate to the nature of the activities and potential impacts on site, the following qualitative assessments of the following aspects have been carried out:

- As the Facility will potentially generate noise, a noise assessment has been prepared to support this risk assessment, which is summarised below and provided in Appendix C.
- As there will be point source emissions to atmosphere, an air emissions assessment has been prepared to support this risk assessment, which is summarised below and provided in Appendix D.
- The ash conveyor uses water to contain the ash, the water is periodically drained during maintenance activities. The drained water will be discharged to the 46,000l on site tank before being tankered off site to an appropriately permitted facility.
- The feedstock used at the Facility will have the potential to generate odours. A qualitative risk assessment for potential odours from the proposed Facility is presented in Appendix A.
- The Facility's wastes have been quantified with demonstration of how the waste hierarchy will be achieved.
- Fugitive releases & accidents.

2.1.3 There will be no emissions to land, surface water or groundwater. A qualitative risk assessment has been undertaken to assess fugitive and accidental releases to water and land and how these risks will be minimised.

2.1.4 Each assessment completed is summarised below with a qualitative assessment of the risks from the proposed Facility provided in Appendix A. Full details of control measures compared with techniques described in the sector guidance is presented in the Operational Techniques and Monitoring Plan OTMP referenced CRM.0157.001.PE.R.006.

## 2.2 Point Source Emissions to Air

2.2.1 There will be one main emissions points to air from the proposed facility during normal operations comprising the fuel combustor stack.

2.2.2 Details of emission points are provided in Table 2.1.1 and are marked on the Site Layout Plan in the Drawings Section of this application, referenced CSS-JVB-006-D.

**Table 2.2.1: Point Source Emissions to Air**

Air Emission Point Reference	Source of Emission	Basis for Release	Emissions
A1	Exhaust from combustor	Normal operation	Carbon monoxide, carbon dioxide, particulates, NOx, SOx, TOC, HCL, HF

2.2.3 An air quality assessment has been carried out to determine the risk posed by the release of gaseous emissions from the proposed combustion plant that will combust RDF. The emissions are treated prior to their release, primarily for the removal of particulates and nitrogen oxides.

2.2.4 The Air Quality Assessment (AQA) was undertaken in August 2023 using ADMS 5 (v5.2.4.0). Impacts at sensitive receptors were quantified and the results compared with the relevant Environmental Quality Standards (EQS) and significance criteria provided by the Environment Agency (EA) and the Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment (COT).

2.2.5 The AQA impacts were based on the maximum predicted concentrations over 5 assessment years to provide a robust assessment. In addition, a roadside background NO<sub>2</sub> concentration was applied at receptors close to major roads to take account of elevated concentrations at these locations.

2.2.6 The AQA states that the relevant EQSs are not exceeded at any location within the assessment extents. The AQA concludes by stating that *'based on the predictions and the use of robust assumptions, it is considered that the overall air quality impacts of the proposed operation would be not significant'*.

2.2.7 A copy of the air quality assessment is provided in Appendix D to this report.

## 2.3 Point Source Emissions to Water

2.3.1 The clean surface water run-off from the roof of the buildings and the impermeable hardstanding yard areas will be collected within a below ground tank for subsequent use within dust suppression and wheel washing activities on site. The waters collected will pass through a three-stage interceptor prior to reaching the underground tank, in order to remove hydrocarbon contaminants within the waters prior to their reuse on site.

2.3.2 Drainage from inside the process building and process waters from the boiler and ash quenching system originating from inside the process building will be captured by a separate sealed

drainage system which will collect the waters within a 46,000l below ground tank. The tank will be emptied regularly by an authorised waste contractor for off-site treatment.

2.3.3 The ash conveyor captures the bottom ash from the furnace. The conveyor is contained within a water filled trough to quench the ash and prevent dust generation.

2.3.4 The water from the ash conveyor is emptied periodically during maintenance tasks. The water is discharged into the 46,000l on site tank before being tankered off site to an appropriately permitted facility.

2.3.5 Blowdown and condensate are automatically directed to the storage tank before being taken off site for treatment and disposal.

## **2.4 Point Source Emissions to Sewer**

2.4.1 There are no direct point source emissions to sewer from the proposed activity. The process building is installed with office space and welfare facilities which will be connected to sewer but no process emissions are discharged to the sewer.

## **2.5 Fugitive Emissions to Air**

2.5.1 The key sensitive receptors at risk of exposure to potential fugitive emission to air from the Facility have been identified as users of the adjacent Ellough waste transfer station which is operated by the same Operator, Moor Business Park and local residences. Environmental sensitive receptors are listed in Table 1.5.1.

2.5.2 The primary sources of potential fugitive emissions will be the dust which may escape from the process building when the roller shutter doors are opened. The site building operates under negative pressure with 3 air changes per hour. Dust may also be generated from plant and vehicle movements.

2.5.3 The RDF is transferred from the adjacent waste transfer site to the Facility having already been pre-treated and shredded to 200mm. The process building's roller shutter doors will be closed at all times, with the exception of during access and egress of the delivery vehicle. All RDF received will be deposited onto the walking floor and no storage of any further RDF will take place at the Facility.

2.5.4 RDF will be accepted loose from the adjacent Permitted site to the correct specification as described in the Operational Techniques and Management Plan. These procedures will ensure only suitable and permitted waste types are accepted onto the site.

2.5.5 Ash produced by the process will be deposited from the combustor into a water filled conveyor. The ash conveyor captures the bottom ash from the furnace.

2.5.6 The water filled conveyor will quench the ash during the collection process to prevent dust emissions.

2.5.7 Further particulate matter is removed from the flue gas via a multi-cyclone collector. The particulate matter from the multi-cyclone collector is routed, via sealed pipework, to a hopper and deposited in the APCR silo before removal off site by an appropriately authorised contractor.

2.5.8 Dust suppression is employed across all hardstanding areas at the Facility and the adjacent waste transfer station. All deliveries vehicles will also undergo wheel washing prior to arrival at the Facility to prevent the transmission of dust.

2.5.9 The assessment in Appendix A concludes that the risk from release of dust is low based on the control measures to be put in place.

## **2.6 Odour**

2.6.1 The key sensitive receptors at risk of exposure to potential fugitive emission to air from the Facility have been identified as users of Ellough waste transfer station, Moor Business Park and local residences.

2.6.2 The potential source of odours are the RDF feedstock which may emit odours during transportation and when received for processing at the Facility.

2.6.3 The RDF is delivered to the Facility in covered articulated vehicles from the adjacent waste transfer facility. The process buildings roller shutter doors will be closed at all times, with the exception of during access and egress of the delivery vehicle. All RDF received will be placed onto the walking floor and no storage of any further RDF will take place at the Facility.

2.6.4 In the event of a breakdown any RDF within Facility will be returned to the adjacent waste transfer station until the SWIP is operational again.

2.6.5 The building will be maintained under negative pressure with an air extraction system ensuring three air changes per hour. The extracted air will be fed into the boiler air. The building will benefit from fast acting roller shutter doors.

2.6.6 The assessment in Appendix A concludes that the risk from odour generation at the Facility is low based on the control measures to be put in place.

## **2.7 Fugitive Emissions to Water and Land**

2.7.1 Receptors identified are the ground and related groundwater, the ponds approximately 18m to the north and the surface water drainage ditch which runs approximately 36m to the east of the Facility's perimeter.

2.7.2 The potential fugitive emissions may arise under emergency or abnormal conditions such as spillages/leaks of fuel or oil associated with plant and machinery.

2.7.3 The Facility will use existing infrastructure which has been engineered to provide sealed impermeable surfacing to ensure that there will be no fugitive emissions released to surface water, ground or groundwater.

2.7.4 A sealed drainage systems is installed on site to handle the clean surface water run-off from the roof and yard areas. The drainage system flows to a below ground tank via a three-stage interceptor for subsequent use on site for wheel washing and dust suppression activities.

2.7.5 A second separate sealed drainage system is also installed to handle the drainage from and process waters originating from inside the process building. These waters are collected within a 46,000l below ground tank prior to collection by an authorised waste contractor for off-site treatment.

2.7.6 All above ground tanks will have:

- impermeable bunds with a capacity of 110% of the largest tanks volume;
- fill points provided with secondary containment;
- be subject to regular visual inspection; and

- nearby spill kits which will include materials suitable for absorbing and containing minor spillages.

2.7.7 Drip trays will be in place under coupling points during plant and equipment filling operations.

2.7.8 Management controls including spill procedures will be in place, with training for staff in how to use spill-kits.

2.7.9 Full details of control measures to minimise fugitive emissions to water and land compared with requirements detailed in the relevant technical guidance notes are provided in the OTMP.

2.7.10 The assessment in Appendix A concludes that the risk from fugitive releases to water and land is low based on the control measures to be put in place.

## 2.8 Noise and Vibration

2.8.1 The key sensitive receptors at risk of exposure to noise are the residential properties from approximately 500m south of the proposed Facility.

2.8.2 The feedstock conveyance and combustion will take place inside a building which will mitigate noise from this plant and equipment.

2.8.3 A detailed noise assessment has been completed to assess the potential impact from noise on sensitive receptors. The assessment was carried out in accordance with guidance contained within British Standard 4142:2014 Method for rating and assessing industrial and commercial sound. The noise assessment is provided in Appendix C to this report.

2.8.4 The BS4142:2014 assessment concluded that *'the proposed facility would have a low impact during the daytime period, with predicted levels falling well below the background sound level at the existing receptors and well below the guideline values of BS8233 at the allocated development site'*.

2.8.5 The assessment further adds *'During the night-time period, background sound levels and rating noise levels are very low. Notwithstanding this, the resultant noise impact in accordance with BS4142 is generally low'*.

2.8.6 A noise complaints procedure will be in place with actions recorded to prevent recurrence.

2.8.7 The potential hazard from vibration is low based on the limited sources of vibration and the control measures to be put in place.

## 2.9 Waste Generated and Waste Management

2.9.1 For any wastes generated on site, the waste hierarchy as defined within the Waste Framework Directive will be applied, with the option of disposal only considered once all other options have been screened out as not being feasible.

2.9.2 Full details of control measures to minimise the generation of waste compared with requirements detailed in the relevant technical guidance notes is described in the Operational Techniques and Monitoring Plan.

2.9.3 The following residues will be generated by the Facility: rejected RDF feedstock, ash, process building water and spent sodium bicarbonate.

### Rejected Input Materials

2.9.4 Small quantities of rejected RDF will require removal from the Facility as waste, however, this will be minimised through agreed RDF specifications with suppliers and pre-acceptance checks. The RDF specifications are produced by the same Operator at the adjacent waste transfer station, where the pre-acceptance checks will also be carried out.

### Liquid Waste

2.9.5 Process effluent from the firetube boiler will be recirculated. However the water will need to be periodically changed, when drained this water is directed to a sealed drainage system within the processing building. The drainage system will collect the waters within a below ground tank which will be emptied by a road tanker for disposal by an authorised waste contractor.

### Ash

2.9.6 Bottom ash is generated by the incineration of the RDF feedstock within the combustor. The bottom ash travels down the reciprocating grate and falls onto a conveyor below which transports it to a skip. The conveyor will be partially filled with water to cool the material and prevent dust generation. The enclosed ash skip is collected by an authorised waste contractor for recycling.

2.9.7 Before the exhaust gasses are released to the atmosphere a multi-cyclone collector, will remove fly ash and other particulate matter. This particulate matter will be collected in a hopper and deposited, via sealed pipework, in an Air Pollution Control Residue (APCR) silo before removal off site by an appropriately authorised contractor.

### Spent Lime Hydrate

2.9.8 Lime Hydrate is used with the emissions treatment system installed before the combustor stack. The lime hydrate will be replaced periodically in line with the manufacturers recommendations to ensure efficient treatment of the emissions at all times. Spent lime hydrate will be collected for disposal/recovery by an authorised waste contractor.

### Summary of Wastes

2.9.9 Table 2.8.1 summarises the wastes generated from the process.

Description of Waste	Quantity (tonnes per annum)	Source	Fate
Process water	9.069	Process building drainage and ash cooling	Recovery
Bottom ash	2,960	Combustion process	Recycling
APCR Silo material	730	Emissions control system	Disposal
Spent lime hydrate	0.6	Emissions control system	Disposal
Spent activated carbon	75	Emissions control system	Disposal

### 2.10 Mud, Litter and Pests

2.10.1 There are limited sources of litter however it is possible for ash and RDF feedstock to be released into the environment. The RDF is received by covered articulated lorry from the adjacent waste transfer station and placed directly onto the walking floor within the process building



minimising the potential for release. The risk of generation of litter is further reduced as the Facility's process building operates under negative pressure and benefits from fast-acting roller shutter doors.

2.10.2 Any wastes generated, for example the ash, will be stored securely within the process building to prevent release.

2.10.3 Based on the output of the risk assessment in Appendix A, the potential risk from litter is low.

2.10.4 Generation of mud is highly unlikely as the Facility is surfaced with impermeable hardstanding throughout.

2.10.5 All RDF deposited directly onto the walking floor for processing with no RDF being stored within the building, reducing the potential for litter generation and pest attraction.

2.10.6 Management of the reception building doors is controlled by the site operative inside the reception hall. The doors will remain closed except for allowing access and egress of the delivery vehicles.

## **2.11 Accidents**

2.11.1 The key sensitive human receptors identified near the Facility are local residents, Ellough waste transfer station and users of Moor Business Park. Ecological sensitive receptors include the ponds to the north and the drainage ditch to the east of the Facility and designated ecological receptors as identified in Table 1.5.1.

2.11.2 Proposed management and mitigation controls, including a maintenance and inspection regime will ensure that all activities are managed and controlled to minimise the risk of accidents.

2.11.3 The Facility will be operated in accordance with the Environmental Management System (EMS), relevant guidance documents and the Environmental Permit. The Facility's EMS will include security measures to prevent unauthorised access as well as fire and spillage procedures.

2.11.4 Full details of controls to minimise the impact from accidents compared with requirements detailed in the relevant technical guidance notes is described in the OTMP.

2.11.5 The assessment in Appendix A concludes that the risk from accidents is low based on the control measures to be put in place.

## 3.0 Conclusions

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3.1.1 Environmental risk assessments have been carried out to determine whether the proposed Facility can be operated without causing pollution to the environment. All risk assessments have been undertaken in accordance with relevant guidance and best practice.

3.1.2 The assessments undertaken consider the possible impacts on sensitive receptors from a range of potential emissions from the proposed Facility. The risk assessments have considered both the intended design and operational practices at the Facility and conclude that:

- A quantitative air quality assessment has modelled potential impacts on receptors, representing existing properties where impacts are expected to be greatest, as well as at a grid of receptors covering the whole area. Modelling has concluded that the impacts of the emissions to air associated with the proposed facility, were considered not significant in respect to human health or the environment.
- The RDF feedstock will be accepted within articulated vehicles into the facility's waste reception building which benefits from fast acting roller shutter doors and negative pressure. Ash storage will be within the process building. The proposed mitigation and management measures and the enclosed nature of the treatment processes means the risk of dust emissions is minimised.
- The calculated noise rating levels from activities carried out at the Facility are not likely to adversely affect local receptors as determined by the Noise Assessment document appended to this report.
- Following implementation of management measures and controls, potential risks from fugitive emissions to land, air and water are low.
- The overall risk to receptors from accidents is low due to the low-risk nature of activities at the Facility and the controls in place.
- The overall risks from odour, mud, vermin, pests and litter are low due to the control measures in place and the processes carried out.

## Appendix A – Risk Assessments

**Table 1: Fugitive Emissions to Air**

Hazard	Source	Pathway	Receptor	Probability of exposure	consequence	Magnitude of risk	Risk management	Residual risk
Releases of particulate matter from incoming /outgoing vehicles	Vehicle movements	Air transport and inhalation	Users and employees of Ellough waste transfer station; Local residents; Users and employees of Moor Business Park	Low	Medium	Medium	RDF delivered in covered wagons from adjoining waste transfer station. All process residues generated will be stored securely in covered skips for collection. Impermeable roadways to prevent of mud and dust. In the unlikely event of dust generation caused by vehicle movements, roadways will be swept and/or dampened down as appropriate to prevent the mobilisation of dust during dry and windy weather.	Low
Releases of particulate matter from the Facility.	On-site operations	Air transport and inhalation	Users and employees of Ellough waste transfer station; Local residents; Users and employees of Moor Business Park	Medium	Medium	Medium	RDF delivered in covered wagons. All wastes generated will be stored securely in covered skips for collection. Ash is dampened down during conveyance to prevent dust emissions. Enclosed processes. The RDF will arrive pre-treated and shredded down to 200mm.	Low

Hazard	Source	Pathway	Receptor	Probability of exposure	consequence	Magnitude of risk	Risk management	Residual risk
							<p>RDF deposited directly onto the walking floor by covered articulated lorry with no storage of RDF at the Facility</p> <p>Particulate removed and collected with ash as part of the clean up of exhaust gases.</p> <p>Wheel washing and dust suppression techniques employed at the Facility and on the adjacent waste transfer site.</p>	

**Table 2: Odour**

Hazard	Source	Pathway	Receptor	Probability of exposure	consequence	Magnitude of risk	Risk management	Residual risk
Releases of odour from the Facility.	On-site operations	Air transport and inhalation	Users and employees of Ellough waste transfer station; Local residents; Users and employees of Moor Business Park	Medium	Medium	Medium	<p>RDF delivered in covered wagons from the adjacent waste transfer station.</p> <p>The RDF will be delivered directly to the walking floor inside the process building and the roller shutter doors will be closed at all times, with the exception of during access and egress of the delivery vehicle.</p> <p>No RDF will be stored at the facility.</p>	Low

							The building will be maintained under negative pressure with an air extraction system ensuring three air changes per hour.	
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**Table 3: Fugitive Emissions to Water and Land**

Hazard	Source	Pathway	Receptor	Probability of exposure	consequence	Magnitude of risk	Risk management	Residual risk
Contaminated run-off/rainwater from the Facility's surfaces	Contamination from materials stored on site	Percolation through soils, direct run-off from the Facility across the ground and entering surface water or groundwater	Nearby natural habitats; Pollution of nearby surface water; Pollution of groundwater	Medium	Medium	Medium	<p>Impermeable surfaces with sealed construction joints to sealed drainage system and tank.</p> <p>Clean water drainage system will include a three-stage interceptor.</p> <p>Chemicals and oils are stored within sealed tanks provided with dedicated secondary containment with a capacity of 110% of the volume of the largest tank or 25% of the total volume, whichever is the greater.</p> <p>Regular inspections of containment will identify leaks.</p> <p>High-level alarms will be fitted to storage tanks where required.</p> <p>Operational procedures in place to ensure drainage system and surfacing are inspected regularly; any damage will be repaired and actions recorded.</p> <p>Drainage and firetube boiler process waters from inside the</p>	Low

Hazard	Source	Pathway	Receptor	Probability of exposure	consequence	Magnitude of risk	Risk management	Residual risk
							<p>process building will be captured by a separate sealed drainage system which will be collect the waters within a below ground tank to be emptied by an authorised waste contractor.</p> <p>Clean up procedures will be implemented to prevent pollution from liquids in the event of a spill. All staff will be trained in the procedures and correct use of equipment and sufficient spill kits will be maintained on site. These procedures will include the use of booms or drain mats to seal all drains during the spill event.</p> <p>Drip trays will be in place under coupling points during filling operations.</p>	
Chemicals and oils stored on site	Loss of containment on site	Percolation through soils, direct run-off from the Facility across the ground and entering surface water or groundwater	Nearby natural habitats; Pollution of nearby surface water; Pollution of groundwater	Low	Medium	Medium	<p>Chemicals and oils are stored within sealed tanks provided with dedicated secondary containment with a capacity of 110% of the volume of the largest tank or 25% of the total volume, whichever is the greater.</p> <p>Regular inspections of containment will identify leaks and high-level alarms will be fitted to storage tanks where required.</p>	Low

Hazard	Source	Pathway	Receptor	Probability of exposure	consequence	Magnitude of risk	Risk management	Residual risk
							<p>A spill clean-up procedure is in place to minimise the impact from spills and leaks.</p> <p>Staff will be trained in the procedures and correct use of equipment and sufficient spill kits will be maintained on site. These procedures will include the use of booms or drain mats to seal all drains during the spill event.</p> <p>Drip trays will be in place under coupling points during filling operations.</p> <p>All chemicals will be handled in accordance with COSHH Regulations. Full product data sheets will be available for review by personnel on site.</p> <p>Staff will be trained to minimise emissions to water and records maintained.</p>	

**Table 4: Noise and Vibration**

Hazard	Source	Pathway	Receptor	Probability of exposure	consequence	Magnitude of risk	Risk management	Residual risk
Noise from vehicle movements	On site operations	Noise through the air and vibration through the ground	Users and employees of Ellough waste transfer station; Local residents; Users and employees of Moor Business Park	Medium	Medium	Medium	<p>Delivery vehicles will arrive from adjacent waste transfer station</p> <p>Vehicle movements into and out of the Facility will take place as follows:</p> <ul style="list-style-type: none"> <li>• Mon to Fri 07:00-18:00</li> <li>• Sat 07:00-16:00.</li> </ul> <p>There will be no deliveries outside these hours or on Sundays or bank holidays.</p> <p>Vehicles will be subject to regular maintenance and service schedules. White noise reversing alarms shall be used on all vehicles.</p> <p>All roadways and plant parking surfaces will be located on impermeable hardstanding which are fully maintained with speed limits in place.</p>	Low
Noise and vibrations associated with the operation of the Facility	On site operations	Noise through the air and vibration through the ground	Users and employees of Ellough waste transfer station; Local residents; Users and employees of	Low	Medium	Medium	<p>The process will operate continuously, however feedstock acceptance and the removal of materials shall be restricted to the waste delivery hours stated above.</p> <p>All activities will take place within the building.</p>	Low



Hazard	Source	Pathway	Receptor	Probability of exposure	consequence	Magnitude of risk	Risk management	Residual risk
			Moor Business Park				<p>Relevant plant and equipment will be fitted with appropriate sound attenuation and acoustic isolation and will be subject to regular inspection and maintenance schedules to maintain operational performance.</p> <p>Noise assessment predicts no adverse effects on receptors.</p> <p>Any plant vibration issues will be resolved during the plant commissioning period.</p>	

**Table 5: Litter and Pests**

Hazard	Source	Pathway	Receptor	Probability of exposure	consequence	Magnitude of risk	Risk management	Residual risk
Litter	Litter from feedstock and packaging	Transportation through the air and over land	Users and employees of Ellough waste transfer station; Local residents; Users and employees of	Low	Low	Low	<p>RDF delivered in covered wagons. RDF is deposited directly onto the walking floor with no storage of RDF at the Facility</p> <p>A high standard of housekeeping will be maintained through regular checks for any litter and debris.</p>	Low

Hazard	Source	Pathway	Receptor	Probability of exposure	consequence	Magnitude of risk	Risk management	Residual risk
			Moor Business Park				Wastes generated will be stored securely in covered skips/bins. Any issues identified will be recorded, investigated and appropriate remedial action will be taken as soon as practicable.	
Pests attracted to the Facility	Pests attracted to feedstock	Transportation through the air	Users and employees of Ellough waste transfer station; Local residents; Users and employees of Moor Business Park	Low	Medium	Medium	RDF deposited directly onto the walking floor with no storage of RDF at the Facility, preventing ingress of pests and release of odours. The building will be maintained under negative pressure with an air extraction system ensuring three air changes per hour installed. A high standard of housekeeping will be maintained through regular checks for any litter and debris. Wastes generated will be stored securely in covered skips/bins.	Low

**Table 6: Accidents**

Hazard	Source	Pathway	Receptor	Probability of exposure	consequence	Magnitude of risk	Risk management	Residual risk
Impact by vehicle	All on-site machinery and vehicles	Direct physical contact	Drivers; On-site staff; Local human population after gaining unauthorised access to the Facility; Users of Ellough waste transfer station	Low	High	Medium	<p>Activities will be managed and operated in accordance with a management system which will include security measures to prevent unauthorised access.</p> <p>Security measures to prevent unauthorised access will include security locks on the buildings, CCTV, security fencing around the perimeter with security gates at the main entrance.</p> <p>General traffic movements at the Facility will be in accordance with the site rules.</p> <p>Appropriate signage for vehicles will be provided.</p> <p>Drivers/visitors to the Facility will be given health and safety inductions and instructions on safe routing and speed limits.</p> <p>As RDF will be delivered from the adjacent waste transfer station, drivers will generally be very familiar with the facility</p>	Low
Overfilling of tanks and spillages of chemicals	Tanks and containment	Direct contact, air, surface water runoff	Users and employees of Ellough waste transfer station;	Low	Medium	Low	<p>Impermeable surfaces with sealed construction joints.</p> <p>Chemicals and oils are stored within sealed tanks provided with dedicated secondary containment</p>	Low

Hazard	Source	Pathway	Receptor	Probability of exposure	consequence	Magnitude of risk	Risk management	Residual risk
			Local residents; Users and employees of Moor Business Park; Nearby habitats; Pollution of nearby surface water; Pollution of groundwater				with a capacity of 110% of the volume of the largest tank or 25% of the total volume, whichever is the greater. High-level alarms will be fitted to storage tanks where required. Procedures will be in place for dealing with any spills and clean up procedures and staff training will be provided. A spill clean-up procedure is in place to minimise the impact from spills and leaks. Staff will be trained in the procedures and correct use of equipment and sufficient spill kits will be maintained on site. These procedures will include the use of booms or drain mats to seal all drains during the spill event. All chemicals will be handled in accordance with COSHH Regulations. Full product data sheets will be available for review by personnel on site.	
Arson and / or vandalism and or	Unauthorised access	Transportation through the air of smoke then inhalation. Spillages and	On-site staff; Users and employees of	Low	High	Medium	Activities will be managed and operated in accordance with a management system (which will	Low

Hazard	Source	Pathway	Receptor	Probability of exposure	consequence	Magnitude of risk	Risk management	Residual risk
theft causing the release of polluting materials to air (smoke or fumes), water or land.		contaminated firewater by direct run off from the Facility.	Ellough waste transfer station; Members of the public and local residents; Nearby natural habitats; Unauthorised users of site equipment				include fire and spillage procedures). The Facility will have a monitored fire detection and alarm system as well as being manned 24 hours a day for 7 days a week. Security measures to prevent unauthorised access includes CCTV, night patrols, a perimeter security fence and security gates around the Facility. Security gates will be kept locked and secured outside normal delivery hours.	
Accidental fire/explosion causing the release of polluting materials to air (smoke or fumes), water or land.	On-site machinery	Transportation through the air of smoke then inhalation. Spillages and contaminated firewater by direct run off from the Facility.	On-site staff; Users and employees of Ellough waste transfer station; Members of the public and local residents; Nearby natural habitats; Unauthorised users of site equipment	Low	High	Medium	Activities will be managed and operated in accordance with a management system, which will include security measures to prevent unauthorised access. All plant and equipment will be maintained in good working condition and subject to routine inspection and maintenance. Security measures to prevent unauthorised access will include lock-up of the building, security gates and fencing servicing the wider site.	Low

Hazard	Source	Pathway	Receptor	Probability of exposure	consequence	Magnitude of risk	Risk management	Residual risk
							<p>The site has security fencing around the perimeter and security gates at the main entrance.</p> <p>The Facility's management system will include procedures and actions required in the event of fire to prevent or minimise off-site pollution.</p> <p>Firefighting equipment will be maintained on site in accordance with fire regulations.</p> <p>The Facility will have a dedicated smoking area situated outside of the building away from any storage areas.</p> <p>Any fire at the Facility will be treated as an emergency and will be extinguished at the earliest opportunity utilising local Fire &amp; Rescue Services if required.</p> <p>All staff will be fully trained in the fire procedure and the use of firefighting equipment. Any incidents of fire will be reported to the Local Authority and records kept.</p> <p>The incineration process is controlled electronically via SCADA which can be accessed remotely. Any abnormal conditions will</p>	

Hazard	Source	Pathway	Receptor	Probability of exposure	consequence	Magnitude of risk	Risk management	Residual risk
							trigger automatic shut-down procedures and appropriate controls to prevent the build-up of excessive heat.	

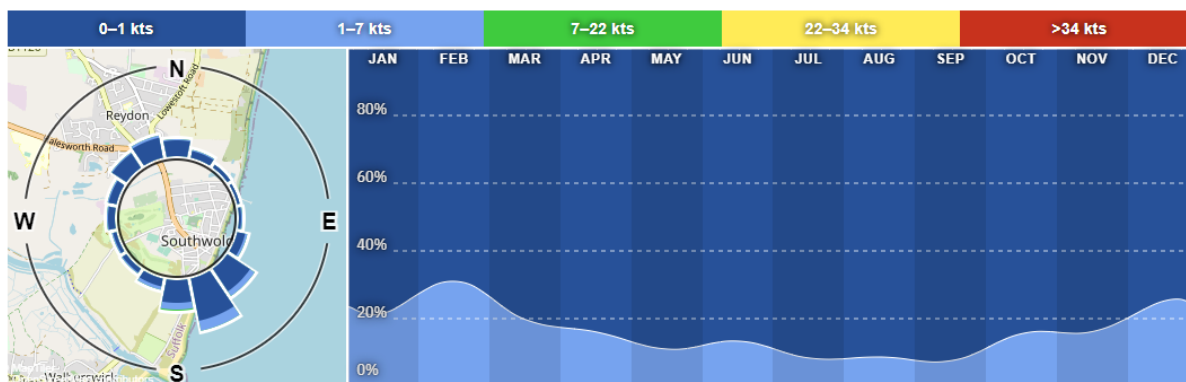
## Appendix B – Weather Station Data

### Monthly wind speed statistics and directions for Southwold

WIND		AIR	
DIRECTION	SPEED	DAYTIME	NIGHTTIME
SSE	2 kts	12 °C	10 °C

Statistics based on observations taken between 05/2011 - 07/2022.

### Monthly wind direction and strength distribution





## Appendix C – Raw Materials

Product	Maximum On-site Capacity	Storage Arrangements	Fate	Environmental Impact	Alternative
RDF	25 tonnes	Moving floor storage container.	Feedstock for process Combusted	R10: Flammable.	Specific purpose of the facility is to utilise RDF material as an alternative fuel to natural resources. Other feedstocks likely to have similar or increased environmental impacts
Urea Solution	30m <sup>3</sup>	In a double walled GPR chemical resistant tank.	For SNCR	Causes Skin Irritation Causes serious eye irritation Suspected of causing cancer Hazardous to the aquatic environment- Chronic Category 3	Ammonia can be used but it is considered to have greater health and safety risks therefore has been ruled out of use.
Activated Carbon	250kgs	In grab bags. Stored indoors	For flue gas cleaning	Causes serious eye irritation May cause respiratory irritation Causes skin irritation Harmful if swallowed Self-heating in large quantities Flammable	Assessed as the most effective way of removing any metals from the flue gasses. Other options have similar impact and re not as effective.
Lime Hydrate (Calcium Hydroxide)	20m <sup>3</sup>	Silo	For flue gas cleaning	N/A	Assessed as the most appropriate substance to ensure effective removal of acid gasses
Water	30m <sup>3</sup>	Tank	For use in the process (e.g. ash removal, boilers etc)	N/A	None
Lubricating Oils	10L	Stored in a bunded	Used in site equipment	R40: Carcinogenic	None

Product	Maximum On-site Capacity	Storage Arrangements	Fate	Environmental Impact	Alternative
		lockable chemical container		R10: Flammable Harmful to aquatic life Slight to moderate irritant Affects central nervous system Harmful or fatal if swallowed Produces vapours	



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