

SUNDERLAND UTR FACILITY ENVIRONMENTAL PERMIT APPLICATION

Environmental Risk Assessment
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1.0 INTRODUCTION

SLR Consulting Ltd (SLR) has been instructed by Wastefront AS to prepare a bespoke Environmental Permit (EP) application for the proposed Sunderland Used Tyre Recycling (UTR) Facility, to be located at Extension Road, East End, within the Port of Sunderland, SR1 2NR (the site). The proposed installation will be operated by Wastefront Sunderland Limited (Wastefront).

This ERA provides an assessment of the risks to the environment and human health from emissions that may be associated with the activities proposed to be carried out at the Site. It has been completed in accordance with the Environment Agency (EA) Guidance: Risk assessments for your environmental permit. The aim of the assessment is to identify any significant risks and demonstrate that the risk of pollution or harm will be acceptable by taking the appropriate measures to manage the risks.

1.1 Proposed development

Wastefront are proposing to develop and operate a new facility to process up to 77,000 tonnes per annum (tpa) of end-of-life tyres by thermal treatment, cracking and refining to produce approximately 24,000 tpa of carbon black and 30,000 tpa of liquid products for use as feedstocks in tyre manufacture and synthetic fuels elsewhere. Steel will be recovered as a by-product.

The key process steps and proposed technology is as follows:

- Shredding of used tyres and removal of steel wire;
- Treatment of the shredded tyres within pyrolysis reactors to produce a gaseous phase, liquid phase and carbon-rich solid residues;
- Distillation of the liquid phase to produce hydrocarbon fuels;
- Combustion of the cleaned gaseous phase to provide heat for the pyrolysis reactors;
- Combustion of residual gases from the pyrolysis and distillation processes in a thermal oxidiser to raise heat for the process;
- Separation of fine wire from the char followed by grinding, pelletising and drying of the solid carbon-black residues; and
- Storage of intermediate and final products, feedstocks and wastes.

Phase 1 of the development will include a single pyrolysis line, distillation and liquid storage and Phase 2 will include expansion of 2 further pyrolysis lines and the hydrothermal/hydrocracking units.

2.0 ENVIRONMENTAL RISK ASSESSMENT

2.1 Overview of Methodology

This ERA presents an assessment of the risks to the environment and to human health from emissions that may be associated with the proposed operations at the Site.

The assessment has been completed in accordance with the Environment Agency (EA) Technical Guidance 'Risk

Assessments for your Environmental Permit' last updated 10 December 2020¹. The aim of the assessment is to identify any significant risks and demonstrate that the risk of pollution or harm will be acceptable by taking the appropriate measures to manage these risks.

This ERA follows the steps in EA's guidance to identify and assess the risks from the proposed recovery operation:

- Step 1** Identify and consider risks for the Site, and the sources of the risks;
- Step 2** Identify the receptors (people, animals, property and anything else that could be affected by the hazard) at risk from the Site;
- Step 3** Identify the possible pathways from the sources of the risks to the receptors;
- Step 4** Assess risks relevant to the specific activity and check they're acceptable and can be screened out;
- Step 5** State what will be done to control risks if they're too high;
- Step 6** Submit the assessment as part of the permit application.

The guidance¹ requires all receptors that are near the Site and could reasonably be affected by the proposed activities to be identified and considered as part of the ERA. The following distances have been used to identify the relevant receptors:

- a 10km radius has been adopted in reviewing potentially sensitive receptors designated as RAMSAR, SAC, SPA and Marine Potential SPA;
- a 2km radius for SSSIs and other sites of cultural and ecological; and
- a radius of 500m from the proposed permit boundary has been adopted for all other potentially sensitive receptors (for example, residential, commercial, industrial, agricultural and surface water receptors).

2.2 Consideration of the Risks

Step 1 considers the potential risks to the environment from the proposed development. The risk assessment must identify whether any of the following risks could occur and what the environmental impact could be:

- any discharge, for example sewage or trade effluent to surface or groundwater;
- accidents;
- odour (not for standalone water discharge and groundwater activities);
- noise and vibration (not for standalone water discharge and groundwater activities);
- uncontrolled or unintended ('fugitive') emissions, for which risks include dust, litter, pests and pollutants that shouldn't be in the discharge;
- visible emissions, e.g. smoke or visible plumes; and
- release of bioaerosols, for example from shredding, screening and turning, or from stack or open point source release such as a biofilter.

In addition, the EA guidance identifies risks from specific activities for which additional risk assessments must be completed depending on the activity being carried out and where substances are released or discharged into the

¹ Environment Agency - 'Risk Assessments for your Environmental Permit' May 2018, <https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit>.

environment. The EA guidance Risk assessment for installations, waste and mining waste operations and landfill Sites indicates that the following additional risk assessments may be required:

- air emissions;
- global warming impact;
- groundwater;
- surface water.

Potential risks can be screened out if they are not relevant for the site or by carrying out tests to check whether they are within acceptable limits or environmental standards. If they are, any further assessment of the pollutant is not necessary because the risk to the environment is insignificant.

There are no point source emissions or discharge to groundwater, no releases of bioaerosols or visible emissions from the proposed development. Only uncontaminated surface rainwater will be released to surface water; process effluent from the site will be tankered off-site for treatment at an appropriately regulated facility.

Therefore, the following aspects will be considered for further assessment:

- air emissions;
- global warming potential;
- noise & vibration;
- odour;
- fugitive emissions; and
- accidents.

Detailed assessment of global warming potential is provided in Appendix 01 to this ERA. The Air Emissions Risk Assessment and Noise Impact Assessments are provided as separate reports in Section 5 and 7 of the application package.

2.3 Receptors

Step Two identifies people or parts of the environment that could be harmed (at potentially significant risk) by the activity. This section identifies the Site setting and potentially sensitive receptors in the vicinity of the Site.

2.3.1 Site Setting

It is proposed to develop the facility on a brownfield site located within the Port of Sunderland centred on National Grid Reference (NGR) NZ 41364 56893. A summary of the immediate surrounding land use is provided in Table 1.

Table 1 Surrounding Land Uses

Boundary	Description
North	Commercial and industrial premises and open ground.
East	Open ground, sea walls and outlet to the North Sea.
South	Industrial / commercial premises (including an Upper Tier COMAH site) and beyond that, the North Sea.
West	Sunderland Docks/River Wear, industrial/ commercial premises, railway and open ground

The surrounding land uses and receptors within 500m are identified on Drawing 03 Environmental Site Setting & Receptors. Cultural and Natural Heritage receptors within 2km and European designated sites within 10km are identified on Drawing 04 Cultural and Natural Heritage Receptors.

The immediate surrounding land use is described in detail below.

Commercial and Industrial

Adjacent to the north and south of the site are commercial/industrial premises within the Port of Sunderland. Northumbrian Roads aggregates processing lies to the north, and to the south lies a waste solvents plant operated by Tradebe, which is also an upper tier COMAH site. Beyond the closed dock to the west lies Hendon Industrial Estate.

Local Transport Network

The road network associated with Sunderland Docks intersects the site in a north to south direction through the site, between the main processing area to the east and the product loading area to the west.

Hendon Railway sidings lies approximately 200m to the west of the site beyond the enclosed Hendon Docks.

An additional road network lies approximately 380m to the west of the site beyond the enclosed Hendon Docks and includes Extension Road, Hendon Road Estate, Moor Terrace, beyond which is The Quadrant approximately 480m to the west.

Open ground

The nearest areas of open ground lie adjacent to the northeast and southeast corners of the site's boundary. An additional area of open ground lies beyond the enclosed Hendon Docks approximately 230m to the west and Town Moor open ground lies 425m to the west of the site boundary.

Residential

The nearest residential properties are a development at the former Boys Orphanage, approximately 500m to the west of the proposed site, and further properties lie 720m southwest, and 650 m northwest including Keelboat Lodge.

Surface Water

Hendon Docks, part of the wider Sunderland Docks system connected to the River Wear, lies adjacent to the west of the site and the Hudson Dock North Sea channel lies adjacent to the east.

2.3.2 Geology, Hydrogeology and Hydrology

Geology

A review of the British Geological Survey (BGS) map² reveals that the site is underlain by a bedrock of the Roker Formation - Dolostone (Cream, oolitic dolostone with subordinate thin beds of fine-grained dolomite). Superficial deposits at the site comprise Glaciolacustrine deposits of Devensian Clay and Silt.

The FWS Consulting (2020)³ intrusive investigation revealed the following on site geology:

- Made Ground: 6 to 12.5 m deep.
- Superficial deposits: 5.2 to 13 m deep. Comprising gravelly sand or soft black slightly sandy clay. Dark brown slightly sandy clay with occasional shells (possible dredge material) was also noted.
- Bedrock: encountered 6.5 m to 13.4 m deep. Comprising very weak to moderately strong light brownish yellow dolomitic limestone.

Hydrogeology

The Multi-Agency Information for the Countryside (MAGIC)⁴ website classifies the aquifers underlying the site as:

- Superficial deposits: Unknown - (lakes and landslips).
- Bedrock: Principal Aquifer.

The Groundwater Vulnerability layer on the MAGIC map reveals that the site lies within a groundwater vulnerability area classified as medium - high.

No groundwater abstraction licences are located within 500m of the site.

There are no groundwater Source Protection Zones within 1 km of the site.

The FWS Consulting intrusive investigation noted a discharge consent located 7 m to the south of the site which is held by Solvent Resource Management Ltd and relates to sewage discharges to underground water.

Hydrology

The site is located between the Hudson and Hendon Docks and the North Sea. The northern end of the dock system connects to the River Wear (also referred to as a Sunderland Harbour), approximately 920m northwest of the site.

No surface water abstraction licences were identified within 1km of the site.

Coastal Water

The Hudson Dock channel leading to the North Sea is located adjacent to the eastern boundary.

FWS Consulting noted a discharge consent 70 m to the east of the site related to trade discharge – process water listed to Sunderland Oil Storage Limited, possibly related to the former site use for controlled discharge to the sea.

² British Geological Survey, Available at www.bgs.ac.uk, accessed in May 2021

³ FWS Geotechnical & Environmental Consultants, Preliminary Contamination and Mining Risk Assessment On Land At Hudson Dock East, Port of Sunderland, November 2020

⁴ Multi-Agency Information for the Countryside – Available at: <http://www.magic.gov.uk>, accessed May 2021

Flooding

The majority of the site lies within a Flood Zone 1⁵, defined as an area with low probability of flooding. The fuel loading area to the west of the access road, and a small part of the south-western and north-eastern corners of the site lie within Flood Zone 2 and 3, defined as land having a 1 in 100 or greater annual probability of river flooding or land having a 1 in 200 or greater annual probability of sea flooding.

The EA's flood mapping does not take into account the effect of any flood defences, which are located all around the coastal boundary to the east of the site and including to the immediate east of the site boundary where there is a step down in elevation to the beached inlet area of the Hudson Dock Channel. The change in elevation is reinforced with steel piling which would act as a sea wall to reduce the potential of sea flooding to the site.

Water levels within the docks are controlled by two sets of lock doors. The northern set of lock doors are closed in the event of extreme tidal surging in the North Sea or elevated water levels along the lower reach of the River Wear.

A Flood Risk Assessment (FRA) was undertaken as part of the planning application⁶ which demonstrates that surface water run-off can be managed in accordance with best practice so that flood risk would not be increased by the new development.

The FRA concludes that the flood risk at the site will remain low for the lifetime of the development. Whilst there is a moderate risk of waste overtopping onto the site if sea levels are high due to storm surging, it is concluded that the site drainage should have capacity to contain this water and for it to pass through into Hudson Dock.

2.3.3 Ecology

European/Internationally Designated Sites

Site of Special Scientific Interest (SSSI)

A review of MAGIC identified no SSSIs within 2km radius of the site boundary.

Other Designated Sites

A review of MAGIC confirms that a number of the following are situated within a 10km radius of the site's boundary:

Several parts of the Northumbria Coast RAMSAR site lie within 10km of the site's EP boundary, both south and north, the closest point of which lies 2km south.

Three parcels of the Durham Coast Special Areas of Conservation (SAC) lie to the north and south, the closest of which lies 2km south of the site.

Five parcels of the Northumbria Coast Special Protection Areas (SPA) lie within 10km of the site's EP boundary, the closest parcel lies 2km south of the site.

There are no Marine Potential SPAs within 10km of the EP boundary.

⁵ Flood Map for Planning, available at <https://flood-map-for-planning.service.gov.uk/>, accessed in May 2021

⁶ SLR Ref 403:11075.00001 Waste Tyre Processing Facility, Port of Sunderland, Technical Appendix 10/1: Flood Risk Assessment Planning Statement April 2021

Nationally/Locally Designated Sites

A search on MAGIC map identified that there are none of the following feature of ecological importance within 2km vicinity of the site:

- Areas of Outstanding Natural Beauty (AONB);
- National Nature Reserves (NNR);
- National Parks;
- RSPB Reserves;
- Ancient Woodland;
- Biosphere Reserves; or
- Local Nature Reserves (LNR)

A review of the Nature and Heritage Conservation screening report confirmed that six Local Wildlife Sites (LWS) lie within 2km of the site. These are illustrated in Appendix 2 Nature and Heritage Conservation.

- North Dock Tufa – approximately 1600m to the north of the site;
- Wearmouth Riverside Park/Wearmouth Colliery – approximately 1500m west of the site;
- Mowbray Park – approximately 1300m to the west of the site;
- Sunderland South Docks – 1000m to the north of the site;
- Hendon Railway – approximately 1900m, to the south of the site; and
- Hendon Cliffs – approximately 1800m, to the south of the site.

Cultural Heritage

Several listed buildings are located to the north, southwest and west of the site within 2km of the EP boundary. Two Grade II listed buildings lie to the immediate north, the closest of which is the Swing Bridge at east side with Ashlar Walls approximately 30m north of the boundary. The closest Grade I listed building, the Church of Holy Trinity lies 700m northwest of the site and the closest Grade II* listed building, 11, Church Street East lies 800m northwest of the site's boundary.

Two Registered Parks and Gardens were identified within 2km of the EP boundary:

- Mowbray Park, approximately 1.3km west; and
- Roker Park, approximately 1.9km north.

A review of MAGIC Map identified one Scheduled Monument within 2km of the site's boundary. Monkwearmouth Anglo-Saxon monastery and medieval priory lies 1.25km northwest of the EP boundary.

Searches on the MAGIC Map confirmed there are none of the following within 2km of the EP boundary:

- World Heritage sites; or
- Registered Battlefields

2.3.4 Identified Receptors

Local receptors within 500m of the Site are recorded in Table 2, along with natural and cultural receptors within 2km.

Table 2 Receptors

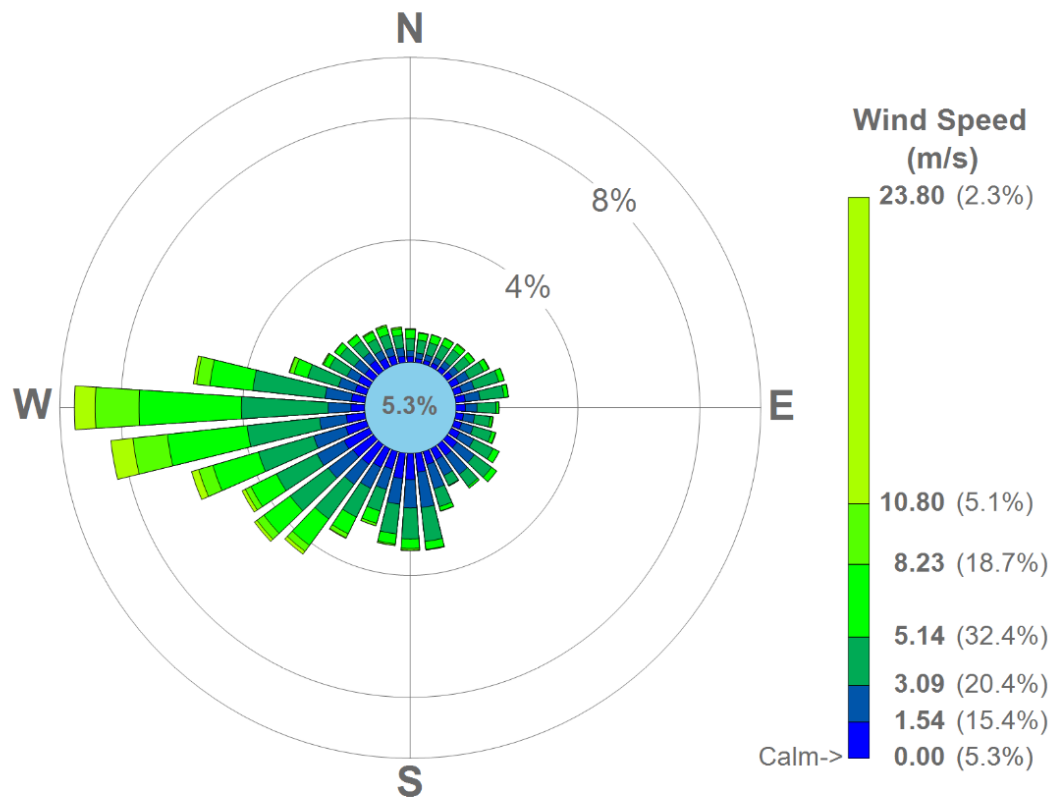
Receptor Name	Receptor Type	Direction from Site	Approximate Distance from Site Boundary (at nearest point) (m)
Local receptors within 500m of the Environmental Permit Boundary as shown on Drawing 003 Environmental Site Setting			
Northumbrian Roads	Commercial/Industrial	North	Adjacent
Tradebe	Commercial/Industrial	South	Adjacent
Open Ground	Open ground	Northeast/southeast	Adjacent
Hendon Dock/River Wear	Surface Water Feature	West	Adjacent
Hudson Dock North Sea Channel	Coastal Water Feature	East	Adjacent
Sunderland Dock Road	Local Road Network	Intersects the site/north	Adjacent
Open Ground	Open Ground	Southwest	200
Hendon Railway	Local Transport Network	West	200
Open Ground	Open Ground	West/northwest	230/440
Hendon Industrial Estate	Commercial/Industrial	West	350
Extension Road, Hendon Road Estate, Moor Terrace	Local Road Network	West	380
Town Moor	Recreational	West	425
The Quadrant	Local Transport Network	West	480
Boys Orphanage	Residential	West	500
Cultural and ecological receptors within 2km of the EP boundary as shown in Drawing 004 Cultural and Natural Heritage.			
Swing Bridge at east side with Ashlar Walls	Listed Building	North	30
Church of Holy Trinity	Listed Building	Northwest	700
11, Church Street East	Listed Building	Northwest	800
Sunderland South Docks	Local Wildlife Sites	North	1000
Monkwearmouth Anglo-Saxon monastery and medieval priory	Schedule Monument	Northwest	1250

Receptor Name	Receptor Type	Direction from Site	Approximate Distance from Site Boundary (at nearest point) (m)
Mowbray Park	Local Wildlife Site/Registered Parks and Gardens	West	1300
Wearmouth Riverside Park/Wearmouth Colliery	Local Wildlife Site	West	1500
North Dock Tufa	Local Wildlife Site	North	1600
Hendon Cliffs	Local Wildlife Site	South	1800
Roker Park	Registered Parks and Gardens	North	1900
Hendon Railway	Local Wildlife Site	South	1900
European designated ecological sites within 10km of the EP boundary			
Northumbria Coast	Ramsar	North/South	2000
Durham Coast	Special Area of Conservation	North/South	2000
Northumbria Coast	Special Protection Areas	North/South	2000

2.4 Windrose

A wind rose from Newcastle Meteorological Station, located approximately 25km northwest, providing the frequency of wind speed and direction from 2014 to 2017 is presented in Figure 1-1 below. The wind rose shows that winds from the west are most frequent. Winds from the north, east and south are less frequent.

Figure 2-1
Newcastle Meteorological Station, 2014 - 2017



2.5 Pathways, Control Measures & Risk Assessment

This section considers the potential pathways between source and receptor and where appropriate, the assessment demonstrates how the risk of pollution or harm can be mitigated by measures to manage these risks and/or block the pathways. A qualitative assessment in terms of hazards posed, receptors and pathways, along with management and residual risks for the following hazards is presented for the following potential risks:

- Noise;
- odour;
- fugitive emissions; and
- accidents.

The probability of exposure is the likelihood of the receptors being exposed to the hazard, and is defined as low, medium or high. These terms are qualified as follows;

- Low: exposure is unlikely, barriers in place to mitigate against exposure.
- Medium: exposure is fairly probable, barriers to exposure less controllable.
- High: exposure is probable, direct exposure likely with few barriers.

The methodology outlined in Section 2.1 of this report is the basis on which it is determined whether the proposed operations will lead to significant impacts on the surrounding environment. Where a conclusion of 'not

significant' has been reached, it is proposed that the mitigation and management measures that will be in place at the Site will be sufficient to ensure that there will be no impact at the surrounding environment. Note that it is considered that for the four impact categories above there will be no significant pathway between the pollution source and any of the ecological receptors identified, as the nearest of these is 1300m distant. However, potential impacts on these sites from dispersion of emissions to air are considered in the Air Emissions Risk Assessment.

In addition to the above an assessment of global warming potential is provided in Appendix 1 of this report.

The Air Emissions Risk Assessment and Noise Impact Assessments are provided as separate reports in Section 5 and 7 of the application package respectively.

2.6 Noise Risk Assessment and Management

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
Noise from: <ul style="list-style-type: none"> - Shredding process - Treatment process - Vehicle movements (delivery/removal from site) - Mobile plant 	Potentially sensitive receptors as listed in Table 2 and detailed on Drawing 003, including commercial/industrial properties, residential properties and a recreational area.	Air	<p>The site will operate in accordance with the measures identified in the Noise Impact Assessment, included as section 6 of this EP application.</p> <p>All treatment activities take place within enclosed buildings. Particularly noisy activities, consisting of the raspers and associated equipment for the shredding process, are located within a sound-proof room to reduce noise emissions from the site.</p> <p>To manage any noise generated, waste deliveries will mainly be during day shifts between 07.30-19.00 Monday to Friday and between 08.00-17.00 on Saturdays. The movement of waste bales from the storage area to the processing plant will occur on a 24-hour basis and this will be operated by forklifts.</p>	Low	Nuisance during operational hours	Low

		<p>Noise from the forklift movements will be mitigated by the concrete partitions used to divide the bale storage area.</p> <p>Speed limits will be implemented for vehicles using the Site and traffic calming measures will be implemented to enforce speed limits.</p> <p>Site access and operational areas will be maintained and repaired to minimise emissions of noise due to uneven and poor surfacing.</p> <p>If horns or alarms are deemed to cause unacceptably high levels of noise, alternative technologies will be explored and implemented. Plant will be selected & operated to minimise noise. If deemed necessary, plant will be fitted with noise silencers.</p> <p>All Site plant and machinery will be operated and maintained in accordance with manufacturer's specifications and through a programme of planned preventative maintenance.</p> <p>Auditory inspections will be carried out daily and in response to complaints. If noise levels are deemed a nuisance a full investigation will be carried out and mitigation measures implemented when appropriate.</p> <p>The dominant wind direction is from the west to east which is in the direction of the North Sea, therefore no risk to ecological receptors or human health.</p>			
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			The Site Manager will be responsible for implementing risk management measures in conjunction with the Operating Techniques.			
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2.7 Accident Risk Assessment and Management

Table 3
Accident Risk Assessment and Management

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
Acceptance of Unauthorised Materials	Potentially sensitive receptors as listed in Table 2 and detailed on Drawing 003, including open ground, commercial/industrial properties, residential properties and a recreational area.	Air, Land	<p>Waste will be subject to strict waste acceptance procedures to identify, reject and/or segregate potentially non-conforming waste.</p> <p>Only waste authorised by the EP will be accepted at the site.</p> <p>All wastes will be subject to inspection and checking against the declaration on the waste transfer note.</p> <p>In the event that unauthorised waste is delivered to the site, the waste will be segregated and stored in</p>	Low	Contamination	Low

			<p>the designated quarantine area prior to export from site. Biodegradable waste will be stored in a sealed container to prevent the attraction of pests.</p> <p>The Site Manager will be responsible for ensuring that pre-acceptance measures are followed and that any investigations or remedial actions undertaken on Site are recorded in the site diary in accordance with the management system (reference: 416.11075.00004/BAT-OT).</p>			
Fire	Potentially sensitive receptors as listed in Table 2 and detailed on Drawing 003, including open ground, commercial/industrial properties, residential properties and a recreational area.	Surface and groundwater, air and land.	<p>The site will be operated in accordance with the approved Fire Prevention Plan (FPP) to ensure that the risk of fire is minimised and that fire management procedures minimise the impact on receptors.</p> <p>The Site Manager will be responsible for the management of combustible wastes in accordance with the FPP, which is included in Section 7 of this EP application.</p>	Medium	Injury/death	Low
Security and vandalism	Potentially sensitive receptors as listed in Table 2 and detailed on Drawing 003, including open ground, commercial/industrial properties, residential properties and a recreational area.	Land	<p>The Site will be manned during operational hours 24 hours a day and will benefit from palisade security fencing around the perimeter and lockable gates. All buildings on site will benefit from lockable doors.</p> <p>The fencing will be inspected daily. Any weaknesses will be fitted with temporary repairs immediately and will be repaired with permanent measures within 7 working days.</p>	Low	Nuisance	Low

			<p>The Site will also benefit from 24-hour CCTV and security lighting, with the CCTV being monitored remotely outside of operational hours.</p> <p>All visitors to the site will be required to register in the visitor's book and sign out again on exit. This minimises the risk of unauthorised visitors being present at the site. In addition, all visitors will be subject to the wider Wastefront AS security measures, whereby a temporary site pass will only be allocated to identified visitors for entry onto the Wastefront AS site following the completion of an induction process.</p> <p>Operational procedures, including regular inspections, ensure continual monitoring of security provision at the site.</p> <p>The Site Manager will be responsible for the monitoring and recording of investigations or remedial actions in the site diary in accordance with the management system (reference: 416.11075.00004/BAT-OT).</p>			
Flooding	Potentially sensitive receptors as listed in Table 2 and detailed on Drawing 003, including open ground, commercial/industrial properties, residential properties	Land, water	<p>The majority of the site lies within a Flood Zone 1, defined as an area with low probability of flooding. However, land to the north-eastern and south-western of the site lies within a Flood Zone 3, defined as land having a 1 in 100 or greater annual probability of river flooding or land having a 1 in 200 or greater annual probability of sea flooding.</p> <p>The east of the site is protected from tidal flooding by a step up in elevation, re-enforced with steel piling.</p>	Low	Nuisance and contamination	Low

	and a recreational area.		<p>Sunderland Docks water levels are controlled by two sets of locked doors. The northern set are closed in the event of an extreme tidal surge in the North Sea or elevated levels along the lower reach of the River Wear.</p> <p>A sea wall lies to the east and therefore reduces the potential of sea flooding to the site. And therefore, has low probability of flooding.</p> <p>Should flooding occur, the site would be evacuated. Before re-commencing operations, a flood remediation plan would be followed to ensure that the site was cleaned up as necessary, was safe to operate and that any potential sources of contamination were removed to appropriately permitted facilities for treatment or disposal.</p> <p>Whilst there is a moderate risk of waste overtopping onto the site if sea levels are high due to storm surging, it is concluded that the site drainage should have capacity to contain this water and for it to pass through into Hudson Dock.</p> <p>The Site Manager will be responsible for implementing risk management and remediation measures in accordance with the management system (reference: 416.11075.00004/BAT-OT).</p>			
Spillage or leakage	Local land quality, surface water and groundwater	Runoff and percolation through the ground	<p>All processing of solid materials takes place under cover or within buildings.</p> <p>The site benefits from impermeable concrete surfacing and a sealed drainage system. The site</p>	Low	Nuisance	Low

			<p>includes a surface containment area (see drainage plan) specifically to retain any spillages or contaminated surface water on site.</p> <p>Tyre material will be handled with care at all times to avoid spillage during delivery to hoppers. Bales will be unloaded and delivered directly to the designated external storage bays by forklift, to reduce the amount of forklift travel required. External storage bays are near the site entrance.</p> <p>The number of vehicles on site delivering bales and transporting liquid offsite to the local road network is limited.</p> <p>Storage tanks will be constructed to the appropriate British Standard. Liquid storage tanks will be banded or double skinned. The bunds will have the capability of containing at least 110% of the volume of the largest tank within the bund. Connection points will be located within the bunds.</p> <p>Drip trays/bunds/tanks will be inspected visually on a regular basis by the Site staff to ensure the continued integrity and identify the requirement for any remedial action.</p> <p>Hydrocarbon products will be transferred to storage tanks by a pump and pipelines. Naphtha tank TK-5005 will take three months to fill reducing number of transfers to barge. Heavy Distillate is pumped to the barges using loading pump P-5008, reducing manual handling.</p>			
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			<p>Bunker oil tank TK-5007 will be fitted with a hot oil coil to maintain oil at optimal pumpable temperature and heavy distillate TK-5006 is fitted with heating coil, preventing freezing.</p> <p>Light distillate liquid product will be pumped to generators.</p> <p>Minor spillages will be cleaned up immediately, using sand or proprietary absorbent to clean up liquids and placed in alternative containers. Materials suitable for absorbing and containing minor spillages will be maintained on site. During operational hours, the site staff will undertake daily monitoring of the storage areas for evidence of spillage and leakage. If evidence of spillage is seen, the affected units will be removed and transferred to treatment facilities straightaway.</p> <p>In the event of a major spillage immediate action will be taken to contain the spillage and prevent liquid from entering surface water drains and the unsurfaced ground. The spillage will be cleared immediately and placed in containers for off-site disposal and the EA will be notified.</p> <p>All water from potentially contaminated areas is passed through oil interceptors.</p> <p>The Site Manager will be responsible for implementing risk management measures in</p>			
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			accordance with the management system (reference: 416.11075.00004/BAT-OT).			
Plant failure	Potentially sensitive receptors as listed in Table 2 and detailed on Drawing 003, including open ground, commercial/industrial properties, residential properties and a recreational area.	Air, surface water, groundwater, land	<p>All equipment will be subject to pre-planned preventative maintenance checks and maintained in accordance with manufacturer's recommendations.</p> <p>Should any problems, malfunctions or breakdowns occur, which affects the ability to safely process waste, waste acceptance and treatment will stop until the problem is rectified.</p> <p>The Site Manager will be responsible for implementing risk management measures in conjunction with the Best Available Techniques, Operating Techniques (Ref: 416.11075.00004_BATOT).</p>	Low	Nuisance	Not significant
Explosion	Potentially sensitive receptors as listed in Table 2 and detailed on Drawing 003, including open ground, commercial/industrial properties, residential properties and a recreational area. Air quality	Air	<p>All electrical equipment will be subject to inspections and marked appropriately to confirm with applicable regulations and legislation.</p> <p>'Flammable gas' and 'No Smoking' signs will be erected, as appropriate.</p> <p>The site will operate a permit to work system and any 'hot works' will only be permitted if the atmosphere is free from explosive gases.</p> <p>The site will be managed in accordance with an approved COMAH risk management plan.</p>	Low	Air pollution Contaminated land	Not significant

			The Plant Manager will be responsible for implementing risk management measures in conjunctions with the Best Available Techniques Operating Techniques (Ref: 416.11075.00004_BATOT).			
Asphyxiation and toxicity	Site personnel	Air	<p>The site will operate a permit to work system to ensure entry into any confined space is controlled and appropriate inspections, monitoring and other safety measures as appropriate are carried out prior to entry into enclosed spaces.</p> <p>Employee training will ensure awareness of risks associated with working alongside hazardous substances and working practices are implemented.</p> <p>The Plant Manager will be responsible for implementing the training and permit to work system where required.</p>	Low	Low	Not significant

2.8 Odour Risk Assessment and Management

Table 4
Odour Risk Assessment and Management

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
Odour	Potentially sensitive receptors as listed in Table 2 and detailed on Drawing 003, including commercial/industrial properties, residential properties and recreational areas.	Air	<p>It is not expected that the activities on site will give rise to significant levels of odour, due to the waste types proposed to be accepted on site. Strict waste acceptance procedures will be adhered to, to ensure only permitted wastes are accepted on site.</p> <p>The site will only accept tyre waste which is non-odorous. Removal of contamination and putrescible contents from bales is stipulated in pre-acceptance checks.</p> <p>Visual inspections will be undertaken upon acceptance of the waste and before their movement to storage bays, to ensure no contamination. Any such waste identified will be removed from, quarantined and sent off site to be dealt with by a suitably licenced facility.</p> <p>During normal operations exhaust emissions and vapour from the process will be scrubbed, refined and</p>	Low	Nuisance	Low

			<p>ducted to be combusted within the diesel generators. Exhaust gases are routed to the RTO for destruction.</p> <p>Site personnel will conduct daily olfactory checks at the site to identify odour. Any investigations and actions will be recorded in the Site diary. In the event that odours are detected, investigations will be undertaken to determine the cause and appropriate remedial action taken.</p> <p>The Site Manager will be responsible for ensuring that odour is monitored for and managed appropriately in accordance with the management system (reference: 416.11075.00004/BAT-OT).</p>			
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2.9 Uncontrolled or unintended emissions Risk Assessment and Management

Table 5
Uncontrolled or unintended emissions Risk Assessment and Management

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
Pests	Potentially sensitive receptors as listed in Table 2 and detailed on Drawing 003, including commercial/industrial properties, residential properties and a recreational area.	Land, Water, Air	<p>The waste codes accepted on site are not expected to attract pests. However, it is possible that the tyre bales may be contaminated. Bales will be inspected upon arrival on site, and any contamination identified will be removed immediately, quarantined in a sealed container and removed off site to a suitably licenced contractor as soon as possible, to prevent the attraction of pests.</p> <p>The tyre bales will be stored on site for a maximum five days.</p> <p>The site will be inspected daily to ensure that pests are not present on site.</p> <p>In the event that pests are found, an investigation will be undertaken to locate the problematic waste. The problematic material will be isolated and removed from site to a suitably licenced facility.</p>	Low	Nuisance	Low

			<p>In the unlikely event that birds, vermin or pests are identified on site, a specialist pest control contractor will be employed to undertake measures to remove the animals from the Site.</p> <p>The Site Manager is responsible for ensuring that the Site is monitored daily, and that investigations and remedial actions are recorded in the site diary in accordance with the management system (reference: 416.11075.00004/BAT-OT).</p>			
<p>Litter from waste</p> <p>Litter from vehicles</p>	<p>Potentially sensitive receptors as listed in Table 2 and detailed on Drawing 003, including open ground, commercial/industrial properties, residential properties and a recreational area.</p>	<p>Land, Air</p>	<p>The waste codes proposed for the site, comprise of end-of-life tyres waste, are unlikely to generate litter.</p> <p>The waste is enclosed within the delivery vehicles.</p> <p>Tyre bales will be inspected upon arrival for any contamination which may include other plastics or metals. To prevent this litter impacting the environment, all food and packaging waste will be removed from the bales and stored in a sealed container for treatment offsite by a suitably licenced facility.</p> <p>Bins will be provided outside for site workers and visitors to use.</p> <p>Perimeter fencing reduce the likelihood of litter blowing off site.</p> <p>The site will be cleaned daily, and good housekeeping procedures will be followed.</p> <p>The site and site boundary will also be inspected daily by Site Personnel.</p>	<p>Low</p>	<p>Nuisance</p>	<p>Low</p>

			<p>In the event that litter arising from the site is deposited outside the site, the affected area will be cleaned.</p> <p>The Site Manager is responsible for ensuring that the Site is monitored daily, and that investigations and remedial actions are recorded in the site diary in accordance with the management system (reference: 416.11075.00004/BAT-OT).</p>			
Mud	Potentially sensitive receptors as listed in Table 2 and detailed on Drawing 003, including open ground, commercial/industrial properties, residential properties and a recreational area.	Land	<p>The site is covered by impermeable concrete which will not generate mud. Furthermore, it is unlikely that vehicles will bring mud onto the site, due to the extensive bituminous road network surrounding the site.</p> <p>Areas of hardstanding and impermeable surfacing will benefit from good housekeeping and will be cleaned daily to ensure the site is free of significant quantities of mud and debris.</p> <p>All vehicles and mobile plant leaving operational areas will be checked to ensure that they are clear of loose waste.</p> <p>In the event that mud or debris arising from the site is deposited outside the site, the affected area will be cleaned.</p> <p>The Site Manager is responsible for ensuring that the site is monitored daily, and that investigations and remedial actions are recorded in the site diary in accordance with the management system (reference: 416.11075.00004/BAT-OT).</p>	Low	Nuisance	Low
Dust from: Waste handling and storage Vehicle movements	Potentially sensitive receptors as listed in Table 2 and detailed on Drawing 003, including open ground, commercial/industrial	Air	<p>The waste types to be accepted on site will not give rise to significant quantities of dusty waste. Furthermore, their movement and storage are also unlikely to give rise to significant quantities of dust.</p> <p>All handling and treatment of char and carbon black will take place with enclosed buildings.</p>	Low	Nuisance	Low

	<p>properties, residential properties and a recreational area.</p>		<p>Traffic calming measures will be implemented to reduce emissions of dust and a speed limit will be in place across the site.</p> <p>Site operational areas will be maintained and repaired to minimise emissions of dust due to uneven and poor surfacing.</p> <p>All operational areas will be swept where necessary to reduce dust emissions.</p> <p>In the event that any unauthorised waste is accepted onto site, it will be removed and quarantined immediately prior to being sent off site to a suitably licenced facility.</p> <p>There is the potential to generate dust during the pre-treatment of waste within the shredding shed. Air will be passed through a de-duster (a bag filter), fan and a de-duster discharge valve. The bag filters will be maintained in accordance with the manufacturers recommendations and their performance monitored via instrumentations. Processes and procedures for the operation and maintenance of the bag filters will be developed and included in the Environmental Management System and key staff will be suitably trained in the operation of the bag filters. All dust will be collected in drums and disposed off site to an appropriately regulated facility.</p> <p>Dust from storage silos is captures in a dust collector (filter) by means of an induced draft fan moving air through the collector.</p> <p>A pulse dust collector, with induced air flow fan captures dust from the conveying and steel removal process.</p>			
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			<p>Daily visual inspection at all areas of the site and site boundary will be carried out by site personnel.</p> <p>In the event that significant visual dust is observed at the boundaries of the operational areas, action will be taken to suppress the dust. The site will undergo cleaning and dampening if necessary.</p> <p>A record of the inspection findings & remedial action taken will be made in the site diary.</p> <p>The Site Manager will be responsible for ensuring that the Site is monitored for dust in accordance with the management system (reference: 416.11075.00004/BAT-OT).</p>			
Runoff from waste storage areas and site surfaces	Potentially sensitive receptors as listed in Table 2 and detailed on Drawing 003, including open ground, commercial/industrial properties, residential properties and a recreational area.	Land, Surface Water	<p>All waste will be stored externally on engineered impermeable concrete surfacing. Surface water will be collected in the sealed drainage system, treated in the effluent treatment plant and discharged to surface water.</p> <p>Strict waste acceptance procedures will be in place to ensure that only approved waste materials will be accepted on site.</p> <p>The waste storage area benefits from enclosed kerbing and walls to enable fire water to be retained in the event of an incident.</p> <p>The site will be inspected daily during operational hours to ensure it is in good condition. Any weaknesses will be repaired immediately using temporary solutions and with permanent measures implemented as soon as practicable.</p> <p>All liquids and hazardous materials will be stored in secure, fit for purpose, containment located on impermeable surfacing within bunded areas. The bunds will be capable</p>	Low	Nuisance	Low

			<p>of containing at least 110% of the volume of the largest container within the bund or 25% of the total tank volume within the bund, whichever is the greater. Any rainwater within the bunds will be pumped through an oil interceptor to drain.</p> <p>The Site Manager will be responsible for ensuring that the Site is monitored and that any investigations or remedial actions are recorded in the Site diary in accordance with the management system (reference: 416.11075.00004/BAT-OT).</p>			
Percolation of Materials	Local surface water features and groundwater	Land, Groundwater	<p>The site is underlain by impermeable concrete surfacing and made ground to prevent the percolation of contaminated materials into the soil and groundwater.</p> <p>The surfacing is inspected daily to ensure it is in good condition. Any weaknesses will be repaired immediately using temporary solutions, and with permanent measures implemented as soon as practicable.</p> <p>The Site Manager will be responsible for ensuring that the Site is monitored and that any investigations or remedial actions are recorded in the site diary in accordance with the management system (reference: 416.11075.00004/BAT-OT).</p>	Low	Nuisance	Low

3.0 CONCLUSION

This ERA has been undertaken in accordance with EA guidance in support of the environmental permit application for the proposed Sunderland UTR facility.

The assessment has screened the risks that are relevant to the facility, identified the potential receptors and provided an assessment of the risk taking into account the proposed mitigation measures. A qualitative risk assessment has considered the risks from accidents, odour and fugitive emissions and detailed assessments have been carried out for discharge to sewer, global warming potential, air emissions and noise and vibration.

The assessments conclude that with the implementation of the proposed risk management measures described, potential hazards from the proposed Sunderland UTR facility are not likely to be significant and no further assessment is required.

APPENDIX 1

Global Warming Potential Assessment

SUNDERLAND UTR FACILITY ENVIRONMENTAL PERMIT APPLICATION

Global Warming Potential Assessment

Prepared for: Wastefront AS

Client Ref: 11075

SLR Ref: 416.11075.00004
Version No: 1
October 2021



BASIS OF REPORT

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1.0 INTRODUCTION

Wastefront’s proposed used tyre recycling (UTR) facility has the potential to contribute to global warming as a result of direct and indirect emissions to air. As such, an assessment of the Global Warming Potential associated with the direct and indirect emissions from the facility is required to support the EP application.

The Environment Agency’s (EA) guidance suggests the following steps are used to calculate the impact on global warming.

1. Identify your greenhouse gas emissions.
2. Work out the impact these emissions have on global warming.
3. Work out the impact of your ‘process option’ on global warming.
4. Add up the impacts from steps 2 and 3 for each of your current or proposed process options to give the total impact on global warming.

The objective of this assessment is to enable:

- techniques to be chosen that have the least impact on global warming; and
- to establish the best available techniques to control emissions with global warming potential.

2.0 Identify Greenhouse Gas Emissions & Impacts

2.1 Sources

Table 1 summarises the sources of greenhouse gas emissions from the proposed facility.

Direct emissions of greenhouse gases are produced by the combustion processes, primarily in the form of carbon dioxide (CO₂). In addition, emissions of nitrous oxide (N₂O) are also released from the combustion process and as a by-product from the oxides of nitrogen (NO_x) abatement process. Indirect emissions of greenhouse gases are produced by the energy imported in the form of electricity.

Table 1 Summary of Greenhouse Gas Emission Sources

Emission Type	Source of Greenhouse gas	Key influence on emissions
Direct	Combustion gases produced from the Regenerative Thermal Oxidiser (RTO), primarily CO ₂ .	Pyrolysis gas composition
Direct	Combustion gases from natural gas start up burners, primarily CO ₂ .	Number and duration of start-up and shut-down events.
Indirect	Imported electricity (to supply ancillary aspects of the process such as fans, motors etc) with off-site release of combustion gases, primarily CO ₂ .	Electricity source / grid supply mix

The main emissions of global warming pollutants are from the RTO which burns the cleaned pyrolysis gas. Combined with the exhaust streams from the generators, which are fired by light distillate from the processing of the liquid pyrolysis products. The main purpose of the RTO is to heat the closed loop hot oil heating/cooling circuit which provides heat for the pyrolysis and distillation activities. The RTO also ensures that complete oxidation of the exhaust products from the diesel generators is achieved. The key global warming pollutant in the exhaust stream is CO₂.

Additional direct CO₂ releases are emitted during start up and shut-down periods by natural gas burners used to heat the pyrolysers.

Finally, there are indirect emissions of CO₂ from the use of imported power, associated with fossil fuel generation which makes up part of the input from the national grid.

2.2 Process Options

The objective of this assessment is to demonstrate that BAT will be applied to control emissions with global warming potential. The EA's guidance requires that other process options are considered as part of this assessment. The key emissions of greenhouse gases from the pyrolysis / distillation processes are CO₂. Consideration has been given to other process options which may be available as alternatives to those proposed in this application, to identify any which could affect releases of greenhouse gases.

A life cycle assessment¹ (LCA) has been carried out for the proposed process which has compared carbon emissions (expressed as CO₂ equivalent, CO_{2e}) for different operational configurations and alternative disposal options.

The purpose of the facility is to convert waste tyres into usable products consisting of hydrocarbon fuels and carbon black. The LCA concludes that the facility as proposed in the application will avoid emissions of 30,529 tonnes of CO_{2e} per year, including consideration of construction, operation and decommissioning outputs, compared with the manufacture of the products from virgin sources.

2.2.1 Alternative process configurations

The LCA considered the alternative process configuration of using distillate oil to generate carbon black rather than to provide fuel for on-site generation, together with use of the following alternative heat and power supply options:

- (a) Generators fired with imported bio-pyrolysis oil;
- (b) Electricity from the grid; and
- (c) Natural gas fired generation.

2.2.2 Comparison of process options

Converting distillate to carbon black rather than using it as fuel would only result in a carbon reduction if either grid power or bio-pyrolysis oil is used as fuel:

- (a) burning bio-pyrolysis oil results in a reduction of a further 9,946 tonnes per year of CO_{2e};
- (b) using power from the grid results in a reduction of 4,583 CO_{2e}; and
- (c) burning natural gas would result in an increase in CO_{2e} emissions of 792 tonnes.

These savings take into account the benefit of producing additional carbon black from waste rather than virgin sources.

However, use of such distillate material to produce carbon black is not fully proven since typically heavier hydrocarbon streams with lower hydrogen to carbon ratios are used. Given this uncertainty, it was not considered commercially or technically viable to use distillate to produce carbon black at this stage, although the process could be modified to do this in future. Once the Wastefront facility is in operation and commercial

¹ Life Cycle Assessment: Proposed Waste Tyre to Hydrocarbon Plant in Sunderland, Report No 10267005-1 Rev 2, DNV.GL February 2021.

quantities of distillate are available, it will be possible to assess the potential use of distillate as a feedstock for recovered carbon black.

Regarding the three alternative power options:

- Use of bio-pyrolysis oil as the generator fuel: this is seen as a potential option to consider in the future however it is not currently possible to get guarantees on performance of the generators to use this type of fuel. It is anticipated that once the site is operational that it would be possible to test operation of the generators on bio-pyrolysis oil which, if proven to be feasible, would allow this option to be pursued in the future.
- Use of electricity from the grid: this was not selected because, as described above, use of distillate to produce carbon black is not proven as technically and commercially viable. The plant is designed such that if production from the distillate is demonstrated and economic, this option could be immediately implemented by importing power and selling the distillate to an existing carbon black manufacturer. However, the amount of distillate produced by the plant is well below the amount of feedstock needed for a typical carbon black facility.
- Natural gas (with pilot diesel) as the generator fuel – increases carbon emissions, so not an improvement.

Given the current technical and commercial uncertainties relating to the alternatives described above, it is considered that they are not practical options at this stage. However, the design of the facility would enable Wastefront to consider implementing these potential improvements in future.

2.3 Impact of Emission Sources on Global Warming

Calculation of the global warming potential of direct and indirect emissions from the process is presented in Table 2 and Table 3 below.

In calculating the Global Warming Potential of emissions, it is assumed that end of life tyres consist of 40% biogenic sources and therefore a factor of 0.6 is used to calculate the carbon dioxide emissions from combustion in the assessment.

Values for CO₂ emissions for distillate fuel, pyrolysis gas and imported electricity have been taken from the LCA report.

Table 2 provides an estimate of the global warming potential of the emissions associated with the proposed facility and Table 3 provides an estimate of the global warming potential of the emissions associated with alternative power (national grid) and heat sources (natural gas) that the use of process-derived fuels is displacing. The totals are then compared in order to calculate the net GWP impact of the proposed facility.

Table 1 Global Warming Potential of Emissions from the Sunderland UTR Facility

Source	Release	Tonnes per annum	GWP tonnes CO ₂ equivalent per annum
CO ₂ from imported electricity for power supply (2,194 MWh/y @ 0.23314 tCO _{2e} /MWh)	indirect	512	512
CO ₂ from distillate oil combustion in the generators for power supply (5,851t/y @ 2.6 tCO _{2e} /t _{distillate})	direct	15,205	9,123*

Source	Release	Tonnes per annum	GWP tonnes CO ₂ equivalent per annum
CO ₂ from pyrolysis gas combustion in the RTO for process heat supply (5,600t/y @ 2.3 tCO _{2e} / t _{pyro gas})	direct	12,834	7,700*
CO ₂ from natural gas start up burners for pyrolyser heat supply / flare pilot (518 t/y @ 2.53 tCO _{2e} / t _{gas})	direct	1,310	1,310
Total global warming potential			18,645
*a factor of 0.6 has been applied to account for the assumed 40% biogenic content of waste tyres which would be considered renewable.			

Table 2 Global Warming Potential of Alternative Heat & Power Sources

Source	Release	Tonnes per annum	GWP tonnes CO ₂ equivalent per annum
CO ₂ from imported electricity to displace generator power supply (26,136 MWh/y @ 0.23314 tCO _{2e} /MWh)	indirect	6,093	6,093
CO ₂ from natural gas combustion for process heat supply (66,245MWh/y @ 0.185t CO _{2e} / MWh)	direct	12,255	12,255
Total global warming potential			18,348
Total fuel (including for pyrolysis and RTO) is 28.39 GJ/h, which is 7.89 MW, so on a 350 day by 24 hr basis this is 66,245 MWh per annum			

3.0 Conclusions

Global Warming Potential emissions as carbon dioxide equivalents have been estimated for the proposed facility in accordance with the EA guidance ‘Assess the impact of air emissions on global warming’.

This GWP assessment has considered alternative process options for the heat and power supply required for the processing facility and also compared the facility with other options for the recovery or disposal of end-of-life tyres. The total global warming potential per annum is estimated at 18,645 tonnes per annum CO_{2e} for the proposed option, and 18,348 for the alternative. The benefit of the alternative option is relatively small and set against the technical and commercial uncertainties associated with the alternative, it is not considered viable at this stage. A feature of the design of the facility is flexibility to consider potential improvements in future when alternative options become technically and commercially available. Currently, the proposed process option is considered to represent BAT.

APPENDIX 2

Nature & Heritage Conservation

Nature and Heritage Conservation

Screening Report: Bespoke Installation

Reference	EPR/NP3900MP/A001
NGR	NZ 41364 56893
Buffer (m)	110m
Date report produced	27/05/2021
Number of maps enclosed	4

The nature conservation sites identified in the table below must be considered in your application.

Nature and heritage conservation sites	Screening distance (km)	Further information
Special Areas of Conservation (cSAC or SAC)	10	Joint Nature Conservation Committee
Durham Coast		
Special Protection Area (pSPA or SPA)	10	Joint Nature Conservation Committee
Northumbria Coast		
Ramsar	10	Joint Nature Conservation Committee
Northumbria Coast		
Local Wildlife Sites (LWS)	2	Appropriate Local Record Centre (LRC)
North Dock Tufa		Appropriate Wildlife Trust
Wearmouth Riverside Park/Wearmouth Colliery		
Mowbray Park		
Sunderland South Docks		



Hendon Railway

Hendon Cliffs

Where protected species are present, a licence may be required from Natural England or the Welsh Government to handle the species or undertake the proposed works.

The relevant Local Records Centre must be contacted for information on the features within local wildlife sites. A small administration charge may also be incurred for this service.

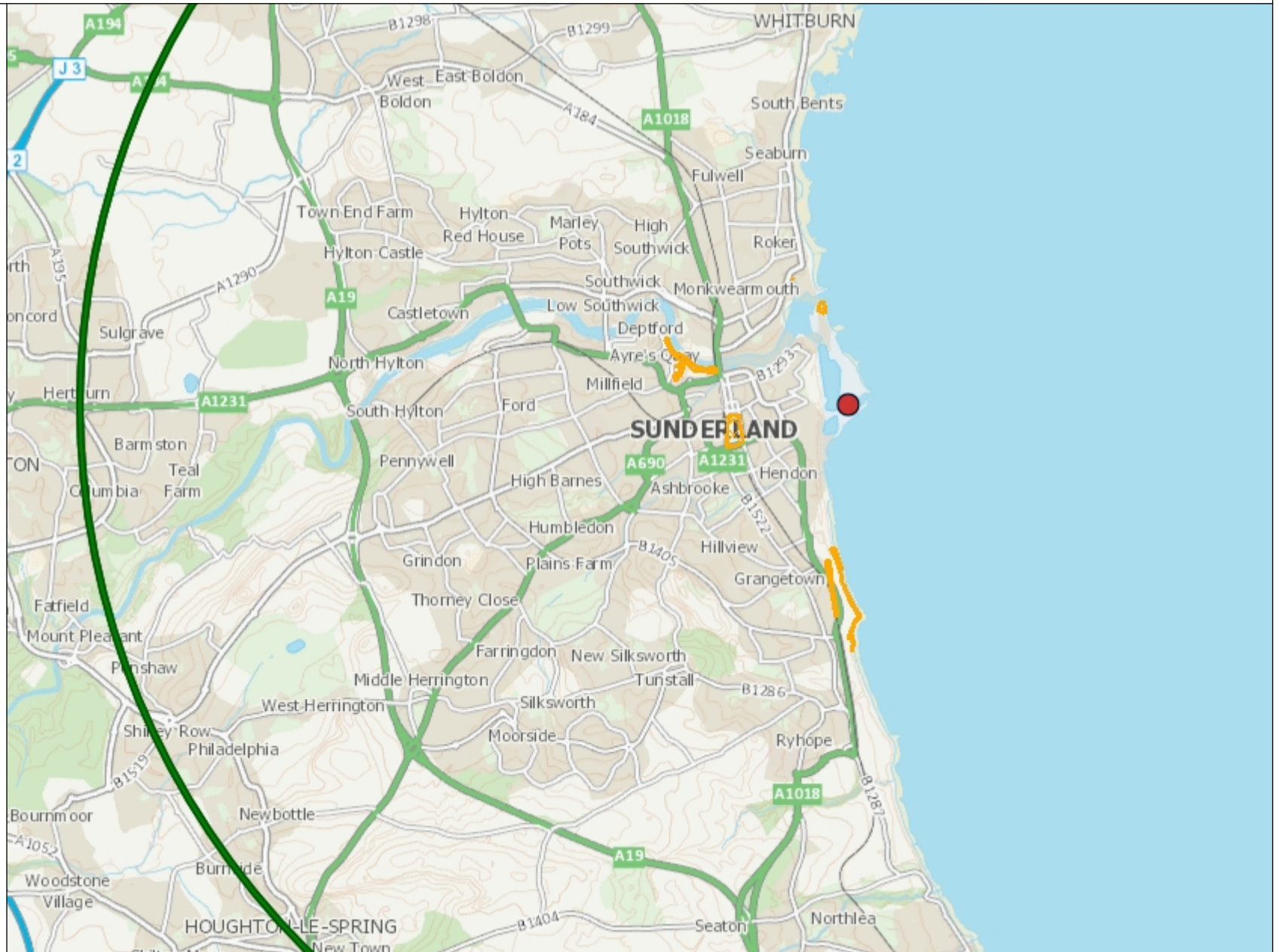
Please note we have screened this application for protected and priority sites, habitats and species for which we have information. It is however your responsibility to comply with all environmental and planning legislation, this information does not imply that no other checks or permissions will be required.

Please note the nature and heritage screening we have conducted as part of this report is subject to change as it is based on data we hold at the time it is generated. We cannot guarantee there will be no changes to our screening data between the date of this report and the submission of the permit application, which could result in the return of an application or requesting further information.

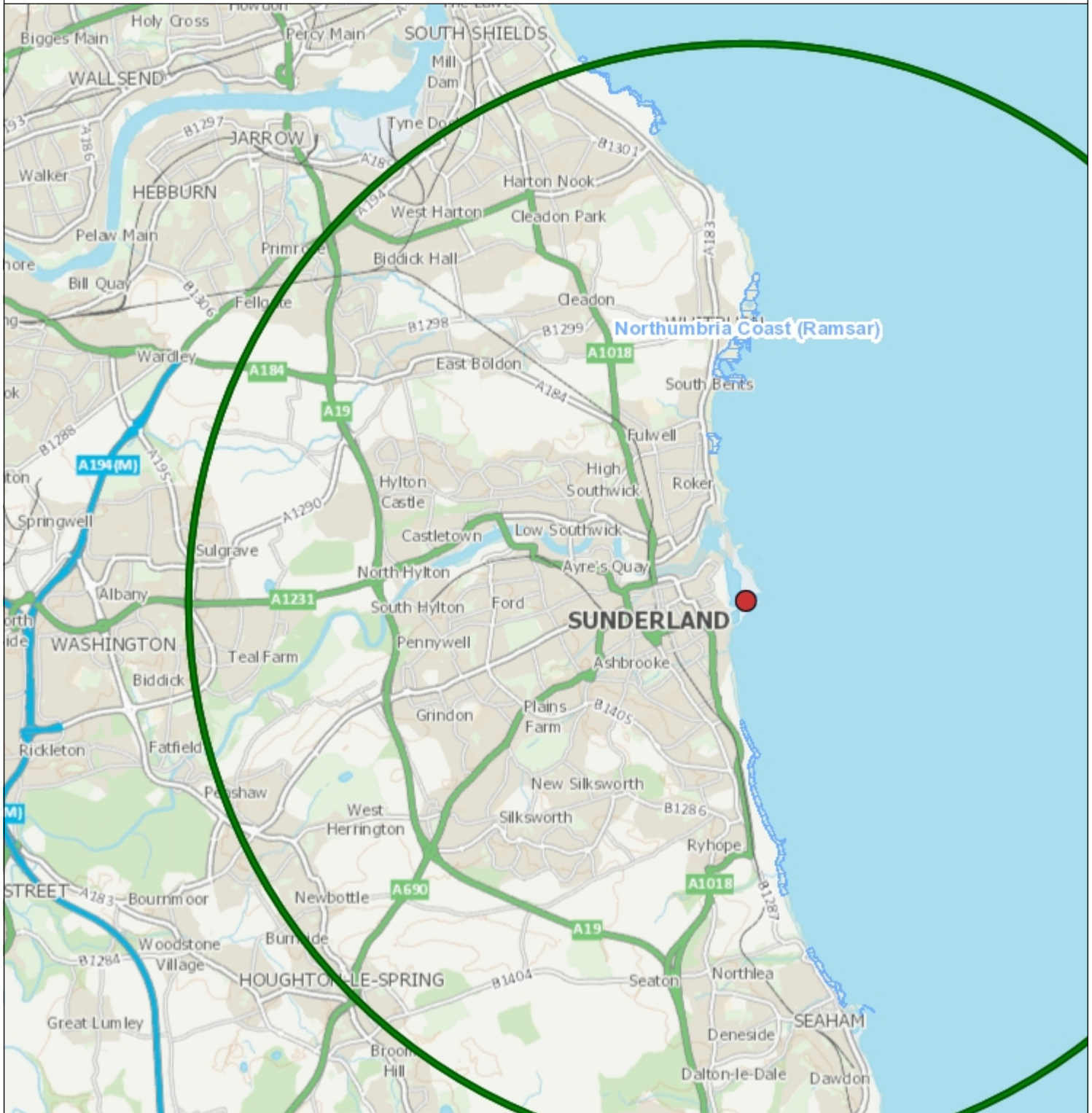
Local Wildlife Sites

Legend

 Local Wildlife Sites




RAMSAR Sites



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 Ramsar (England)




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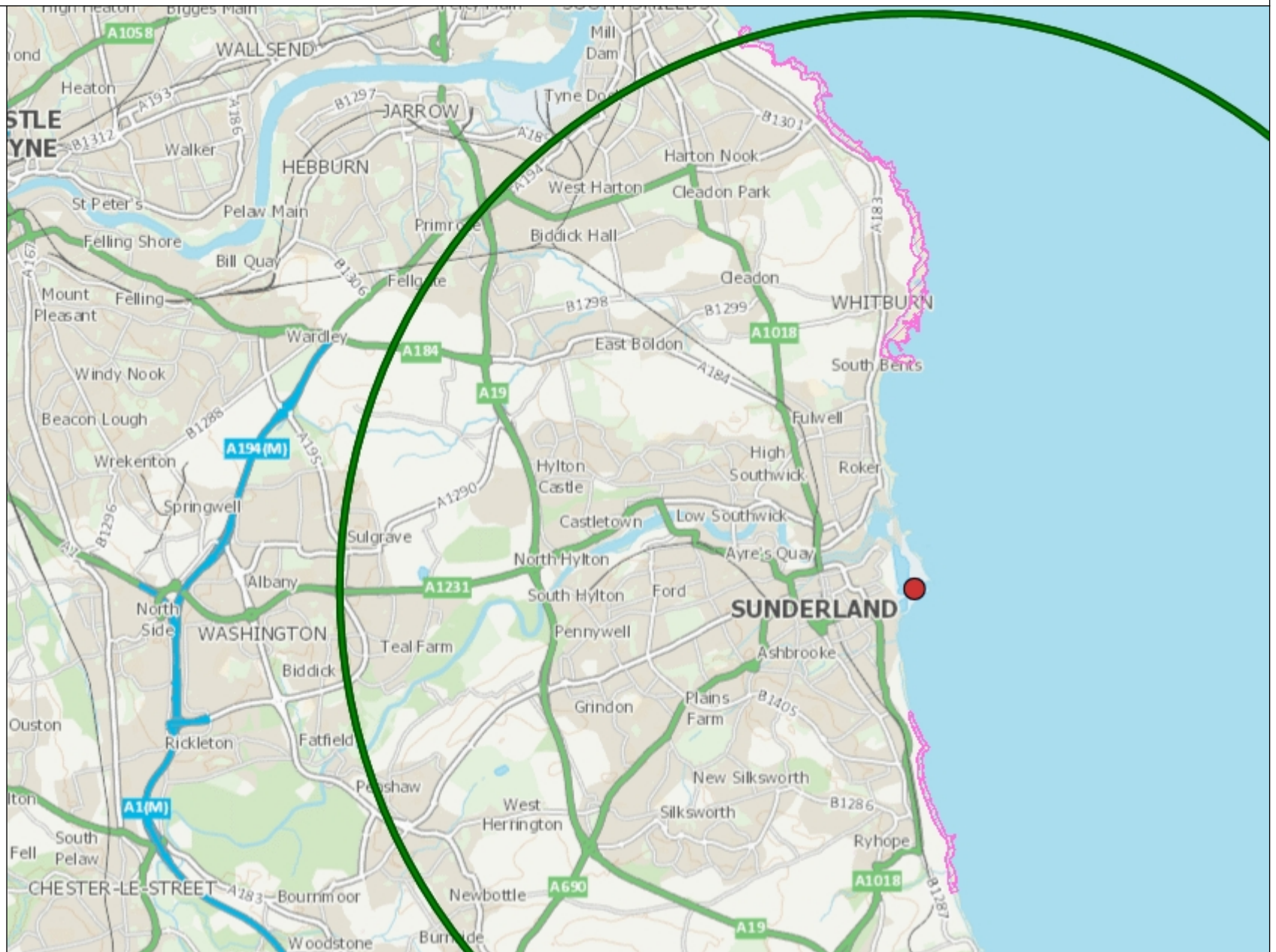
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Metres

Special Areas of Conservation

Legend

 SAC (England)



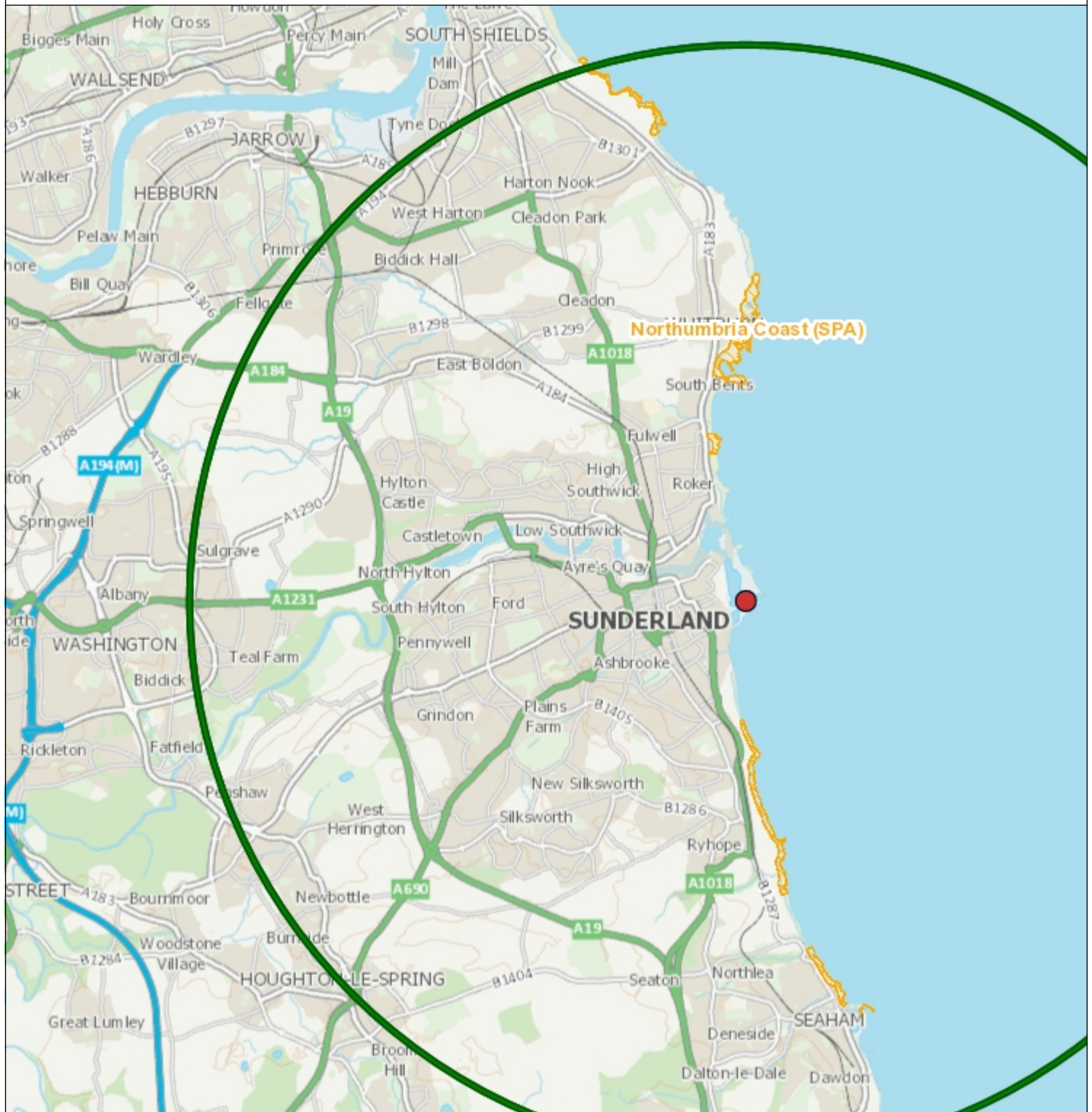
1: 100,000

0 2,500

Metres




Special Protection Areas



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Legend

 SPA (England)



1: 100,000

0 2,500

Metres

EUROPEAN OFFICES

United Kingdom

AYLESBURY

T: +44 (0)1844 337380

BELFAST

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BRADFORD-ON-AVON

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BRISTOL

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CAMBRIDGE

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CARDIFF

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CHELMSFORD

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GLASGOW

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GUILDFORD

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GRENOBLE

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