MOTT MACDONALD

Cambridge Sludge Treatment Centre Environmental Permit Application

Environmental Risk Assessment

November 2021

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1 Introduction

1.1 Background and scope

This document has been prepared to support the application for the substantial variation of the standard rules Environmental Permit (EPR/LP196ER) and to consolidate the CHP environmental permit (EPR/WP3535HT) to a bespoke Installation Environmental Permit (hereafter referred to as 'the Permit') for the Cambridge Sludge Treatment Centre (STC) ('the Site') on behalf of Anglian Water Services Limited (AWS) ('the Operator').

As part of the application for an Environmental Permit, operators must assess the risk to the environment and potential harm to human health from the activities they propose to undertake. This document provides the environmental risk assessment (ERA) considered relevant to the Site in accordance with the Environment Agency's 'Risk assessments for your environmental permit'[1].

1.2 Assumptions and limitations

The assessment of effect has been based on information sourced from relevant and applicable legislation and guidance and websites. It is assumed that all guidance documents produced by the Environment Agency are up to date and correct at the time of writing.

[1] Environment Agency (2021) Risk assessments for your environmental permit. Available online at: https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit

2 Site setting

2.1 Location

Activity address: Cambridge Sludge Treatment Centre, Cowley Road, Cambridge, CB4 0AP.

National grid reference: TL 47440 61636

A plan showing the boundary of the scheme is provided in Appendix A.

2.2 Geology

The site is underlain by superficial River Terrace Deposits (RTD) described by BGX Lexicon as sand and gravel, locally with lenses of silt, clay or peat. An area of Alluvium is present adjacent to the east of the Site associated with the River Cam.

The bedrock deposits beneath the site comprise the Gault Formation, this is described by BGS Lexicon as pale to dark grey or blue-grey clay or mudstone, glauconitic in part with a sandy base. There are discrete bands of phosphatic nodules (commonly preserving fossils), some pyrite and calcareous nodules. The Gault Formation is typically 20m thick. Below this lies the Lower Greensand Formation.

No faults or other linear features are found within 250m of the site.

According to British Geological Society's (BGS) GeoIndex (2020), there is no artificial made ground underneath the Sewage Treatment Centre (STC).

2.3 Hydrogeology

The online DEFRA interactive map service 'Magic Map' (2020) indicates the superficial RTD and nearby Alluvium are designated as a Secondary A aquifer. Secondary A aquifers comprise permeable layers capable of supporting water supplies at a local rather than strategic scale, these aquifers are generally classified as minor aquifers[2]. The bedrock aquifer is designated as Unproductive Strata.

The site does not lie within a groundwater source protection zone (SPZ), or a Drinking Water Protection zone.

2.4 Hydrology

A drainage ditch ("First Public Drain"), runs directly adjacent to the east of the site boundary and south of the site. The River Cam is located approximately 300m east of the Site. There are two ponds located approximately 250m north east of the site (Todd's Pit and Dickenson's Pit).

According to the Environment Agency Flood maps the site is at very low risk of flooding from rivers or the sea. In general the Site is at very low risk of flooding from surface water. However, there are small local areas across the Site which are considered to be at low to high risk of flooding from surface waters. The BGS groundwater flooding susceptibility maps indicate that the Site has potential for groundwater flooding to occur at the surface.

There are several discharge consents for the River Cam, most of which are related to the discharge of treated effluent, and storm tank discharged from the Water Recycling Centre (WRC).

[2]Environment Agency Aquifers, Accessed 28/07/2021 Environment Agency - Aquifers (environment-agency.gov.uk)

2.5 Protected Areas

There are no statutory designated European designated sites within 10km of the site boundary.

Statutory designated national sites within 2km of the site boundary include:

- Bramblefields Local Nature Reserve (LNR) located approximately 400m south of the Site.

Non-statutory designated sites within 2km of the site boundary include:

- Milton Country Park located approximately 350m north east of the Site.

The priority habitats within 2km of the Site are;

- Coastal and floodplain grazing
- Deciduous woodland
- Lowland calcareous grassland
- Lowland fens
- Traditional orchard

Further discussion on impacts to natural habitats and ecology is provided in section 3.2.9 and Appendix C.

2.6 Other notable features

2.6.1 Properties

As shown in Figure B.4 in Appendix B, there are several sensitive receptors within 250m of the Site, including Cowley road industrial estate, Cambridge golf driving range, as well as offices and residential properties to the east and north west of the Site. Further details of the sensitive receptors can be found in 101265_ERA_BioRA_CAM.

2.6.2 Public right of way

The River Cam is located approximately 300m east of the Site, there is a public footpath which is routed along the length of the riverbank, therefore the site is within 500m of a public Right of Way.

There are no public rights of way through the site boundary or directly adjacent to the facility.

3 Environmental risks

3.1 Methodology

The ERA has been undertaken by identifying hazards and source-pathway receptors and assigning a probability of exposure and a severity of consequence. These are assigned in Table 3.1 and Table 3.2 and are based on the generic risk assessments used for standard rules "SR2012 No 11 and No 12", "SR2009 No 4" and "SR2008 No 19", applicable to anaerobic digestion operations including use of the resultant biogas.

The probability and severity scores are then combined within a matrix to give an overall magnitude of the risk. This matrix is shown in Table 3.3 and is intended to illustrate the general approach to scoring. The allocation of magnitude of risk uses professional judgement and site-specific knowledge and, as such, the general pattern in Table 3.3 is not necessarily applicable to all risks.

Risks are categorized as either low, medium or high; this ranges from being a nuisance in some instances to potential health risks in others.

Table 3.1: Severity Index

Severity of harm	Severity index
Impact to people or designated receptor	High
Impact to non-designated receptor	Medium
All other impacts	Low

Table 3.2: Probability Index

Likelihood of harm occurring	Probability index
Harm is near certain or very likely to occur	High
Harm is likely to occur	Medium
Harm is unlikely	Low

Table 3.3: Magnitude of risk

Severity of harm	Probability index		
Severity index	**Low**	**Medium**	**High**
Low	Low	Low	Medium
Medium	Low	Medium	High
High	Medium	High	High

3.2 Risk assessment

3.2.1 Introduction

This section of the report identifies the potentially sensitive receptors within the vicinity of the Site and assesses the environmental risks within the following categories:

- Point source and fugitive emissions to air;
- Point source and fugitive emissions to water and land;
- Noise and vibration;
- Odour;

- Litter, mud and debris;
- Vermin and insects (pests);
- Human health and environment safety (i.e. visual impacts, site security, flood risk); and
- Natural habitats and ecology.

The methodology used to assess and screen the environmental risk for each category is discussed in turn in the following subsections. The need for further detailed assessments and/or management plans, where applicable, is also elucidated upon.

An assessment of the overall and residual risk is provided in Appendix C. For each hazard there is the identification of the pathway and receptor and the mitigation proposed in order to reduce the residual risk.

3.2.2 Point source and fugitive emissions to air

3.2.2.1 Air quality

AWS intend to commission a third CHP engine at the Site in 2021, with a thermal rated input of 1.5MWth. As this is a new Medium Combustion Plant (MCP) and Tranche B generator it would fall within the scope of the Medium Combustion Plant Directive (MCPD). As part of this permit application AWS intend to apply for an MCP/SG permit for the third CHP, to be consolidated into the varied Installation Environmental Permit.

Monitoring of air emissions of the existing two CHP units was carried out in March 2021 the results of the monitoring can be found in document reference 101265_MSD_Monitoring_CHP1&2_CAM.

During March 2021, in order to ensure the efficiency of the new CHP (CHP 3), a commissioning trial was undertaken. The results of this testing can be found in document reference 101265_MSD_Monitoring_CHP3_CAM.

As combustion activities at the Site are being changed as a result of the permit variation, Air Dispersion Modelling (ADM) was undertaken at the Site. The ADM report can be found in document reference 101265_MSD_ADM_CAM.

The flare is understood to operate during emergencies only, such as during CHP maintenance or downtime. Maintenance of the flare is undertaken annually.

The existing approaches and relevant procedures presented in the Environmental Management System (EMS) and operational procedures are considered to adequately address the emissions that may present a risk, and, therefore, an Emissions Management Plan (EMP) is not considered to be required. An Environmental Management Plan (EnvMP) is in place which acts as the Site's Environmental Management System.

3.2.2.2 Bio-aerosols

According to the Environment Agency guidance 'bioaerosol monitoring at regulated facilities (Jan 2018)', a bioaerosol risk assessment is required if a facility is within 250m of a sensitive receptor.

The sensitive receptors in relation to the Site are shown in Appendix B. The Site lies within 250m of eleven areas of sensitive receptors and, therefore, a bioaerosols risk assessment has been undertaken, document reference 101265_ERA_BioRA_CAM. The overall magnitude of the risk associated with bioaerosols emissions from the Site and WRC is considered to be 'low' to 'medium'.

For new permits there is a requirement to monitor in accordance with Technical Guidance Note (TGN) M9 'environmental monitoring of bioaerosols at regulated facilities' if the Site is within

250m of a sensitive receptor. The TGN lists sources of bioaerosols and refers to ambient and point source emissions.

Best practice methods will nonetheless be followed, during operation of the Site, to prevent the release of bioaerosols. These include methods and principles outlined in the Environment Agency's "Guidance on the evaluation of bioaerosol risk assessments for composting facilities"[3] and are described in Appendix C.

3.2.2.3 Abatement of other fugitive emissions to air

Environment Agency best practice methods will be followed during the operation of the facility, to prevent the release of fugitive emissions. These are described in Appendix C.

3.2.3 Point source and fugitive emissions to water and land

An assessment of the risks from the potential point source and fugitive emissions to water, sewers, land or groundwater is provided in Appendix C.

3.2.3.1 Emissions to water (other than sewers)

The drainage network sends water to the head of the adjacent Cambridge WRC for treatment. There are no direct potentially contaminated discharges to controlled surface waters.

There are no direct discharges of wastewater to controlled waters from the STC.

There are no direct potentially contaminated discharges to groundwater.

There are no groundwater or surface water abstractions on the site.

Accidental releases of materials to the environment are controlled through adequate containment measures and working procedures.

The existing approaches and relevant procedures presented in the EMS and operational procedures are considered to adequately address the emissions that may present a risk, and, therefore, an EMP is not considered to be required.

3.2.3.2 Emissions to sewers, effluent treatment plants or other transfers off-site

There will be no point source emissions or direct discharges to controlled waters or public sewers, as part of the permit operation. Any liquid waste will either be reused or discharged to the drainage system of the adjacent Cambridge WRC and will undergo treatment through the works before being discharged under an existing environmental permit for discharge to water. The water used at the site will be contained in a closed circuit within the WRC; all wastewater streams will either be recycled within the STC process or captured and rerouted to the adjacent WRC.

There are no direct potentially contaminated discharges to controlled surface waters and no significant impacts. All drainage from potentially contaminated sources will be captured by the onsite drainage system and returned to the head of the WRC for treatment. A drainage plan of the site is presented in document reference 101265_MSD_DrainagePlan_CAM.

Due to the anticipated very low levels of contamination of the water and the volumes involved, no monitoring of its composition is proposed prior to discharge to the WRC.

Any areas of the site, where there is a risk of contamination of surface water, groundwater or discharge of process waters are located on impermeable concrete surface. All surface water

[3] Drew, G.H., Deacon, L.J., Pankhurst, L., Pollard, S.J.T. and Tyrrel, S.F. (2009). Guidance on the evaluation of bioaerosol risk assessments for composting facilities. Environment Agency.

from these areas drain to the WRC internal drainage system and are returned to the head of the works for treatment prior to discharge as final effluent.

3.2.3.3 Emissions to land

There will be no point source emissions to land as part of the activities carried out on-site. Condensate from the gas system is collected in a sump and then discharged to the head of the works.

All site activities and waste operations are carried out within a sealed drainage system that returns the Site drainage to the head of the WRC, preventing emissions to land.

The Site has multiple spill kits and spill equipment available around the Site.

In terms of raw materials storage, all chemicals are stored on bunded areas or sealed ground, nothing is stored on permeable gravel. Diesel tanks are bunded and the bunds are inspected regularly. Releases of raw materials to land are considered to be negligible, therefore, due to adequate containment of the materials within suitable storage vessels, the provision of bunding and the presence of a contained drainage system.

3.2.4 Noise and vibration

Initial screening has been carried out for the Site.

Appropriate mitigation for noise and vibration impacts are provided in Appendix C. The sensitive receptors located within 1km of the Site are shown in Figure B.4 of Appendix B.

The nature of the activities and processes on Site are not considered to create unusually high levels of noise. The new CHP assets were built to Water Industry Mechanical and Electrical Specifications (WIMES) 9.01 which is the water industry standard, and they are housed in a noise controlled container, and the doors will be kept closed.

The Site has not received any noise complaints.

Since noise and vibration impacts are considered to be appropriately mitigated in the ERA, a Noise and Vibration Management Plan is also not considered to be required.

3.2.5 Odour

A review of the nearest human receptors has been undertaken to establish the level of odour risk to the receptors before and after mitigation. Sensitive receptors to odour are users of adjacent land, which may vary in their sensitivity to odour. Sensitive receptors are shown in Figure B.4 in Appendix B.

Current odour mitigation measures to prevent and reduce odours from receipt of waste, transfer across the Site, treatment and storage of waste have been assessed and are detailed in Appendix C.

The activities on Site are not anticipated to increase the off-site impact or result in adverse impact upon nearby sensitive receptors or the amenity of the area surrounding the Site.

The Site has an Odour Management Plan (OMP), reviewed and updated in November 2021, which identifies the potential odour emissions from site operations and procedures to manage, control and minimise odour impacts. It sets out procedures for engaging with neighbours and how AWS will manage complaints, and the actions taken in the case of pollution events. The OMP also describes the monitoring and maintenance procedures to maintain the control measures.

The OMP was written in accordance with the Environment Agency's H4 Odour Management guidance (2011). The level of odour risk from the Site is considered to be XX, as shown in Appendix C.

Odour Management Plan document reference 101265_ERA_OdourMP_CAM.

Odour Modeling Report document reference 101265_ERA_OMR_CAM.

3.2.6 Particulate matter, litter, mud and debris

Appendix C describes the aspects of the site that generate litter, mud and debris within and outside the site boundary and assesses their risk to the environment. Measures to prevent debris and dust leaving the site have also been addressed, in addition to the sensitivity of nearby receptors and the effectiveness of existing measures to reduce the escape of dust (Appendix C).

The need for a dust management plan is triggered if the keeping and/or treating of biowaste in the open, including the finished material, is located:

- In, or within 2km of, an air quality management area for PM10;
- Within 500m of a sensitive receptor such as a home, school, hospital or nursing home, food preparation facility or similar; and
- Within 250m of a sensitive receptor when treating biowaste.

The key sludge treatment processes of the Site are enclosed. Sludge cake is understood to be stored in cake bays. Sludge cake is understood to be stored in skips. Therefore, dust from cake movements, loading and unloading is unlikely (see Appendix C). A Dust Management Plan is not considered to be required since operations and waste types used on-site cause minimal dust emissions and appropriate mitigation is in place.

3.2.7 Pests

Discussions with the site operator have addressed whether the site activities are likely to attract pests, what measures are in place to deter pests and how effective these are. These are covered in Appendix C. A pest contractor is used on Site on an as required basis.

Pests are not considered to be an issue at the facility since the waste types handled on-site do not attract them, contractors regularly check the site for pests and appropriate mitigation is in place. Since the residual risk is not deemed to be medium or higher, a Pest Management Plan is not considered to be necessary.

3.2.8 Human health and environmental safety

3.2.8.1 Visual impacts

The Site is bounded by the A14 to the north and St John's Innovation Park is to the west of the Site. There are industrial estates, a golf driving range and a former park and ride adjacent to the southern boundary of the Site.

Since no changes to the Site will occur prior to submission of this permit application, there will not be any changes in heights and configuration of the placement of equipment which could be noticed by nearby receptors. Visual impacts from the Site are, therefore, considered to be low.

3.2.8.2 Site security

Activities are managed and operated in accordance with the EMS. Access to the Site is restricted by 2.5m high palisade security fence. A galvanised steel, electronic gate secures the main access. The Site is manned during operational hours, 7am – 5pm, 7 days a week. The

Site gates are either manually locked or have key coded entry. The Site also benefits from a CCTV camera system, there are plans to install an Automatic Number Plate Recognition (ADPR) camera to cover the domestic import area.

Regular inspections of the boundary fencing and buildings are undertaken to ensure that these have not been compromised and continue to prevent easy access to Site. Repairs are undertaken in accordance with the management system requirements.

Other risks relating to human health and the environment are presented in the ERA in Appendix C.

3.2.8.3 Flood risk

Initial screening was undertaken to determine the flood risk for the Site. The data utilised for this study was published online by the Environment Agency and relates to the flood risk from surface water, rivers and the sea.

According to the Environment Agency Flood maps the site is at very low risk of flooding from rivers or the sea. In general the Site is at very low risk of flooding from surface water. However, there are small local areas across the Site which are considered to be at low to high risk of flooding from surface waters. The BGS groundwater flooding susceptibility maps indicate that the Site has potential for groundwater flooding to occur at the surface.

The Site has not experienced flooding from surface or groundwater, other than an overflow of a lagoon (Site asset) which was resolved through reinforcement over ten years ago.

Since no changes to the Site are planned prior to application submission, and no impacts to flood pathways or sensitive receptors are anticipated, a full flood risk assessment (FRA) (defined here as a detailed assessment involving bespoke hydraulic modelling work) is unlikely to be required for the purpose of this application.

3.2.9 Natural habitats and ecology

Ecological features that are situated within set distances of the site boundary have been identified and screened. For the following ecological features, the Study Area was defined as the following:

- Statutory designated European sites: Special Areas of Conservation (SAC), candidate Special Areas of Conservation (cSAC), Special Protection Areas (SPA), potential Special Protection Areas (pSPA), Sites of Community Importance (SCI) and Ramsar sites within 10km of the site boundary;
- Statutory designated national sites: Sites of Special Scientific Interest (SSSIs), Marine Conservation Zones (MCZs), National Nature Reserves (NNRs), Local Nature Reserve (LNRs), Areas of Outstanding Natural Beauty (AONB) within 2km of the site boundary;
- Non-statutory designated sites: Local Wildlife Sites (LWS), Ancient Woodlands, Country Parks, Sites of Importance for Nature Conservation (SINC), Wildlife Trust for Bedfordshire, Cambridgeshire and Northamptonshire Reserves within 2km of the site boundary;
- Priority habitats: within 2km of the site boundary. Priority habitats are those listed under Section 41 of the Natural Environment and Rural Communities Act (2006) and include deciduous woodland, grassland, heathland, reedbed, vegetated shingle, wood-pasture and parkland, marshes, mudflats and fens; and
- Granted European Protected Species (EPS) licences available on Multi-Agency Geographic Information for the Countryside (MAGIC), within 2km of the site boundary.

No ecological field surveys have been completed to inform this screening. This screening identifies the likelihood of ecological features being present or further investigation being required.

Initial screening has been carried out for the Site, the high-level results of which are shown in Table 3.4. Where habitat sites are situated within the study area surrounding the Site, the relevant cells are highlighted in red and indicate the number of habitats sites located therein. Cells highlighted in green indicate that relevant habitat sites are not located within the specified study area. For cells highlighted in orange, there is potential for these protected species to be present within the study area.

Table 3.4: Results of initial screening of natural habitats and ecology for Cambridge STC

Natural habitats and ecology	Cambridge STC
Statutory designated European sites within 10km of the site boundaries	
Special Areas of Conservation (SAC)	
Special Protection Areas (SPA)	
Sites of Community Importance (SCI)	
Ramsar sites	
Statutory designated national sites within 2km of the site boundaries	
Sites of Special Scientific Interest (SSSIs)	
Marine Conservation Zones (MCZ)	
National Nature Reserves (NNRs)	
Local Nature Reserves (LNRs)	1
Areas of Outstanding Natural Beauty (AONB)	
Non-statutory designated sites within 2km of the site boundaries	
Local Wildlife Sites (LWS)	
Ancient Woodlands	
Country Parks	1
Wildlife Trust for Bedfordshire, Cambridgeshire and Northamptonshire	
Priority habitats within 2km of the site boundaries	
Priority habitats	5
Protected species	
Granted European Protected Species (EPS) licences: within 2km of the site boundaries	
Common nesting birds, common reptiles, terrestrial and aquatic invertebrates, common amphibians: within a 10m buffer of the site boundaries	
Wintering birds: within a buffer of up to 500m of the site boundaries	
Species of nesting birds within a 200m buffer of the site boundaries	
Bats: within a 50m buffer of the site boundaries	
Badgers: within a 30m buffer of the site boundaries	
Hazel dormice: within a 20m buffer of the site boundaries	

Natural habitats and ecology	Cambridge STC
Great crested newts - ponds within a 500m buffer of the site boundaries and terrestrial habitat within 10m	

There is one LNR and one country park located within 2km of the Site.

Any potential impacts to statutory designated European and national habitat sites have been considered in ERA following review of following site-specific information:

- Discharges to water and groundwater, emissions to air and land, and from dust, noise and vibration, from all activities on-site, particularly from the anaerobic digestion processes;
- Pollution prevention and mitigation measures, including for emissions and spills; and
- Site plans detailing storage arrangements and drainage plans.

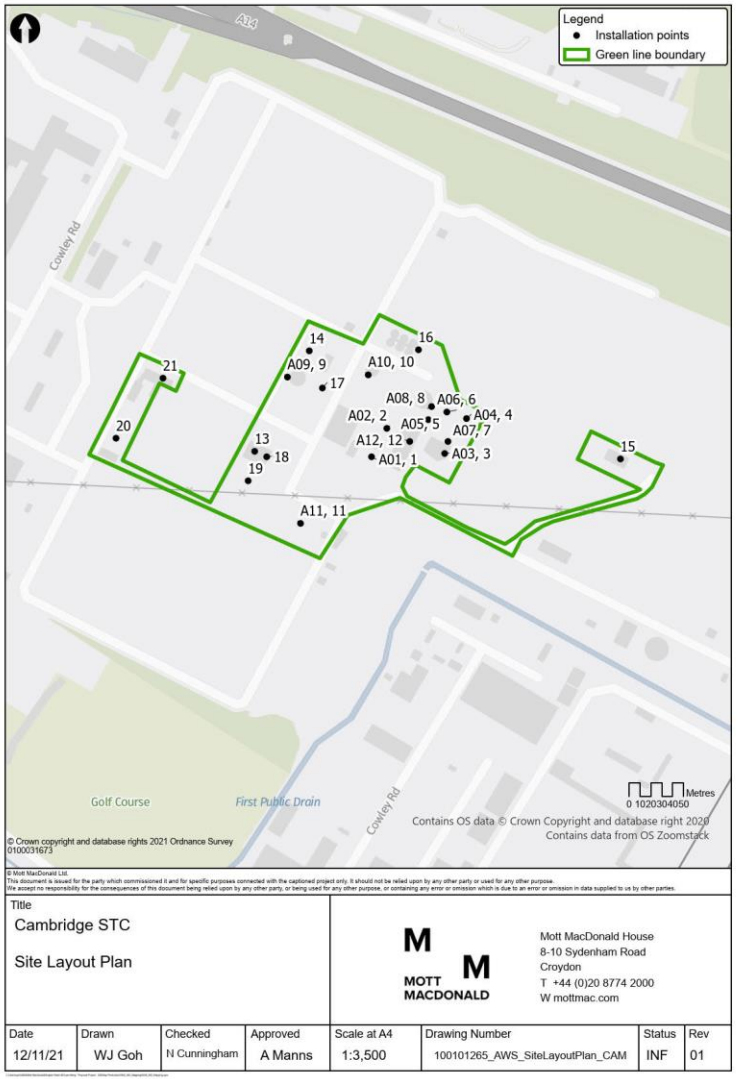
The permit variation application does not involve the removal of vegetation, or structural modification to build structures therefore, a Preliminary Ecological Appraisal is not considered to be required for the Site.

It is considered very unlikely that Site activities would lead to the disturbance or removal of terrestrial habitats, and therefore protected species surveys are not considered to be required for the Site.

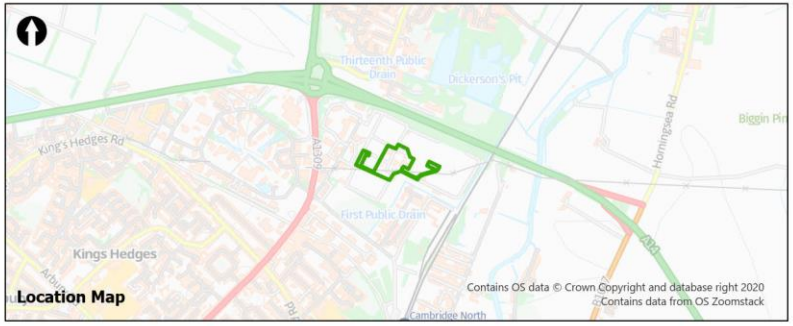
The application is to permit anaerobic digestion activities in order to meet the Industrial Emissions Directive (IED) and include a new MCP. The site has been operating in its current capacity for a number of years and mitigation measures already in place directly or indirectly prevent or limit harm to existing habitats and species, as shown in Appendix C.

No changes to anaerobic digestion operations are proposed and therefore the current risks posed to these habitats and species are likely to improve upon granting of the permit. The potential impacts to habitats from the addition of the CHP unit is discussed in the ADM report, document reference 101265_MSD_ADM_CAM.

A. Site Plan



Emissions_Ref	Emissions_Points	Assets_Ref	Assets	X	Y
A01	Pressure relief valves	1	Anaerobic Digester 1	547476	261594
A02	Pressure relief valves	2	Anaerobic Digester 2	547490	261620
A03	Pressure relief valves	3	Anaerobic Digester 3	547543	261597
A04	Flare Stack	4	Flare Stack	547563	261629
A05	CHP 1 stack	5	CHP unit 1	547528	261628
A06	CHP 2 stack	6	CHP unit 2	547545	261635
A07	CHP 3 stack	7	CHP unit 3	547546	261608
A08	Pressure relief valves	8	Gas Holder	547531	261640
A09	Odour Control Unit	9	OCU SAS and RAW holding	547399	261667
A10	Odour Control Unit	10	OCU blended sludge tank	547473	261669
A11	Pressure relief valves	11	Post digestion tank	547411	261533
A12	Boiler House	12	Boiler House	547511	261608
		13	Thickening Plant Primary	547369	261599
		14	Thickening Plant SAS INDIG and import	547419	261691
		15	Thickening Plant SAS D stream	547704	261592
		16	EEH tanks	547519	261692
		17	Primary sludge import tank	547431	261657
		18	Centrifuge Building	547380	261594
		19	Treated cake pad	547363	261572
		20	head of works (TPS)	547242	261611
		21	Inlet works (Liqour Return)	547285	261666



B. Environmental Constraints Maps

Figure 3.1: Statutory designated habitat sites within 10km of the Site

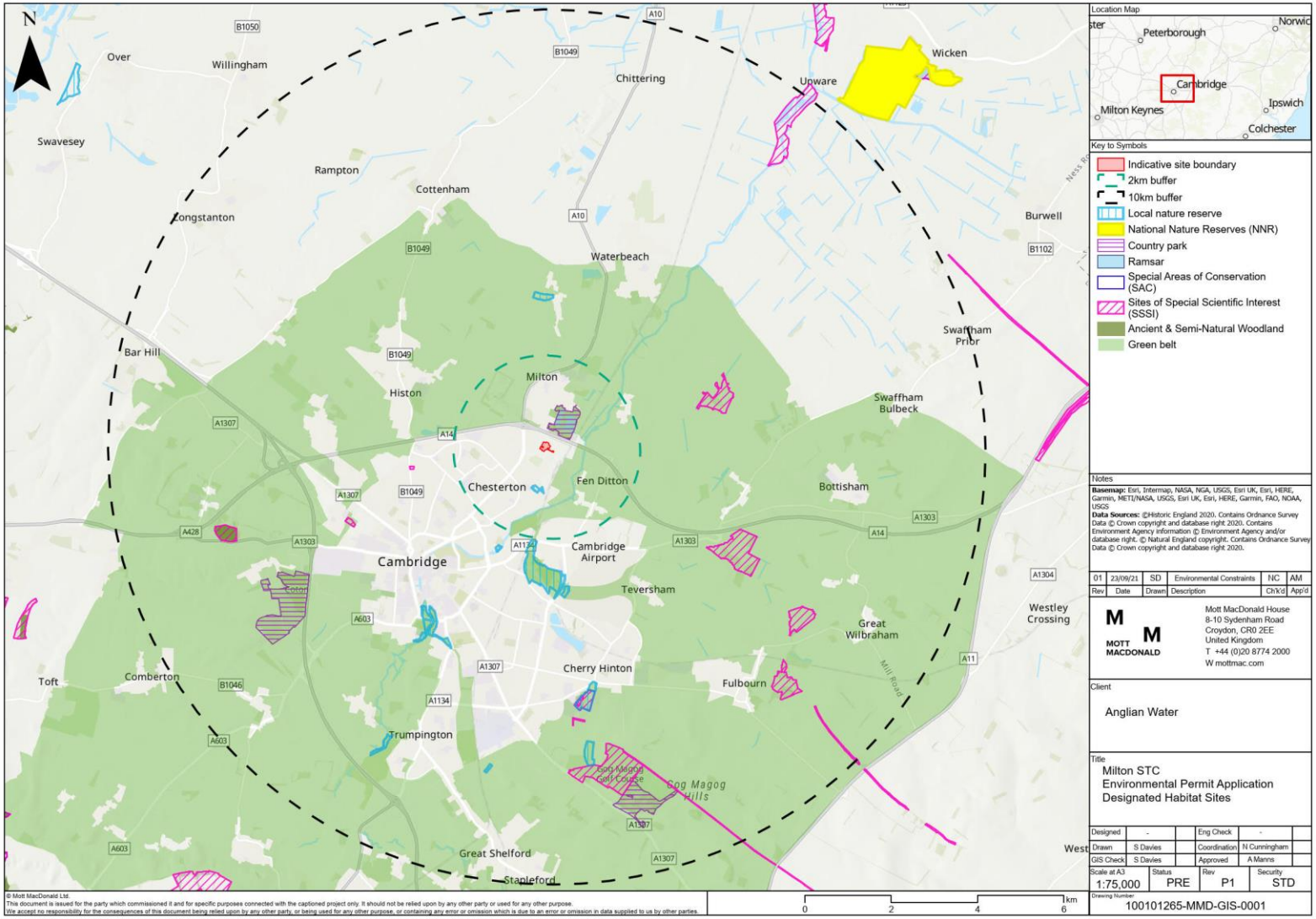


Figure 3.2: Non statutory designated habitat sites within 2km of the Site

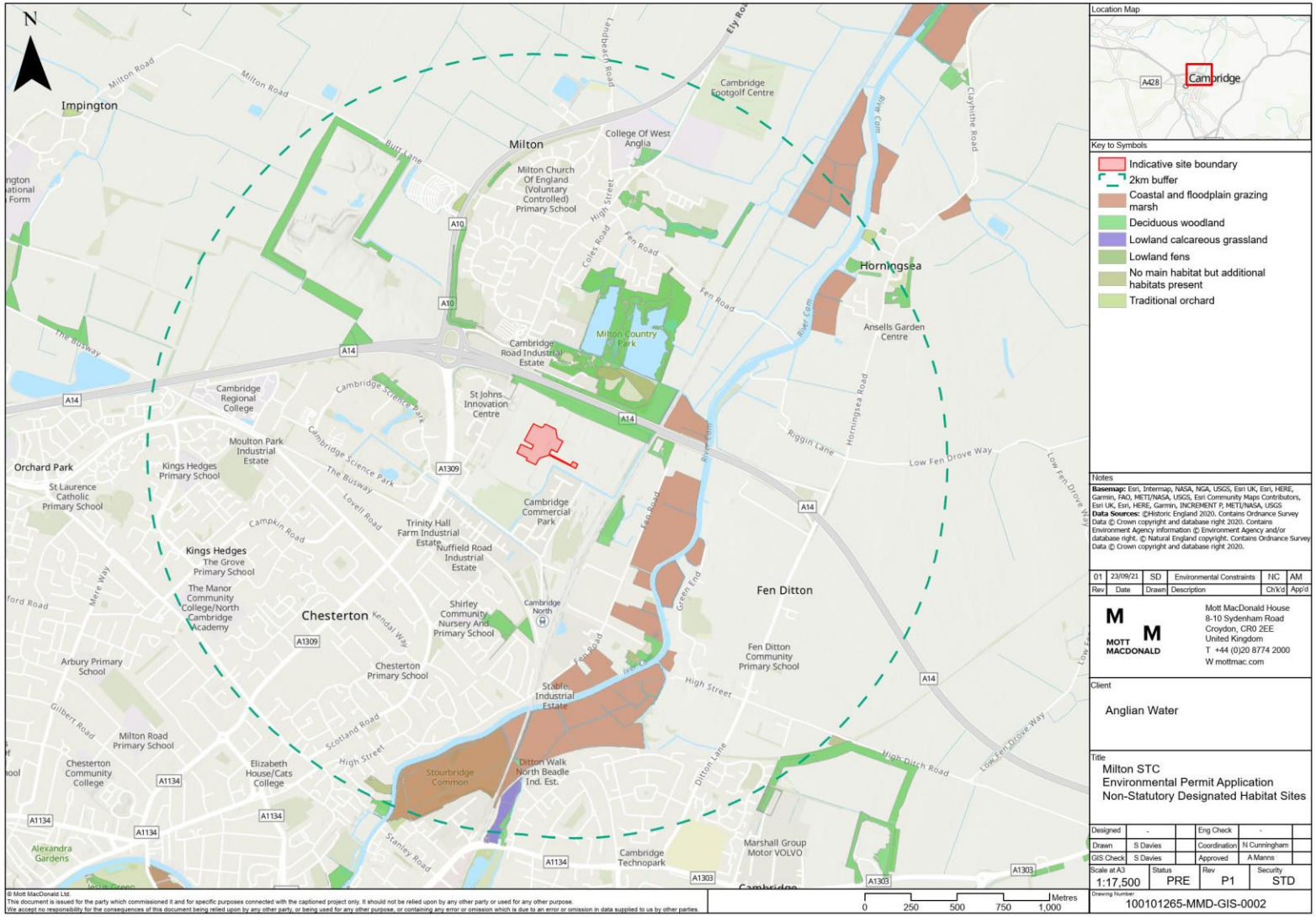


Figure 3.3: Designated heritage sites within 1km of the Site

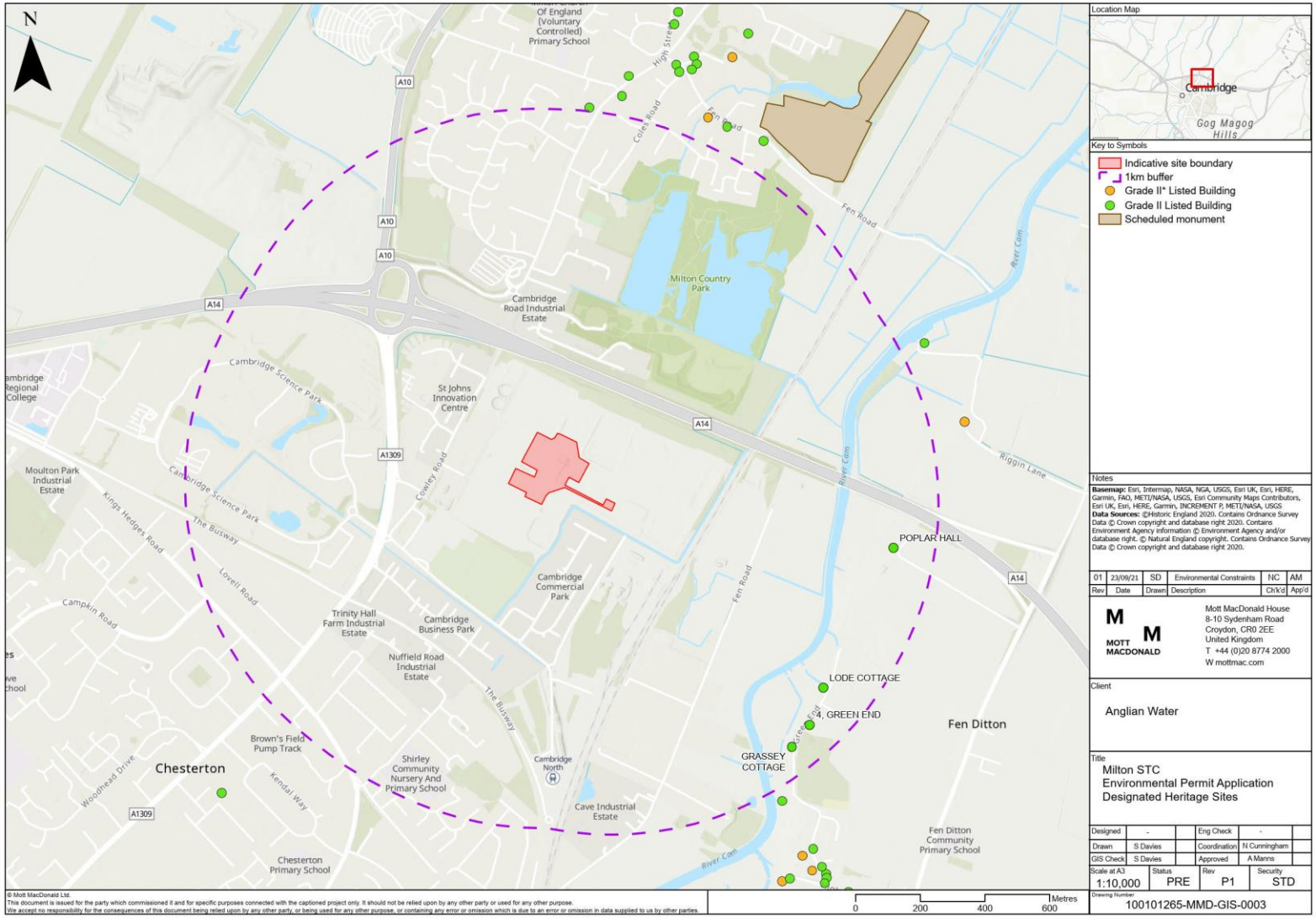
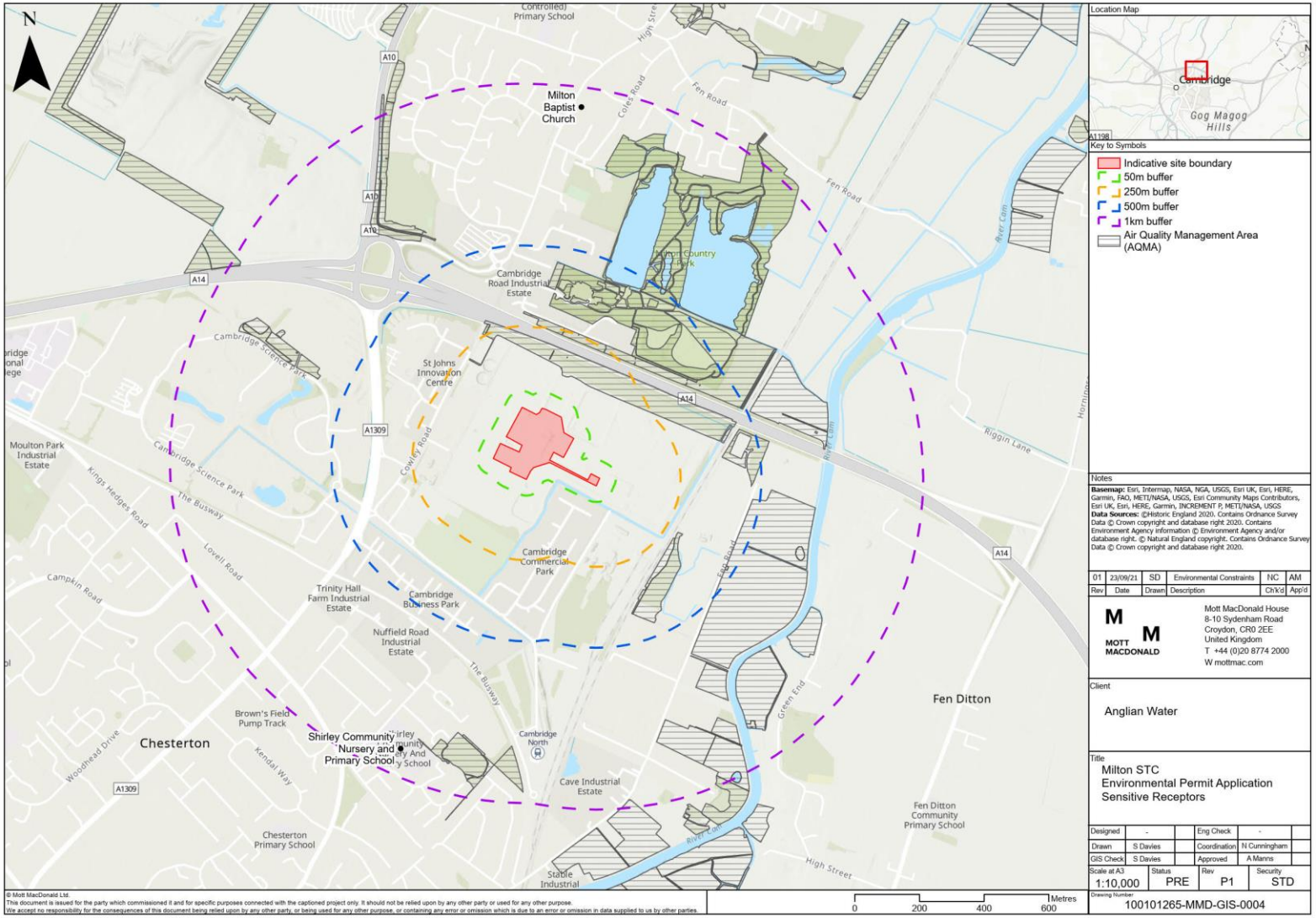


Figure 3.4: Sensitive receptors within 1km of the Site



C. Environmental Risk Assessment Table

Emissions to air									
Data and information				**Judgement**				**Action (by permitting)**	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
Local human population	Releases of NO_2 and SO_2, CO, H_2S and other gases	Harm to human health – respiratory irritation and illness	Air transport then inhalation	Low	Medium	Low	There is potential for exposure to anyone living close to the Site or at locations where members of the public might be regularly exposed. Given the regular inspection and maintenance of equipment, and with the operation being in line with the EnvMP and EMS, the magnitude is considered to be low. During March 2021, in order to ensure the efficiency of the new CHP (CHP 3), a commissioning trial was undertaken. The results of this testing can be found in document reference 101265_MSD_Monitoring_CHP3_CAM.	Overall impacts of all pollutants are considered to be insignificant. Activities will be managed and operated in accordance with the EnvMP and EMS. This will include regular inspection and maintenance of associated equipment. Point source emissions to air will be monitored in line with the permit requirements and any relevant Technical Guidance Notes (TGNs) including M2 'Monitoring of Stack Emissions to Air' and will meet MCERTS standards. NO_2 and GHG emissions are controlled by emission limits. Any emissions of substances not controlled by emission limits (excluding odour and noise) shall not cause pollution.	Low
Local human population	Releases of biogas	Harm to human health - respiratory irritation and illness by inhaling H_2S present in the biogas. Release of potent climate change gases.	Air transport	Low	Medium	Low	There is potential for exposure to anyone living close to the Site or at locations where members of the public might be regularly exposed.	Activities shall be managed and operated in accordance with the EMS and EnvMP and will include measures covering operation, inspection and maintenance of equipment, including engine management systems. Point source emissions to air will be monitored to ensure emission limits for biogas are not exceeded, in accordance with permit requirements and any relevant TGN's including M2.	Low
Domestic properties, local human population, local amenity, site staff, visitors and offices. Haul roads, public highways.	Releases of particulate matter (dust) from cake storage skips and transport of cake off-site	Nuisance, loss of amenity.	Air transport then inhalation	Low	Medium	Low	Local residents and surrounding environments are often sensitive to dust. Dust may be produced from dirt deposits from vehicles or other users of the haul road and storage of cake. The waste types used on-site are unlikely to cause dust emissions and appropriate mitigation is in place.	No wastes consisting of dusts are accepted. General operations at the site do not create dusty materials. Cake is stored in six ro-ro skips, the cake is uncovered during storage, however, it is covered during transport off-site. The site does not accept cake from other facilities, therefore minimising movement of material at the Site. Vehicles, equipment and impermeable surfaces are swept and washed down when necessary. Internal roads are swept, as required, to reduce the likelihood of dust becoming airborne. There are no additional dust suppression techniques e.g. mist spray etc employed on site as this is not considered necessary. Vehicles removing cake from site are kept covered, whilst in transport to prevent the escape of waste.	Low
Local human population.	Release of microorganisms (bioaerosols).	Harm to human health - respiratory irritation and illness.	Air transport then inhalation	Low	Medium	Low	The permitted waste is non-hazardous sludge in liquid and cake form. The nature of waste is not likely to cause a release of bio-aerosols, therefore the magnitude risk of bioaerosol creation is considered to be low. The Site lies within 250m of eleven areas of sensitive receptors. Most of the sludge treatment processes are covered or enclosed except for the secondary digesters and some pumping wet wells.	A bio-aerosols risk assessment has been undertaken to assess the risks of bio-aerosols from the Site. This identifies that bio-aerosols risks are low to medium. Digesters, hydrolysis plant, primary and SAS holding tanks, and sludge buffer tank are all covered. Boilers, sludge thickeners, one of the two centrifuges and the C works aeration blowers are all located in enclosed buildings. Connections between the sludge holding tank and the thickeners are enclosed. Imported sludge is delivered from an enclosed tanker via an enclosed connection directly to an enclosed import tank.	Low

Emissions to water and land									
Data and information				**Judgement**				**Action (by permitting)**	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
All surface waters close to and downstream of the Site	Tank failure, spillages of digestate and/or liquids including oil Damage to drainage system. Spillage of raw materials or sludge/liquor during delivery/storage. Contaminated run off from cake storage e.g. containing suspended solids.	Acute or chronic effects to aquatic life, contamination and deterioration of water quality.	Direct run-off from the Site across ground surface, via surface water drains, ditches etc. Indirect run-off via the soil layer Transport through soil/groundwater then extraction/ abstraction at borehole or intake.	Medium	High	High	Potential for spillages and leaks from digestion tanks, storage vessels/bays and drainage system which may cause contamination or deterioration of surface water quality. Liquids are stored in bunded areas. Site infrastructure is in reasonable conditions, and repairs are undertaken as required. Quantities of liquids and raw materials stored on site are generally low.	The site drainage plan is documented, and all staff are trained in the event of emergency or accident. Impermeable surface and secondary containment, in the form of constructed bunds or portable bunds, is in place around storage areas of all wastes and raw materials and surrounding the STC. Additional containment around digestors and other storage vessels is subject to a risk assessment and will be undertaken as part of the BAT requirements and in accordance with CIRIA standard 736. All tanks undergo a delegated inspection regime and the process parameters are monitored and understood by site operatives. Digestion tanks are built to appropriate standards and require appropriate bunding. Activities are managed and operated in accordance with the EMS and EnvMP. All spillages are recorded in the site diary including actions taken. Site Manager ensures the programme of Planned Preventative Maintenance is implemented effectively to minimise the probability of equipment malfunction. COSHH assessment undertaken for all raw materials. Both clean and contaminated surface water is directed to a pumping station which recirculates it back into the system at the head of the WRC. Regular inspections of the site drainage systems and other equipment are undertaken, with any repairs and maintenance carried out if necessary. All complaints and other incidents are recorded in the site diary including actions taken. There is a surplus stock of spill equipment on site at all time to ensure there is sufficient quantity.	Low
Groundwater, land and surface water	Spillage of liquids, contaminated rainwater run-off from waste e.g. containing suspended solids. Sludge/liquid spillages as a result of loss of tank/pipe integrity/ carelessness during transfer or overfilling	Chronic effects: contamination of groundwater, requiring treatment of water or closure of borehole or closure of abstraction intakes. Acute or chronic effects to aquatic life, contamination and deterioration of land and water quality. Pollution of water or land	Transport through soil/groundwater then extraction at borehole or intake.	Low	Medium	Low	Potential for spillages and leaks from digestion tanks, storage vessels/bays. Consequence is high because pollution may continue for a long time before it is detected.	Digesters, hydrolysis plant, primary and SAS holding tanks, and sludge buffer tank are all covered. Boilers, sludge thickeners, one of the two centrifuges and the C works aeration blowers are all located in enclosed buildings. Spill kits are available near the chemical and waste storage areas. All transfer of digestate and material takes place under supervision and with flow rate control. All primary tanks undergo a delegated inspection regime and the process parameters are monitored and understood by site operatives. Site Manager shall ensure the programme of PPM is implemented effectively to minimise the probability of loss of tank/pipe integrity. Activities to be managed and operated in accordance with the EMS. No point source emissions to water. Impermeable surface required for all waste storage areas. Compliance with the waste duty of care requirements to ensure waste in and out meets the permit conditions and relevant legislation.	Low
Groundwater, land and surface water	Damage to drainage system	Acute or chronic effects to aquatic life,	Transport through soil/groundwater then	Medium	High	High	Drainage pipework around the STC is below ground.	Site Manager ensures the programme of PPM is implemented effectively and inspections are	Low

		contamination and deterioration of land and water quality. Pollution of water or land	extraction/ abstraction at borehole or intake				Regular maintenance and checks are completed. There is no leak detection for the underground pipework. Consequence is high because pollution may continue for a long time before it is detected.	carried out frequently to minimise the probability of damage to the drainage system.	
Local human population and local environment	Flooding of site	If waste is washed off site it may contaminate buildings / gardens / natural habitats downstream.	Flood waters	Low	Medium	Low	Permitted waste types are sludges/bio-solids, which may contain pathogens, so any waste washed off site will add to the volume of the local post-flood clean up and may be hazardous to human health. The Site is at very low risk of flowing from surface water. There are, however, small local areas throughout the Site which are at low to high risk of flooding from surface waters.	Activities to be managed and operated in accordance with a management system and management plans and procedures implemented. There is no history of flooding at the Site. All liquid waste on-site is captured in the drainage network and sent to the head of the works for treatment.	Low
Noise and Vibration									
Data and information				**Judgement**				**Action (by permitting)**	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
Local human population	Noise and vibration from the following activities: Vehicles delivering/ removing wastes and materials Vehicles arriving/ leaving the Site.	Nuisance, loss of amenity, loss of sleep.	Noise through the air and vibration through the ground.	Low	Low	Low	Local residents and site staff are often sensitive to noise and vibration.	Site will only accept imports within existing operating hours (fully complying with site's planning conditions). Vehicles do not exceed the site speed limit of 10mph and will not generate a great amount of noise. The main truck movements are away from residential housing and other sensitive receptors. Noise and vibration shall be minimised and not cause nuisance. Noise kept to a minimum during operating hours. Exceptional noisy operations e.g. construction – inform residents. Noise complaints to be investigated and actioned and remedial measures will be undertaken. All complaints are recorded in the site diary including actions taken.	Low
Local human population	Noise and vibration from the following activities: Waste treatment, processing. Plant boilers and engines	Nuisance, loss of amenity, loss of sleep.	Noise through the air and vibration through the ground.	Low	Low	Low	Local residents and site staff are often sensitive to noise and vibration. Majority of the STC operation are fully enclosed or covered with the exception of the secondary digesters.	The operator will maintain all equipment either in house or by a sub-contract such that noise and vibration are maintained within acceptable limits. The site has not historically received any noise complaints, indicating that current activities are adequately mitigating the risk of noise pollution. All other STC site operations are either covered or enclosed. Where equipment is to be replaced choose quiet plant and the provision of silencing equipment. There is no equipment on-site that can cause vibration nuisance at the local receptors. Nonetheless, equipment is turned off when not in use, where appropriate. Any complaints received are investigated and actioned in line with the complaint's procedure. All complaints are recorded in the site diary including actions taken.	Low
Odour									
Data and information				**Judgement**				**Action (by permitting)**	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
Local human population	Odour from site activities	Nuisance, loss of amenity (e.g. disruption during outdoor activities)	Air transport then inhalation	Medium	Medium	Medium	Local resident's sensitive to odour. A wide range of waste may cause odour issues from release of biogas and from digestate hence the control measures adopted.	Odours are likely to be generated and released due to the nature of the waste types. Odours are controlled by odour control units.	Low

							The Site has previously received odour complaints, one related to an issue with the gas holder, another relating to an issue with the drying storm lagoon, on both occasions the customer was contacted and updated. Site investigations relating to the other complaints found that the source of odour was not related to the Site.	Process and air quality monitoring data are centralised on the SCADA and telemetry system to ensure emissions are free of odorous compounds. All abatement systems are designed, monitored and maintained to treat specified emissions and off gases. There are two main odour control units (OCU) fitted on the Site, one controls the gases from the EEH buffer tank a second one controls the gases from the primary and SAS holding tanks. These units are manufactured by Bord Na Mona Monashell. There is a third unit on the primary sludge import tank. Shell media filters are used to treat the odourous air. A site-specific Odour Management Plan is followed and details the odour management measures. Using appropriate measures, non-point source emissions of biogas shall be minimised. All available measures and Best Available Techniques will be implemented. Any emissions of substances not controlled by emission limits (excluding odour and noise) shall not cause pollution. All storage tanks are covered or enclosed with the exception of the secondary digesters. All sludge is processed as soon as it is discharged to the STC. Cake is stored in skips which is directly transferred to a vehicle. All waste is exported in covered lorries or contained in tankers. Any complaints received are investigated and actioned in line with the complaint's procedure.	
Local human population, domestic properties, site offices.	Spillage of odorous materials including oils, fuels, chemicals. Failure to clean up spillages. Contaminated spill equipment not disposed of appropriately.	Nuisance, loss of amenity.	Air transport then inhalation	Low	Medium	Low	Local residents and staff are often sensitive to odour.	Procedures for dealing with spillages are covered in the EMS and EnvMP for the Site. The Site Manager shall ensure all relevant staff are appropriately trained to use the spill kits and that all spillages are cleaned up immediately. All areas of the Site are to be cleaned regularly; Site Manager to oversee regular cleaning schedule, all staff trained on importance of good housekeeping and site cleanliness. All spills are recorded in the site diary including actions taken. Raw materials are stored in appropriate containers with bunding where needed to prevent pollution from spillages	Low
Local human population, domestic properties, site offices.	Fugitive release of H_2S	Nuisance, loss of amenity.	Air transport then inhalation	Low	Medium	Low	Local residents and staff are often sensitive to odour. Fugitive release, not expected to occur under normal operating conditions.	Activities are managed and operated in accordance with the EMS and EnvMP (and include inspection and maintenance of equipment, including engine management systems). H_2S point source emissions to air are controlled in accordance with emission limits. A specialist unit equipped with wet chemical scrubbers is used for air treatment and abatement to reduce odours and the generation of other gaseous compounds.	Low
Litter, mud and debris									
Data and information				**Judgement**				**Action (by permitting)**	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
Local human population, livestock and wildlife, domestic properties and local amenity.	Waste and litter on local and internal roads. Vehicles entering and leaving Site	Nuisance, loss of amenity and road traffic accidents.	Air transport then deposition.	Low	Low	Low	Local residents, surrounding environment and animals sensitive to litter. There is some potential for litter to be generated from general site activities but limited potential for it to leave the site	All vehicles leaving the Site, transporting waste are to be covered to prevent waste/materials being blown from them. All waste produced from general site activities are kept in enclosed containers prior to removing from	Low

							boundary.	site. All waste is removed by an external contractor when required. Regular inspections for litter and debris are undertaken. The Site has 2.5m high fencing around the perimeter which reduces the likelihood of any litter or debris escaping the site boundary.	
Local human population.	Vehicles depositing mud and debris arriving/ leaving the Site.	Nuisance, loss of amenity, road traffic accidents.	Vehicles entering/ leaving the Site.	Low	Low	Low	Road safety issues - local residents often sensitive to mud on the road. Limited potential for mud and debris	Activities shall be managed and operated in accordance with a site-specific management plan with overarching procedures set out in the EMS Any mud or sludge arising from activities on-site is cleared up promptly. Vehicle routes are to be inspected regularly and swept when necessary. All vehicles leaving the Site, transporting waste/ cake are to be covered to prevent waste/materials being blown from them.	Low
Pests									
Data and information				**Judgement**				**Action (by permitting)**	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
Local human population	Vermin, birds and insects	Harm to human health, from wastes carried off-site and faeces. Nuisance and loss of amenity.	Air transport and over land	Low	Low	Low	Permitted wastes are unlikely to attract scavenging animals and birds but certain areas may become nesting / breeding sites. The waste types handled on-site do not attract pests and contractors regularly check the Site for pests. Therefore, the magnitude of risk is considered to be low.	Activities to be managed and operated in accordance with the EMS and management plans and procedures implemented. All reports of pests are sent to the contractor who will investigate and report the findings, outcomes and detail any actions required. A pest contractor is used on Site on an as required basis. All waste produced from general site activities are kept in enclosed containers, or inside a building, prior to removing from site. Doors of buildings are always to remain closed when not in use. Regular inspection and maintenance of boundary fencing and buildings is carried out to prevent access to the Site. Well established and proven operational controls and procedures in place, including regular inspection and monitoring of the Site for pests by contractors.	Low
Human health and environmental safety									
Data and information				**Judgement**				**Action (by permitting)**	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
Local human population and local environment	Flooding of the Site	If waste is washed off-site it may contaminate buildings / gardens / natural habitats downstream.	Flood waters	Medium	Medium	Medium	Permitted waste types are sludges/bio-solids, which may contain pathogens, so any waste washed off-site will add to the volume of the local post-flood clean up and may be hazardous to human health. The Site is at very low risk of flowing from surface water. There are, however, small local areas throughout the Site which are at low to high risk of flooding from surface waters.	Activities to be managed and operated in accordance with the EMS, management plans and procedures implemented. The drainage system within the STC recirculates all surface water from potentially contaminated areas back into the process. There are two storm tanks on Site, they are concrete, and lined stored lagoons. They store land treated settled storm sewage, which is then discharged with final effluent.	Low
Local human population and / or livestock after gaining unauthorised access to the installation.	All on-site hazards: machinery, wastes and vehicles	Bodily injury	Direct physical contact	Low	Medium	Low	Potential injury to on-site personnel as a result of vehicle movements or equipment malfunction or misuse. Direct physical contact is minimised by activity being carried out within enclosed digesters so a low magnitude of risk is estimated. Contact with waste is minimal with exception of leaks or spills from transfer of filter cake.	Overall management of the site is overseen by an experienced member of staff holding who has completed all the training which forms the Competency Management System (CMS). This competent person delegates responsibilities to appropriately experienced and trained site operatives throughout the operating hours. All operational staff are fully trained in the site operating procedures and AWS' safety and	Low

								environmental management procedures and are kept up to date on changes. Training includes awareness raising of the potential on-site hazards and health and safety measures to adhere to. Preventative measures will be under continuous review as part of the EMS procedures. Activities are managed and operated in accordance with the EMS – this includes site security measures to prevent unauthorised access. No maintenance work or contractor is permitted on-site without a suitable permission to work and qualification. Access to Site and waste is restricted by a 2.5m high palisade security fence. A galvanised steel, electronic gate secures the main access. The Site is manned during operational hours, 7am – 5pm, 7 days a week. For visitors and unauthorised personnel an intercom system at the Site entrance, is used. The Site also benefits from a CCTV camera system which covers the site perimeter and entrance. For visitors and unauthorised personnel an intercom system at the site entrance, is used. Site floodlighting is provided at all reception facilities to give good visibility at all times of the day and night. Regular inspections of the boundary fencing are undertaken to ensure that these have not been compromised and continue to prevent easy access to site. Repairs are undertaken in accordance with the EMS requirements. Key sludge treatment activities are undertaken within enclosed systems. Vehicle movements around the site vary depending on what activities are being undertaken. Most vehicle movements are typically undertaken only by site staff and maintenance contractors.	
Local human population and local environment	Explosion of biogas and AD causing the release of polluting materials to air (smoke or fumes), water or land	Respiratory irritation, illness and nuisance to local population. Injury to staff, fire fighters or arsonists/vandals. Potential for uncontrolled release of fugitive emissions of gaseous, liquid or solid materials to air, water or land. Acute or chronic effects to aquatic life, contamination and deterioration of land and water quality.	Air transport Direct run-off from site across ground surface, via surface water drains, ditches etc. Indirect run-off via the soil layer Transport through soil/ groundwater then abstraction	Low	High	Medium	Emissions to air, land or water may cause harm to and deterioration of air, land or water. Smoke and fumes may cause irritation, illness or nuisance to local residents and site staff. An explosion could cause injury to local residents and site staff from flying debris. Although biogas is flammable, risk of direct physical contact is minimised by activity being carried out within the sludge treatment works and in containerised units or locked buildings. Effective management systems are in place so magnitude risk of explosion is considered to be low. Permitted waste types limited to sludges and liquids.	The key sludge treatment processes are undertaken within enclosed systems such as the AD and biogas systems. Activities are managed and operated in accordance with the EMS, H&S and O&M manuals – this includes site security measures to prevent unauthorised access. No maintenance work or contractor is permitted on-site without a suitable permission to work and qualification. Fire detection equipment is installed in the CHP containers and the boiler building which activates an alarm on detection of a fire. Training and regular toolbox talks are given to operatives on-site and all operators and staff understand their role in an emergency. The EMS includes procedures relating to maintenance and inspection of bunding of tanks. Site Manager shall ensure the programme of Planned Preventative Maintenance (PPM) is implemented effectively to minimise the probability of fire through faulty plant and equipment. All equipment is checked and calibrated as per the manufacturer's instructions. Emergency operating procedures are in place.	Low
Local human population and local environment	Explosion of pressurised tanks due to equipment and/or process failure.	Respiratory irritation, illness and nuisance to local population. Fatality/injury to staff, fire fighters. Potential for uncontrolled		Low	High	Medium	Emissions to air, land or water may cause harm to and deterioration of air, land or water. Smoke, fumes and material released from tanks may cause irritation, illness or nuisance to local residents and site staff.		Low

		release of fugitive emissions of gaseous, liquid or solid materials to air, water or land. Acute or chronic effects to aquatic life, contamination and deterioration of land and water quality.		Low	High	Medium	Impact from the tank explosion may cause external damages to other equipment, buildings located close to the epicentre of the explosion. Effective management systems are in place so magnitude is reduced.	Adequate firefighting measures are implemented on-site. Access to Site and waste is restricted by a 2.5m high palisade security fence. A galvanised steel, electronic gate secures the main access. The Site is manned during operational hours, 7am – 5pm, 7 days a week. For visitors and unauthorised personnel an intercom system at the Site entrance, is used. The Site also benefits from a CCTV camera system which covers the site perimeter and entrance. Site floodlighting is provided at all reception facilities to give good visibility at all times of the day and night. Authorised personnel can gain access to the Site using a fob system. Regular inspections of the boundary fencing and buildings are undertaken to ensure that these have not been compromised and continue to prevent easy access to the Site. Repairs are undertaken in accordance with the EMS requirements. A Fire Prevention Plan is not required to be submitted for the permit application as the biowaste process on site is wet anaerobic digestion. Firewater is diverted through the drainage system to the head of the works or to storm overflow allowing for contaminated fire water to be contained on site and treated through the wastewater treatment system. Smoking is only permitted in designated areas.	
Local human population and local environment	Accidental fire causing the release of polluting materials to air (smoke or fumes), water or land. Equipment failure	Respiratory irritation, illness and nuisance to local population. Injury to staff or fire fighters. Potential for uncontrolled release of fugitive emissions of gaseous, liquid or solid materials to air, water or land. Acute or chronic effects to aquatic life, contamination and deterioration of land and water quality.	Air transport Direct run-off from site across ground surface, via surface water drains, ditches etc. Indirect run-off via the soil layer Transport through soil/ groundwater then abstraction.	Low	High	Medium	Emissions to air, land or water may cause harm to and deterioration of air, land or water. Smoke and fumes may cause irritation, illness or nuisance to local residents and site staff. Although biogas is flammable, risk of direct physical contact is minimised by activity being carried out within the sludge treatment works and in containerised units or locked buildings. Risk of accidental combustion of waste is minimal. Effective management systems are in place so magnitude is reduced Permitted waste types limited to sludges and liquids.	The key sludge treatment processes are undertaken within enclosed systems such as the AD and biogas systems. Activities are managed and operated in accordance with the EMS, H&S and O&M manuals including, fire and spill management. Fire detection equipment is installed in the CHP containers and the boiler building which activate an alarm on detection of a fire. A Fire Prevention Plan is not required to be submitted for the permit application as the biowaste process on site is wet anaerobic digestion. Smoking is only permitted in designated areas. Firewater is diverted through the drainage system to the head of the works or to storm overflow allowing for contaminated fire water to be contained on site and treated through the wastewater treatment system. Training and regular toolbox talks are given to operatives on-site and all operators and staff understand their role in an emergency. The EMS includes procedures relating to maintenance and inspection of bunding of tanks, spills and environmental incidents. Site Manager shall ensure the programme of Planned Preventative Maintenance (PPM) is implemented effectively to minimise the probability of fire through faulty plant and equipment. All equipment is checked and calibrated as per the manufacturer's instructions. Emergency operating procedures are in place. Adequate firefighting measures are implemented on-site.	Low

Local human population and local environment	Arson and/or vandalism causing the release of pollution materials to air (smoke and fumes), water or land	Respiratory irritation, illness and nuisance to local population. Injury to staff, fire fighters or vandals/arsonists. Potential for uncontrolled release of fugitive emissions of gaseous, liquid or solid materials to air, water or land. Acute or chronic effects to aquatic life, contamination and deterioration of land and water quality.	Air transport Spillages and contaminated firewater by direct run-off from site across ground surface, via surface water drains, ditches etc. Indirect run-off via the soil layer Transport through soil/ groundwater then abstraction.	Low	High	Medium	Emissions to air, land or water may cause harm to and deterioration of air, land or water. Smoke and fumes may cause irritation, illness or nuisance to local residents and site staff. Although biogas is flammable, risk of direct physical contact is minimised by activity being carried out within the sludge treatment works and in containerised units or locked buildings. Risk of accidental combustion of waste is minimal. Effective management systems are in place so the magnitude is reduced. Permitted waste types limited to sludges and liquids.	The key sludge treatment processes are undertaken within enclosed systems such as the AD and biogas systems. Activities are managed and operated in accordance with the EMS – this includes site security measures to prevent unauthorised access, fire explosions and spill management. No maintenance work or contractor is permitted on-site without a suitable permission to work and appropriate qualifications. Fire detection equipment is installed in the CHP containers and the boiler building which activate an alarm on detection of a fire. A Fire Prevention Plan is not required to be submitted for the permit application as the biowaste process on site is wet anaerobic digestion. Smoking is only permitted in designated areas. Training and regular toolbox talks are given to operatives on-site and all operators and staff understand their role in an emergency. The EMS includes procedures relating to maintenance and inspection of bunding of tanks, spills and environmental incidents. Site Manager shall ensure the programme of Planned Preventative Maintenance (PPM) is implemented effectively to minimise the probability of fire through faulty plant and equipment. All equipment is checked and calibrated as per the manufacturer's instructions. Emergency operating procedures are in place. Adequate firefighting measures are implemented on-site. Access to Site and waste is restricted by a 2.5m high palisade security fence. A galvanised steel, electronic gate secures the main access. The Site is manned during operational hours, 7am – 5pm, 7 days a week. For visitors and unauthorised personnel an intercom system at the Site entrance, is used. The Site also benefits from a CCTV camera system which covers the site perimeter and entrance.	Low
Local human population and local environment	Operator Error	Pollution to air, land, surface water and groundwater and human health	Air transport Direct run-off from site across ground surface, via surface water drains, ditches etc. Indirect run-off via the soil layer Transport through soil/ groundwater then abstraction.	Low	Medium	Low	Possible contamination to air, land, groundwater and surface water. Given the level of operator controls which are in place and management plans, it is considered the probability and magnitude will be low.	Activities to be managed and operated in accordance with the EMS and management plans and procedures implemented. All equipment is checked under preventative maintenance plans and is checked and calibrated as per the manufacturer's instructions. Overall management of the site is overseen by an experienced member of staff holding who has completed all the training which forms the Competency Management System (CMS). This competent person delegates responsibilities to appropriately experienced and trained site operatives throughout the operating hours. All operational staff are fully trained in the site operating procedures and AWS' safety and environmental management procedures and are kept up to date on changes.	Low

								Training includes awareness raising of the potential implications of failure to control operations and the potential impact on the environment. Preventative measures will be under continuous review as part of the EMS procedures. Emergency operating procedures are in place. Site floodlighting is provided at all reception facilities to give good visibility at all times of the day and night. The Site is manned 24 hours a day, 7 days a week. Authorised personnel can gain access to the Site using a fob system. Regular inspections of the boundary fencing and buildings are undertaken to ensure that these have not been compromised and continue to prevent easy access to the Site. Repairs are undertaken in accordance with the EMS requirements. Firewater is diverted through the drainage system to the head of the works or to storm overflow allowing for contaminated fire water to be contained on site and treated through the wastewater treatment system.	

Natural habitats and ecology									
Data and information				**Judgement**				**Action (by permitting)**	
Receptor	**Source**	**Hazard**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**	**Risk management**	**Residual risk**
Protected nature conservation sites - European and national designated sites. There is one LNR and one country park within 2km of the Site.	Any, but principally NOx.	Harm to protected site through toxic contamination, nutrient enrichment, disturbance etc	Air transport Direct run-off from site across ground surface, via surface water drains, ditches etc. Indirect run-off via the soil layer Transport through soil/ groundwater then abstraction	Low	Low	Low	Physical disturbance and emissions to air, water or land may cause harm to and deterioration of nature conservation sites. However, impacts to these sites are considered to be unlikely. Air dispersion modelling was carried out at the Site, document reference 101265_MSD_ADM_CAM.	Activities to be managed and operated in accordance with the EMS and management plans and procedures implemented. Emissions of substances not controlled by emission limits (excluding odour and noise) shall not cause pollution. Storage of high ammonia bearing material will be covered at all times. Emission limits for emissions are specified. BAT and appropriate additional mitigation measures set out in the EMS, have been taken to prevent or where that is not practicable, to minimise, those emissions.	Low
Protected species, including nesting birds, wintering birds, common reptiles, terrestrial and aquatic invertebrates, common amphibians, bats, badgers, hazel dormice and great crested newts	Any, but principally NOx.	Harm to protected species through the disturbance or removal of habitats		Low	Low	Low	Physical disturbance and emissions to air may cause harm to protected species. The proposal for the Permit does not involve the removal of vegetation, or structural modification to existing structures. It is considered very unlikely, therefore, that Site activities would lead to the disturbance or removal of terrestrial habitats.		Low

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