CAULMERT LIMITED

Engineering, Environmental & Planning
Consultancy Services

Yanley Landfill Site

Viridor Waste Exeter Limited

Amenity and Accidents Risk Assessment

Methane Stripping Plant
Environmental Permit Variation Application

Prepared by:

Caulmert Limited
14 Farrington Way, Eastwood Link Business Park, Eastwood, Notts, NG16 3BF
Tel: 01773 749132
Fax: 01773 746280
Email: andystocks@caulmert.com
Web: www.caulmert.com

Doc ref: 4898-CAU-XX-XX-RP-V-0301.A0.C1

August 2021

Caulmert
engineering environmental planning

APPROVAL RECORD

Site: Yanley Landfill Site

Client: Viridor Waste Exeter Limited

Project Title: Environmental Permit Variation

Document Title: Amenity and Accidents Risk Assessment

Document Ref: 4898-CAU-XX-XX-RP-V-0301.A0.C1

Report Status: **Final**

Project Manager: Andy Stocks

Caulmert Limited: 14 Farrington Way, Eastwood Link Business park, Eastwood, Notts, NG163BF

Tel: 01773 749132

Author	Samantha Bowler Environmental Consultant	**Date**	03/08/2021
Reviewer	Kellie-Marie Burston Senior Environmental Consultant	**Date**	03/08/2021
Approved	Andy Stocks Associate Director	**Date**	03/08/2021

DISCLAIMER

TABLE OF CONTENTS

TABLES

DRAWINGS

1. INTRODUCTION

1.1 Report Overview

1.1.1 This report is an Amenity and Accidents Risk Assessment for the proposed installation of a Methane Stripping Plant (MSP) at Yanley Landfill Site (hereafter referred to as 'the Site'). Caulmert Limited have been appointed by Viridor Waste Exeter Limited ('the Operator') to prepare this assessment as part of the environmental permit variation application for the Site.

1.1.2 The purpose of the permit variation is to vary the existing permit: EPR/BT7272IW, to include for the installation of a new Methane Stripping Plant (MSP) with a capacity of 50 or more tonnes per day at Yanley Landfill Site. This will enable up to 100m^3 per day of treated leachate effluent (non-hazardous) from the landfill to be discharged via foul sewer (west of Colliter's Brook) and piped to the nearby Avonmouth Sewage Treatment Works operated by Wessex Water Services Limited, under an existing trade effluent discharge consent issued in 1994.

1.1.3 The proposed MSP will sit within an existing small, fenced rectangular compound in the north-eastern area of the permit boundary of Yanley Landfill Site which currently houses a leachate storage lagoon.

1.1.4 This risk assessment has been compiled in accordance with the current 'Risk Assessments for your Environmental Permit' Environment Agency guidance (updated 10th December 2020).

2. SITE LOCATION & SETTING

2.1 Site Location

2.1.1 The Site is located approximately 3km southwest of the city of Bristol, near Long Ashton in North Somerset. The site is off Bridgewater Road (A38) in the southwestern outskirts of Bristol at postcode BS13 8AF and at National Grid Reference ST55585 69790.

2.1.2 The A4174 highway runs from north to south along the eastern boundary of the site and the Bristol to Western-Super-Mare railway line runs east to west along the northern boundary. Bridgewater Road (A38) is 600m south of the site. The site location is shown below in Figure 1:

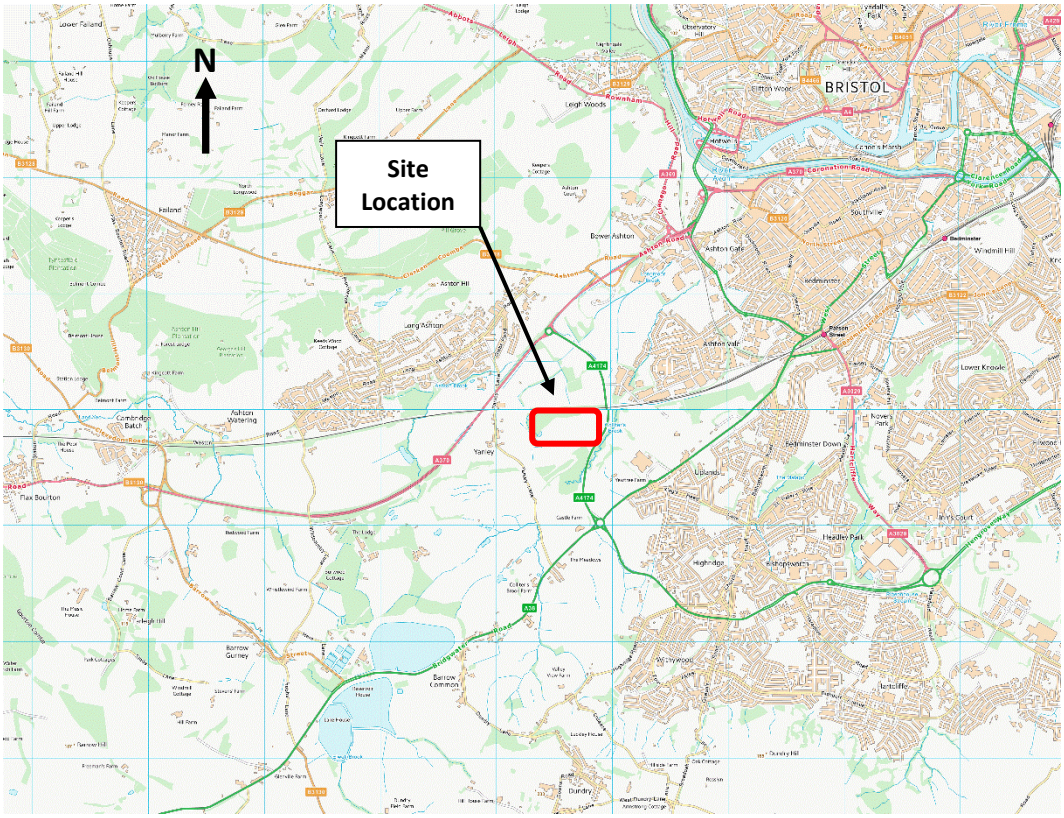


Figure 1 – Site Location

2.1.3 Yanley Landfill Site, which covers an area of approximately 30.8 hectares, is now a closed landfill site following the cessation of waste deposition in 2009. The Site is undergoing restoration, currently permitted to accept a maximum of 5,000 tonnes of restoration materials per year. Landfill gas is currently actively managed by a gas extraction system and engine at the site, which produces electricity for export to the National Grid.

2.2 Site Setting

2.2.1 Access to the site is obtained via a private access road off Bridgewater Road (A38) 600m to the south of the site. There are also various gated access points off the A4174 on the eastern boundary. The site entrances have lockable gates, and the entire site is enclosed by a secure perimeter fence.

2.2.2 The site is surrounded by agricultural fields, with the nearest residential properties located 200m to the west, in the hamlet of Yanley. Further afield are the dense residential areas of Long Ashton (500m northwest) and Ashton Vale (500m northeast), with Ashton Vale Industrial Estate 150m to the northeast. Woodsprings Golf Course is located 1km to the southeast.

2.2.3 There is a railway line that runs along the northern boundary of the site, east to west between Weston-Super-Mare and Bristol. The A4174 (Colliter's Way) highway runs along the eastern site boundary, beyond which is a crematorium and a commercial business park. Numerous small woodland areas are also scattered around the locality, including 'Hanging Hill Wood', on the south-eastern boundary, and the nearest watercourse to the site is Ashton Brook, 420m to the north, linked to various field drains.

3. SENSITIVE RECEPTORS

3.1 Overview

3.1.1 The Site is situated within a rural area on the south-western outskirts of Bristol, between two large residential areas, Long Ashton (northwest) and Ashton Vale (northeast).

3.1.2 This ARA reviews the risk of nearby and sensitive receptors measured from the boundary of the proposed MSP compound, within the footprint of Yanley Landfill Site.

3.1.3 A search using Defra's Online Portal Magic Maps identified numerous sensitive receptors within a radius of 1km of the proposed MSP location, and these are listed below in the following categories:

- Commercial and Industrial;
- Residential and Recreational;
- Public Roads and Footpaths;
- Surface Water;
- Agricultural; and,
- Designated Sites of Ecological Importance & Other Habitats.

3.1.4 The location of the proposed MSP in relation to nearby sensitive receptors is shown on the Sensitive Receptor Plan drawing ref. 4898-CAU-XX-XX-DR-V-1801, and a summary of all identified receptors is presented in Table 1 below.

3.2 Commercial and Industrial

3.2.1 Ashton Vale Trading Estate with units to let for businesses including gyms and workshops is located 180m northeast of the site.

3.2.2 There is a business park with commercial offices units 430m southeast.

3.2.3 Long Ashton Park and Ride Carpark hub is located 800m north.

3.3 Residential & Recreational

3.3.1 The residential areas of Ashton Vale (470m NE), Bedminster Down (740m SE), Long Ashton (895m NW) and Yanley hamlet (900m W) surround the site, with associated school, playing fields, gyms, church and crematorium. There are no hospitals within 1km of the site.

3.3.2 Allotment gardens are located 940m east of the site.

3.3.3 A golf club is located 860m southwest of the site and an indoor bowls club is located 360m to the northeast. A cricket ground is also located 700m northwest.

3.3.4 Numerous farmsteads are within 1km of the site, located to the south surrounded by agricultural fields.

3.4 Public Roads and Footpaths

3.4.1 The adjacent B4174 highway is immediately east of the site boundary.

3.4.2 There are numerous footpaths across the agricultural land around the site.

3.5 Agriculture

3.5.1 There are agricultural fields located to the north of the site across the railway line, to the east across the B4174 and to the south of the site.

3.6 Surface Water

3.6.1 Colliter's Brook is the closest surface water feature to the site, 90m to the east. Next closest is Longmoor Brook 300m NNE and Ashton Brook 275m northwest.

3.6.2 There are some ponds to the west and one pond to the northeast within 1km.

3.7 Designated Sites of Ecological Importance & Other Habitats

3.7.1 There are five areas of Priority Habitat Deciduous Woodland within 1km of the site, including the named Hanging Hill Wood, 330m to the southwest.

3.7.2 There are no Sites of Special Scientific Interest (SSSIs) within 1km of the centre of the site, with the closest, Ashton Court SSSI, over 1.3km to the northwest.

3.7.3 There are no Areas of Outstanding Natural Beauty (AONBs), Special Areas of Conservation (SACs), Local Nature Reserves (LNRs), Local Wildlife Sites (LWS), National Nature Reserves (NNRs), Ramsar sites or Special Protection Areas (SPAs) within 2km of the site.

3.8 Summary of Identified Receptors

3.8.1 The sensitive receptors identified within 1km of the site are presented below in Table 1:

Table 1 – Summary of Sensitive Receptors within 1km of the Site

Receptor	Land Use	Distance/Direction
A4174 road	Public Road	20m E
Agricultural Fields	Agricultural	40m N, 100m E, 320m S and 650m E
Colliter's Brook	Surface Water	90m E
Woodland (Priority Habitat)	Habitat	85m E, 100m NE, 300m E, 790m NW
Pond	Surface Water	150m NE
Ashton Vale Trading Estate inc. workshops and commercial outlets	Commercial/ Industrial	180m NE

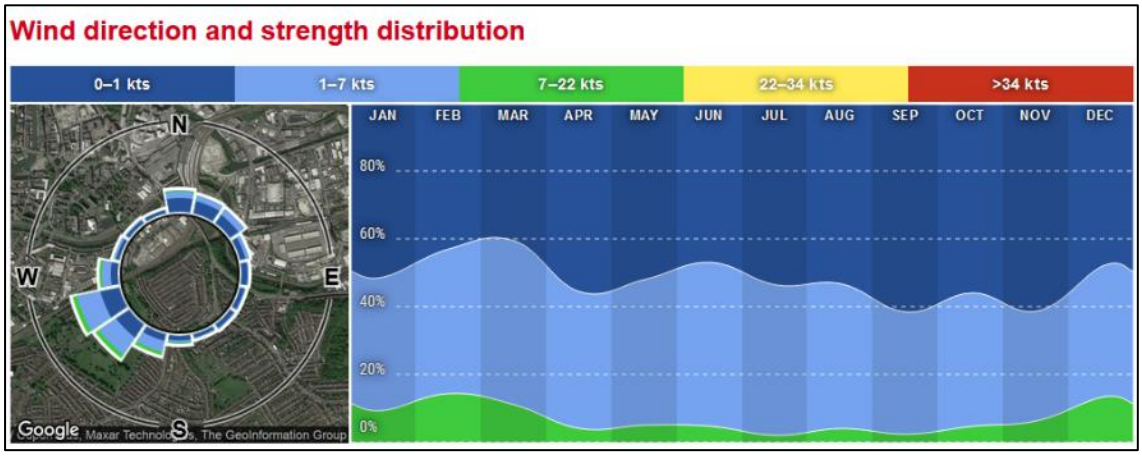
Receptor	Land Use	Distance/Direction
Gyms	Recreational	180m NE
Ashton Brook	Surface Water	275m NW
Longmoor Brook	Surface Water	300m NNE
Hanging Hill Wood (Priority Habitat)	Habitat	330m SW
Bristol Indoor Bowling Club	Recreational	360m NE
Playing Field	Recreational	425m NE
Business Park / Offices	Commercial	430m SE
South Bristol Crematorium & Cemetery	Recreational	440m SE
Ashton Vale Residential Area	Residential	470m NE
Yew Tree Farm	Residential	530m SE
Field Drain	Surface Water	580m SW
Pond	Surface Water	630m W
Pond	Surface Water	680m SW
Cricket Ground	Recreational	700m NW
Pond	Surface Water	700m W
The Kings Head Pub	Recreational	720m SE
Field Drain	Surface Water	720m SE
Bridgewater Road	Public Road	720m SE
Bedminster Down Residential Area	Residential	740m SE
Roundabout Junction of A370/A4174	Public Road	785m NW
Long Ashton Park & Ride carpark	Commercial	800m N
Yanley Lane	Public Road	830m SW
Footpath	Public Path	855m SW
Woodspring Golf Course	Recreational	860m SW
Ashton Vale Church	Recreational	870m NE
Ashton Vale Primary School	Residential	895m NE
Long Ashton Residential Area	Residential	895m NW
Yanley hamlet properties	Residential	900m W
Bristol Water Covered Reservoir	Covered Water	920m SE
Allotment Gardens	Recreational	940m E
Castle Farm	Residential	960m S
Playing Fields	Recreational	960m SE
Yanley Farm & Stables	Residential	975m WSW

3.9 Meteorological Setting

3.9.1 Fugitive emissions of dust, litter, odour and noise from the Site are likely to be affected by local weather conditions, in particular by wind direction. Wind statistics observed from Bristol Totterdown weather station to the north of Northampton (located 3.5km northeast of the Site) is considered to be representative of the typical conditions at the

Site (Figure 2 below). A review of the data recorded daily between 2013 and 2021 on the Windfinder.com website indicates that the most dominant wind direction is from the southwest towards the northeast. The sensitive receptor plan shows that predominant wind conditions are likely to blow from site towards the A4174 road, agricultural fields and Ashton Vale residential area beyond in the northeast.

Figure 2 – Bristol Totterdown wind statistics – average wind direction & strength 2013 to 2021



4. RISK ASSESSMENTS

4.1 Assessments for the Proposed Operations

4.1.1 Risk assessment tables have been completed for odour, noise and vibration, fugitive emissions (dust, litter, mud and debris, pests and surface water run-off), visible plumes and accidents in line with the GOV.UK guidance 'risk assessments for your environmental permit' (updated 10th December 2020).

4.2 Risk Assessments - Tables

4.2.1 Possible hazards as a result of the proposed operations at the site that require risk assessment comprise:

- Sources of Odour (Table 2);
- Sources of Noise and Vibration (Table 3);
- Fugitive Emissions (dust, litter, mud and debris, pests, surface water run-off) (Table 4);
- Visible emissions (smoke or visible plumes) (Table 5); and,
- Accidents (leaks and spillages, fire etc.) (Table 6).

4.2.2 The hazards identified above have the potential to escape beyond the permit boundary and cause an amenity nuisance to sensitive receptors or harm the environment and human health. For each possible hazard, an assessment of the risk that it poses to potential sensitive receptors has been carried out, taking into account the control measures that will be in place.

4.2.3 The following Tables 2 to 6 give further detail on each hazard source, pathway and sensitive receptor, the risk management measures to be implemented, probability of exposure, consequences of exposure and an overall risk rating from Low (little or no risk) to High once all risk management measures have been taken into account.

Table 2 - Odour Risk Assessment

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? If it occurs – 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 from leachate storage & methane stripping.	Local human population in nearby commercial premises in Ashton Trading Estate to the NE Local residents in Yanley houses to the W Users of public and domestic roads and footpaths nearby, including on the B1474 road	Through air	Raw leachate will be pumped via sealed pipework directly from the existing raw leachate tanks via a duty/standby progressing cavity (PC) feed pump into the MSP. Raw leachate will enter each reaction tank at the top and flow downwards, exiting via a pipe carrying liquid up into the next tank and eventually the de-gassing tank. Treated leachate is then discharged to sewer by pump or by gravity via sealed pipework. In line with the majority of full-scale MSP installations across the UK, odour potential will be minimal and does not require further odour suppression measures. Odour control in relation to the MSP will remain under review. The planned preventive maintenance (PPM) programme for the new plant will also include regular maintenance to ensure odours are minimised, and routine olfactory monitoring in around site boundary for odours.	Frequency of exposure is likely to be **medium/low** as: Odour plumes are transient in nature – unlikely to travel great distances and will dissipate with wind movement and leachate currently permitted to be stored in lagoons in the open, with no history of complaints from nearby people. Nearest receptors downwind are local human population in commercial and residential properties 180 & 470m to the NE and users of local roads to the E.	May cause annoyance to road users and people nearby.	**Low – if control measures are implemented**

Table 3 - Noise & Vibration Risk Assessment

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? If it occurs – 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 methane stripping plant	Local human population in nearby commercial premises in Ashton Trading Estate to the NE Local residents in Yanley houses to the W Users of public and domestic roads and footpaths nearby, including on the B1474 road	Through air	The potential noise generation from the electric powered MSP with pumps, bubble tube diffusers and blowers has been assessed. It is considered that the MSP is unlikely to generate noise levels that would impact as a nuisance/disturbance on local receptors. The MSP will be installed adjacent to the existing gas engine compound and therefore is unlikely to generate noise levels above that which is already experienced from the gas engine. In addition, the manufacturer performance guarantee states maximum noise of equipment heard from 1m outside of MSP enclosure will be 45dB – so unlikely to cause noise levels above what is already created by the gas compound. A planned preventative maintenance (PPM) programme will be in place for all parts of the plant and will include routine maintenance and servicing of parts that could give rise to	**Unlikely** due to B4174 road network close to site already generating high levels of background noise, and MSP will be located at a sufficient distance from the commercial and residential receptors therefore the low noise emissions from the MSP are unlikely to significantly impact on receptors.	Noise may cause annoyance to people nearby.	**Low – if control measures are implemented**

			increases in noise and as part of the routine site checks, noise emissions will be checked.			
No sources of vibration identified.	Local human population and users of domestic roads.	Through the ground.	N/A	**Very unlikely.**	Nuisance.	**Very low.**

Table 4 - Fugitive Emissions Risk Assessment (dust, contaminated run-off, pests, mud/debris, litter)

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? If it occurs – 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
To Air						
Dust	Local human population and users of domestic roads Disturbance to wildlife, birds and habitats of nearby woodlands and habitat designations Smothering of fauna wildlife	Through air	N/A - The nature of the operation will not generate any dust emissions.	N/A	N/A	**N/A**

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? If it occurs – 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
To Water						
Contaminated run-off	Colliter's Brook 90m E Surface water in field drains and brooks further north. Pond located 150m to NE	Surface water drainage system.	Any potentially contaminated surface water from within the bunded area will be pumped into the methane stripping tank before being discharged via dedicated constructed pipework from the MSP effluent discharge pipe, which connects to the Wessex Water Services public foul sewer network. Storage and treatment vessels will be subject to secondary containment measures that will conform with CIRIA C736 Class 2 Containment (UK ICOP The Establishment of Appropriate Containment Standards for Leachate Storage Infrastructure). The bunded area shall have a bund depth of 0.7m and a capacity of at least 110% of the largest vessel or 25% of the total tankage volume, whichever is the greater. Bunds shall be regularly inspected to ensure that bunds filled by rainwater are regularly emptied – otherwise the purpose of the bunding provided is lost. The bund will have a small pump, with level controls and a high-float switch. Connections and fill points should be within the bunded area and no pipework should penetrate the bund wall. Any rainwater falling into the bund will be pumped out and into the leachate	**Unlikely** given that tanks are situated within self-contained bunds. No direct linkages or emissions to surface water from MSP to nearby surface water receptors	Detriment to the quality of surface water; could affect fish and other wildlife within the watercourse.	**Very Low – if control measures are implemented**

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? If it occurs – 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
			tanks. The raw materials of anti-scaling and anti-foam liquids will also be stored in 25litre drums within a bunded area. Bunding is sufficient to contain the quantity of any potential spillage from the particular operation. Tanks and vessels will be equipped so that a high-level alarm is activated if filling becomes excessive. A 'high-high' alarm will switch off the supply of leachate before any spillage occurs. Spillage pads and/booms will be provided. A Planned Preventative Maintenance programme is in place for all critical equipment and infrastructure.			
Contaminated run-off.	Groundwaters	Through soil/ groundwater.	Any potentially contaminated surface water from within the bund is pumped into the methane stripping tank before being discharged via dedicated constructed pipework from the MSP effluent which connects to the Wessex Water public foul sewer network. Storage and treatment vessels will be subject to secondary containment measures that will conform with CIRIA C736 Class 2 Containment (UK ICOP The Establishment of	**Very unlikely.**	Detriment to the quality of ground- and surface water; could affect habitats down gradient/ downstream of the site.	**Very low - if control measures are implemented**

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? If it occurs – 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
			Appropriate Containment Standards for Leachate Storage Infrastructure). The bunded area shall have a bund depth of 0.7m and a capacity of at least 110% of the largest vessel or 25% of the total tankage volume, whichever is the greater. Bunds shall be regularly inspected to ensure that bunds filled by rainwater are regularly emptied – otherwise the purpose of the bunding provided is lost. The bund will have a small pump, with level controls and a high-float switch. Connections and fill points should be within the bunded area and no pipework should penetrate the bund wall. Any rainwater falling into the bund will be pumped out and into the leachate tanks. The raw materials of anti-scaling and anti-foam liquids will also be stored in 25litre drums within a bunded area. Bunding is sufficient to contain the quantity of any potential spillage from the particular operation. Tanks and vessels will be equipped so that a high-level alarm is activated if filling becomes excessive. A 'high-high' alarm will switch off the supply of leachate before any spillage occurs. Spillage pads and/booms will be provided.			

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? If it occurs – 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
			A Planned Preventative Maintenance programme is in place for all critical equipment and infrastructure.			
Pests						
Rats, flies and other pests carrying pathogens or harmful microorganisms.	Local human population	Rats or other pests migrating onto any nearby premises and then humans or farm animals getting into contact with them.	N/A - It is considered that a methane stripping plant will not result in any risk of rats, flies and other pests due to sealed containment and regular maintenance of plant.	**Very unlikely.**	Nuisance.	**Very low**

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? If it occurs – 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
Mud/Litter						
Mud/ debris from delivery/ collection vehicles.	Humans.	Mud/debris being dragged onto public highway.	N/A – not applicable as proposed location of MSP compound covered with gravel and hardstanding.	**Very unlikely.**	Nuisance.	**Very low**
Litter.	Local human population.	By wind.	N/A – no litter will be generated by the proposed operations	**Very unlikely.**	Nuisance.	**Very low**

Table 5 - Visible Plumes Risk Assessment

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? If it occurs – 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
Potential visible plumes.	Nearby receptors.	Air.	N/A – no visible plumes will be generated by the proposed operation. Only one point releasing to air will be to relieve pressure in the system and not be visible.	N/A	N/A	N/A

Table 6 - Accidents Risk Assessment

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? If it occurs – 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
Leak or spillage from tank or vessels containing liquid material (leachate) Spillage from raw/process materials (anti-foam and anti-scalant)	Colliter's Brook 90m E Surface water in field drains and brooks further north. Pond located 150m to NE	Via surface water drains.	Bunded tanks with bund depth of 0.7m with 110% capacity to provide CIRIA C736 compliant bunding in respect of hydraulic containment, jetting and surge. The bund will have a small sump and pump with level controls and a high float switch. Leachate levels within tanks controlled by pneumatic floats that cut off pumps to avoid overfilling. The anti-scalant and anti-foam drums containing raw materials are stored in 25litre drums within a bunded area with impermeable surfacing. All pipework is above ground and contained within the bunding. No pipework will penetrate any of the bunding (as it could compromise the integrity). All tanks and pipework will be above ground and will undergo visual inspections to identify any leaks. In addition, pressure testing will be carried out detect any leaks in the MSP infrastructure.	**Unlikely** to impact as there are no direct linkages or emissions to surface water from MSP to nearby surface water receptors Small spillages should they occur will be cleaned up immediately. Large (catastrophic) failure of tanks/vessels is very unlikely to occur.	Detriment to the quality of surface water with severity dependant on size of the spill.	**Low – if control measures are implemented**

			A Planned Preventative Maintenance programme to be put in place for all critical equipment and infrastructure. Regular inspection of surface integrity, container and bunding integrity. Emergency management plan to include: - Spillage action plan with training of all relevant staff on implementing the plan. The manager also responsible for review of what caused the incident and whether changes in procedures are needed as a result.			
As above.	Groundwater.	Direct run-off from site across ground, then ground infiltration.	As above.	**Very unlikely.** Even in the event of any spillages onto unsurfaced ground, migration through soil to groundwater will cause further degradation and retardation of material.	Detriment to the quality of ground- and surface water; could affect habitats down gradient/ downstream of the site.	**Very low - if control measures are implemented**
Fire.	Local human population & surface water/ groundwater. Road users Local businesses	Air transport of smoke and vapours	A Planned Preventative Maintenance programme in place for all critical equipment and infrastructure which will minimise the risk of fire caused by equipment failure. Emergency procedures which forms part of the site's Integrated Management System. The manager also responsible for review of what caused the incident and whether changes in procedures are needed as a result.	**Unlikely.** Due to the nature of the waste, it is unlikely to result in any fires. The scale of the MSP should a fire occur as a result of	Respiratory irritation, nuisance to local population. Pollution of land or water by firewater.	**Low - if control measures are implemented**

			Measures to contain firewater similar to handling of spillages as outlined above. Firewater will be contained, collected and removed from site in a controlled manner and not be allowed to run-off.	equipment fire is likely to be small and containable. Therefore, any impacts as a result of a fire should not significantly impact on nearby receptors such as road users.		

5. CONCLUSION

5.1.1 The risk assessments above enable identification of appropriate mitigation measures to control the amenity and accident risks from the proposed activities. All identified risk mitigation measures will be incorporated within the management system for the site.

5.1.2 The amenity and accident risk assessments indicate that provided the identified risk mitigation measures, which are identified in the tables above, are implemented, the risk of nuisance or pollution from odour, noise, fugitive emissions including dust and contaminated surface run-off or accidents is low, and the risk from vibration, visible plumes, pests, mud and debris and litter is negligible.

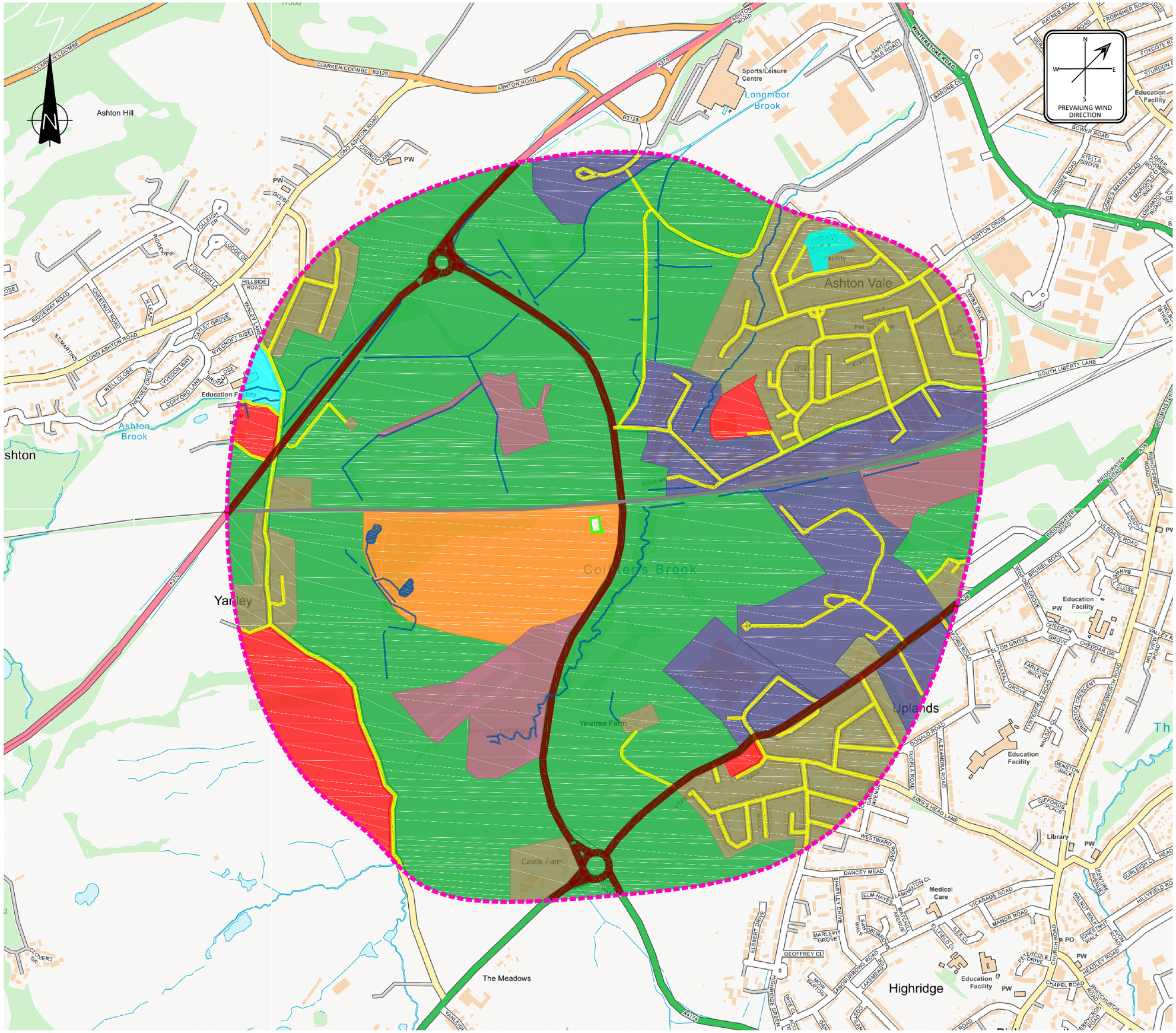
5.1.3 Overall, the proposed location of the MSP will be set within an existing landfill site adjacent to an existing gas engine compound and will produce very little emissions. The site is set within an agricultural area, with background noise and other emissions from the neighbouring road network to the east, railway line to the north and commercial premises to the northeast.

6. REFERENCES

Environment Agency (February 2016): Risk Assessments for your environmental permit: https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit

DRAWINGS

4898-CAU-XX-XX-DR-V-1801 Sensitive Receptors Plan



LEGEND

- ACTIVITY BOUNDARY
- 1000m OFFSET
- SURFACE WATER
- WOODLAND
- COMMERCIAL
- LANDFILL SITE
- RESIDENTIAL
- MAJOR ROAD
- MINOR ROAD
- RAIL
- AGRICULTURAL
- EDUCATIONAL
- RECREATIONAL

REV	MODIFICATIONS	BY	RE	AP	DATE
~~P01~~	~~ISSUED FOR INFORMATION~~	~~EJD~~	~~SB~~	~~SB~~	~~23.02.21~~

PURPOSE OF ISSUE: FOR INFORMATION

STATUS: S0

CLIENT: Viridor

PROJECT:

YANLEY LANDFILL SITE
METHANE STRIPPING PLANT

TITLE:

SENSITIVE RECEPTORS PLAN

DESIGNED BY	DRAWN BY	REVIEWED BY	AUTHORISED BY
EJD	EJD	SB	SB

DATE	SCALE @ A3	JOB REF:	REVISION
23.02.2021	1:10,000	4898	P01.01

DRAWING NUMBER: 4898-CAU-XX-XX-DR-V-1801

Caulmert
engineering environmental planning

WWW.CAULMERT.COM

Registered Office: InTec, Parc Menai, Bangor, Gwynedd, LL57 4FG Company Registered No: 06716319

Caulmert
engineering environmental planning

Registered Office: Intec, Parc Menai, Bangor, Gwynedd, LL57 4FG
Tel: 01248 672666
Fax: 01248 672601
Email: contact@caulmert.com
Web: www.caulmert.com