

Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

BioConstruct NewEnergy Ltd.

Imperial Park Anaerobic Digestion Plant
Imperial Avenue
Imperial Park
South Bank
Middlesbrough
TS6 6BA

Variation application number

EPR/HP3230DJ/V003

Permit number

EPR/HP3230DJ

Imperial Park Anaerobic Digestion Plant

Permit number EPR/HP3230DJ

Introductory note

This introductory note does not form a part of the notice

Under the Environmental Permitting (England & Wales) Regulations 2016 (schedule 5, part 1, paragraph 19) a variation may comprise a consolidated permit reflecting the variations and a notice specifying the variations included in that consolidated permit.

Schedule 1 of the notice specifies the conditions that have been varied and schedule 2 comprises a consolidated permit which reflects the variations being made. All the conditions of the permit have been varied and are subject to the right of appeal.

Changes introduced by this variation notice/statutory review

The Industrial Emissions Directive (IED) came into force on 7 January 2014 with the requirement to implement all relevant Best Available Techniques (BAT) Conclusions as described in the Commission Implementing Decision. Article 21(3) of the IED requires the Environment Agency to review conditions in permits that it has issued and to ensure that the permit delivers compliance with relevant standards, within four years of the publication of updated decisions on Best Available Techniques (BAT) Conclusions. The BAT Conclusions for Waste Treatment (the BREF) was published on 17 August 2018 following a European Union wide review of BAT, implementing decision (EU) 2018/1147 of 10 August 2018.

The scope of the permit review also covers the assessment of:

- the bioaerosols monitoring and compliance with M9 bioaerosols monitoring requirements;
- the design and construction of secondary containment and storage lagoons;
- the available storage facilities and measures to reduce ammonia emissions from storage; and
- information on existing medium combustion plant and/or specified generators on site.

This variation has been issued to update some of the conditions following a statutory review of the permits in the industry sector for biowaste treatment. The opportunity has also been taken to consolidate the original permit and subsequent variations.

Brief Description of the process

The main features of the permit are as follows:

The Installation is defined as a S5.4 A(1)(b)(i) activity under the Environmental Permitting Regulations:

“recovery or a mix of recovery and disposal of non-hazardous waste with a capacity exceeding 75 tonnes per day (or 100 tonnes per day in the only waste treatment activity is anaerobic digestion) involving biological treatment.”

The site has been designed to treat up to 300 tonnes per day of liquid and solid waste via anaerobic digestion. The liquid waste arrives in sealed tankers and is pumped into one of the reception tanks via a stone trap where it is mixed/macerated. The reception tanks are located within a waste reception building that is provided with fast acting doors, kept under negative pressure and fitted with an extraction and odour abatement system.

The solid waste (seasonal green waste) is received in an outside reception area where it is loaded into the charging system for the digestion process. Any green waste not loaded into the charging system will be moved into the solid waste reception building by the end of the working day.

The anaerobic digestion takes place in two primary “fermentation” tanks where the waste is held for approximately 44 days and a “post fermentation” tank, where it is held for approximately 21 days to ensure maximum biogas capture. The resultant digestate waste is then pumped to pasteurisation tanks where the

temperature is raised to 70°C for a minimum of one hour. The heat treated digestate is then pumped to one of the digestate storage tanks prior to onward recovery (intended use as a soil conditioner).

Biogas produced by the digestion process passes through a de-sulphurisation (activated carbon scrubbing) process and is subsequently combusted in four combined heat and power (CHP) gas engines, producing both heat for the digestion /pasteurisation process and electricity for export to the National Grid. The gas engines have a combined thermal input of 12.5 MW_{th} and a combined electrical generating output of approximately 5 MW_{th}.

In order to provide adequate dispersion, the combustion gases from the engines are vented to atmosphere via a combined 28.25 metre multi-flue exhaust stack. A separate emergency gas flare will be available to combust biogas should there be an emergency shutdown or maintenance.

The site occupies an area of approximately 1.87 hectares and is located at Imperial Park in Middlesbrough, centred at National Grid Reference NZ 5279 2109.

A main railway line runs to the immediate north of the site, with the large seaport of Teesport and the River Tees at a distance of 500 metres beyond that. Also on the River Tees lies the Teesmouth and Cleveland Coast SPA, Ramsar and SSSI site, being 680 meters from the closest point of the site boundary. To the west of the site lies an area of mixed commercial /industrial units together with a traveller's site on King George's Terrace around 50 metres from the site, with a large area used as a Motorcross park beyond that.

The schedules specify the changes made to the permit.

The status log of a permit sets out the permitting history, including any changes to the permit reference number.

Status log of the permit		
Description	Date	Comments
Application EPR/HP3230DJ/A001 received	Duly made 17/06/2016	Application for an anaerobic digestion facility with combustion of resultant biogas.
Additional information received	28/11/2016	Additional information received regarding: <ul style="list-style-type: none"> • odour management plan • waste types • waste reception and storage, (including drainage and bund design) • process monitoring • flare design: and • site condition/baseline report.
Permit determined EPR/HP3230DJ	28/11/2016	Permit issued to BioConstruct NewEnergy Ltd.
Application EPR/HP3230DJ/V002 (variation and consolidation)	Duly made 19/05/2017	Application to vary the permit to increase the daily quantity of animal wastes.
Application EPR/HP3230DJ/V002 (variation and consolidation)	Withdrawn 25/08/2017	Application to vary the permit to increase the daily quantity of animal wastes withdrawn by the Operator.
Regulation 61 Notice sent to Operator	19/07/2019	Regulation 61 Notice requiring information for statutory review of permit.
Regulation 61 Notice response	20/02/2020	Response received from the operator.
Application EPR/HP3230DJ/V003 (variation and consolidation)	Environment Agency Initiated Variation	Statutory review of permit occasioned by Waste Treatment BAT Conclusions published on 17 August 2018.
Environment Agency Biowaste Treatment Sector Review	18/09/2020	Varied and consolidated permit issued.

Status log of the permit		
Description	Date	Comments
Permit reviewed Variation determined EPR/HP3230DJ (Billing Ref: CP3306BS)		

End of introductory note

Notice of variation and consolidation

The Environmental Permitting (England and Wales) Regulations 2016

The Environment Agency in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2016 varies and consolidates

Permit number

EPR/HP3230DJ

Issued to

BioConstruct NewEnergy Ltd (“the operator”)

whose registered office is

**P.O. Box SE1 3PH
54-58 Tanner Street
The Brandenburg Suite
Tanner Place
London
SE1 3PH**

company registration number 09112259

to operate a regulated facility at

**Imperial Park Anaerobic Digestion Plant
Imperial Park
South Bank
Middlesbrough
TS6 6BA**

to the extent set out in the schedules.

The notice shall take effect from 18/09/2020

Name	Date
Simon Hunt	18/09/2020

Authorised on behalf of the Environment Agency

Schedule 1

All conditions have been varied by the consolidated permit as a result of an Environment Agency initiated variation.

Schedule 2 – consolidated permit

Consolidated permit issued as a separate document.

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/HP3230DJ

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/HP3230DJ/V003 authorising,

BioConstruct NewEnergy Ltd. (“the operator”),

whose registered office is

**P.O. Box SE1 3PH
54-58 Tanner Street
The Brandenburg Suite
Tanner Place
London
SE1 3PH**

company registration number 09112259

to operate an installation at

**Imperial Park Anaerobic Digestion Plant
Imperial Avenue
Imperial Park
South Bank
Middlesbrough
TS6 6BA**

to the extent authorised by and subject to the conditions of this permit.

Name	Date
Simon Hunt	18/09/2020

Authorised on behalf of the Environment Agency

Conditions

1 Management

1.1 General management

- 1.1.1 The operator shall manage and operate the activities:
- (a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and
 - (b) using sufficient competent persons and resources.
- 1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.
- 1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.
- 1.1.4 The operator shall comply with the requirements of an approved competence scheme.

1.2 Energy efficiency

- 1.2.1 The operator shall:
- (a) take appropriate measures to ensure that energy is used efficiently in the activities;
 - (b) review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and
 - (c) take any further appropriate measures identified by a review.

1.3 Efficient use of raw materials

- 1.3.1 The operator shall:
- (a) take appropriate measures to ensure that raw materials and water are used efficiently in the activities;
 - (b) maintain records of raw materials and water used in the activities;
 - (c) review and record at least every four years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and
 - (d) take any further appropriate measures identified by a review.

1.4 Avoidance, recovery and disposal of wastes produced by the activities

- 1.4.1 The operator shall take appropriate measures to ensure that:
- (a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities; and
 - (b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and
 - (c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.

- 1.4.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

2 Operations

2.1 Permitted activities

- 2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the “activities”).
- 2.1.2 The activities shall be undertaken in accordance with best available techniques.
- 2.1.3 All process plant and equipment shall be commissioned, operated and maintained and shall be fully documented and recorded in accordance with the manufacturer’s recommendations.

2.2 The site

- 2.2.1 The activities shall not extend beyond the site, being the land shown edged in red on the site plan at schedule 7 to this permit.

2.3 Operating techniques

- 2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Environment Agency.
- 2.3.2 If notified by the Environment Agency that the activities are giving rise to pollution, the operator shall submit to the Environment Agency for approval within the period specified, a revision of any plan or other documentation (“plan”) specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan, and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Environment Agency.
- 2.3.3 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.
- 2.3.4 Waste shall only be accepted if:
- (a) it is of a type and quantity listed in schedule 2 table S2.2; and
 - (b) it conforms to the description in the documentation supplied by the producer and holder.
 - (c) the facility has sufficient free capacity to store and treat the waste.
- 2.3.5 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:
- (a) the nature of the process producing the waste;
 - (b) the composition of the waste;
 - (c) the handling requirements of the waste;
 - (d) the hazardous property associated with the waste, if applicable; and
 - (e) the waste code of the waste.
- 2.3.6 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.
- 2.3.7 Waste pre-acceptance and acceptance procedures shall be undertaken in accordance with best available techniques.

2.3.8 For the following activities referenced in schedule 1, table S1.1 (AR4):

- (a) each MCP must be operated in accordance with the manufacturer's instructions and records must be made and retained to demonstrate this.
- (b) the operator must keep periods of start-up and shut-down of each MCP as short as possible.
- (c) there must be no persistent emission of 'dark smoke' as defined in section 3(1) of the Clean Air Act 1993.

2.4 Improvement programme

2.4.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by the Environment Agency.

2.4.2 Except in the case of an improvement which consists only of a submission to the Environment Agency, the operator shall notify the Environment Agency within 14 days of completion of each improvement.

3 Emissions and monitoring

3.1 Emissions to water, air or land

3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 table S3.1 and S3.2.

3.1.2 The limits given in schedule 3 shall not be exceeded.

3.1.3 Periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil, unless such monitoring is based on a systematic appraisal of the risk of contamination.

3.2 Emissions of substances not controlled by emission limits

3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.

3.2.2 The operator shall:

- (a) if notified by the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits;
- (b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.2.3 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

3.2.4 The operator shall implement a leak detection and repair (LDAR) programme to detect and mitigate the release of volatile organic compounds, including methane from all channelled emissions and emissions from diffuse sources.

3.3 Odour

3.3.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used

appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.

3.4 Noise and vibration

- 3.4.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.
- 3.4.2 The operator shall:
- (a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;
 - (b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.5 Monitoring

- 3.5.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, undertake the monitoring specified in the following tables in schedule 3 to this permit:
- (a) point source emissions specified in table S3.1 and S3.2; and
 - (b) process monitoring specified in table S3.3;
- 3.5.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.
- 3.5.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.5.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate), where available, unless otherwise agreed in writing by the Environment Agency.
- 3.5.4 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 tables S3.1 and S3.2 unless otherwise agreed in writing by the Environment Agency.
- 3.5.5 In the case of new medium combustion plant, the first monitoring measurements shall be carried out within four months of the issue date of the permit or the date when the MCP is first put into operation, whichever is later.
- 3.5.6 Monitoring shall not take place during periods of start-up or shut-down.

3.6 Pests

- 3.6.1 The activities shall not give rise to the presence of pests which are likely to cause pollution, hazard or annoyance outside the boundary of the site. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved pests management plan, have been taken to prevent or where that is not practicable, to minimise the presence of pests on the site.
- 3.6.2 The operator shall:
- (a) only use approved products for pest control;
 - (b) treat pest infestations promptly;

- (c) reject pest-infected incoming waste;
- (d) if notified by the Environment Agency, submit to the Environment Agency for approval within the period specified, a pests management plan which identifies and minimises risks of pollution from pests;
- (e) implement the pests management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.7 Fire prevention

- 3.7.1 The operator shall take all appropriate measures to prevent fires on site and minimise the risk of pollution from them including, but not limited to, those specified in any approved fire prevention plan.
- 3.7.2 The operator shall:
 - (a) if notified by the Environment Agency that the activities are giving rise to a risk of fire, submit to the Environment Agency for approval within the period specified, a fire prevention plan which prevents fires and minimises the risk of pollution from fires;
 - (b) implement the fire prevention plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

4 Information

4.1 Records

- 4.1.1 All records required to be made by this permit shall:
 - (a) be legible;
 - (b) be made as soon as reasonably practicable;
 - (c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and
 - (d) be retained, unless otherwise agreed in writing by the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:
 - (i) off-site environmental effects; and
 - (ii) matters which affect the condition of the land and groundwater.
- 4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by the Environment Agency.

4.2 Reporting

- 4.2.1 The operator shall send all reports and notifications required by the permit to the Environment Agency using the contact details supplied in writing by the Environment Agency.
- 4.2.2 A report or reports on the performance of the activities over the previous year shall be submitted to the Environment Agency by 31 January (or other date agreed in writing by the Environment Agency) each year. The report(s) shall include as a minimum:
 - (a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;
 - (b) the annual production/treatment data set out in schedule 4 table S4.2; and

- (c) the performance parameters set out in schedule 4 table S4.3 using the forms specified in table S4.4 of that schedule.
- 4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the Environment Agency, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:
- (a) in respect of the parameters and emission points specified in schedule 4 table S4.1;
 - (b) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.4; and
 - (c) giving the information from such results and assessments as may be required by the forms specified in those tables.
- 4.2.4 The operator shall, unless notice under this condition has been served within the preceding four years, submit to the Environment Agency, within six months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.
- 4.2.5 Within 1 month of the end of each quarter, the operator shall submit to the Environment Agency using the form made available for the purpose, the information specified on the form relating to the site and the waste accepted and removed from it during the previous quarter.
- 4.2.6 The operator shall keep records of non-waste materials leaving the site, including the type of material, the batch number, the date of export off-site and the tonnage exported on that date. These records shall be maintained for at least 2 years.

4.3 Notifications

- 4.3.1 In the event:
- (a) that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately—
 - (i) inform the Environment Agency,
 - (ii) take the measures necessary to limit the environmental consequences of such an incident or accident, and
 - (iii) take the measures necessary to prevent further possible incidents or accidents;
 - (b) of a breach of any permit condition the operator must immediately—
 - (i) inform the Environment Agency, and
 - (ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;
 - (c) of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.
- 4.3.2 Any information provided under condition 4.3.1 (a)(i), or 4.3.1 (b)(i) where the information relates to the breach of a limit specified in the permit, shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.
- 4.3.3 Following the detection of an issue listed in condition 4.3.1, the operator shall review and revise the management system and implement any changes as necessary to minimise the risk of reoccurrence of the issue.
- 4.3.4 Where the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this

information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.

4.3.5 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

Where the operator is a registered company:

- (a) any change in the operator's trading name, registered name or registered office address; and
- (b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Where the operator is a corporate body other than a registered company:

- (a) any change in the operator's name or address; and
- (b) any steps taken with a view to the dissolution of the operator.

In any other case:

- (a) the death of any of the named operators (where the operator consists of more than one named individual);
- (b) any change in the operator's name(s) or address(es); and
- (c) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.

4.3.6 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:

- (a) the Environment Agency shall be notified at least 14 days before making the change; and
- (b) the notification shall contain a description of the proposed change in operation.

4.3.7 The Environment Agency shall be given at least 14 days' notice before implementation of any part of the site closure plan.

4.3.8 The operator shall notify the Environment Agency as soon as is practicable, in writing of any change of the medium combustion plant.

4.4 Interpretation

4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.

4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made "immediately", in which case it may be provided by telephone.

Schedule 1 – Operations

Table S1.1 activities			
Activity reference	Activity listed in Schedule 1 of the EP Regulations	Description of specified activity and WFD Annex I and II operations	Limits of specified activity and waste types
AR1	S5.4 A(1) (b) (i) Recovery or a mix of recovery and disposal of non-hazardous waste with a capacity exceeding 75 tonnes per day (or 100 tonnes per day if the only waste treatment activity is anaerobic digestion) involving biological treatment.	R3: Recycling/reclamation of organic substances which are not used as solvents	<p>From receipt of waste through to digestion and recovery of by-products (digestate).</p> <p>Anaerobic digestion of waste in two primary fermentation tanks and one post fermentation tank followed by burning of biogas produced from the process.</p> <p>Waste types suitable for acceptance are limited to those specified in Table S2.2.</p> <p>Treatment of animal waste shall be limited to ten tonnes per day.</p>
Directly Associated Activity			
AR2	Storage of waste pending recovery	R13: Storage of waste pending the operations numbered R1 and R3 (excluding temporary storage, pending collection, on the site where it is produced)	<p>From the receipt of permitted waste to pre-treatment and despatch for anaerobic digestion on site.</p> <p>Storage of residual wastes from pre-treatment to despatch off-site for recovery.</p> <p>Storage of waste in an enclosed building fitted with appropriate odour abatement and on an impermeable surface with a sealed drainage system.</p> <p>All wastes to be stored in accordance with an approved odour management plan.</p> <p>Waste types suitable for acceptance are limited to those specified in Table S2.2.</p>

Table S1.1 activities			
Activity reference	Activity listed in Schedule 1 of the EP Regulations	Description of specified activity and WFD Annex I and II operations	Limits of specified activity and waste types
AR3	Physical treatment for the purpose of recycling	R3: Recycling/reclamation of organic substances which are not used as solvents	<p>From the receipt of waste to despatch for anaerobic digestion or despatch off site for recovery.</p> <p>Pre-treatment of seasonal garden waste (waste code 20 02 01) by manual sorting on an impermeable surface with a sealed drainage system.</p> <p>Mixing and maceration of waste in a sealed system (waste reception tanks).</p> <p>Heat treatment (pasteurisation) of waste in five tanks for the purpose of recovery, (including pre-maceration and screening).</p> <p>Gas cleaning by biological or physical (carbon filtration) or chemical scrubbing.</p> <p>Waste types suitable for acceptance are limited to those specified in Table S2.2.</p>
AR4	Steam and electrical power supply	R1: Use principally as a fuel to generate energy	<p>From the receipt of biogas produced at the on-site anaerobic digestion process to combustion with the release of combustion gases.</p> <p>Combustion of biogas in four combined heat and power (CHP) engines with an aggregated thermal input of 12.5 MW_{th}.</p>
AR5	Emergency flare operation	D10: Incineration on land	<p>From the receipt of biogas produced at the on-site anaerobic digestion process to incineration with the release of combustion gases.</p> <p>Use of one auxiliary flare required only during periods</p>

Table S1.1 activities			
Activity reference	Activity listed in Schedule 1 of the EP Regulations	Description of specified activity and WFD Annex I and II operations	Limits of specified activity and waste types
			of breakdown or maintenance of the CHP engines.
AR6	Raw material storage	Storage of raw materials including lubrication oil, antifreeze, iron chloride, activated carbon, diesel and anti-foaming agent.	From the receipt of raw materials to despatch for use within the facility.
AR7	Gas storage	R13: Storage of waste pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced)	Storage of biogas produced from on-site anaerobic digestion of permitted waste in roof space of digesters. From the receipt of biogas produced at the on-site anaerobic digestion process to despatch for use within the facility.
AR8	Digestate storage	R13: Storage of waste pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced)	From the receipt of processed uncertified digestate produced from the on-site anaerobic digestion process to despatch for use off-site. Storage of processed uncertified liquid digestate in four storage tanks.
AR9	Air treatment	Collection and treatment of air from the buildings or plant using abatement system – (carbon filters, acid scrubbers, particulate filters, U.V. treatment etc.) prior to release to atmosphere.	From the collection of air from site processes to treatment and release of treated air to atmosphere.

Table S1.2 Operating techniques		
Description	Parts	Date Received
Application EPR/HP3230DJ/A001	<p>The following documents submitted in response to Part B3 of the application form:</p> <ul style="list-style-type: none"> • “BAT statement” (May 2016, ref. NT12050/005; • “Operating Techniques” (May 2016, ref. NT12050/003; and • “Odour Management Plan” (May 2016, ref. NT12687/001), <p>As superseded / supplemented by the additional information referenced in this table below.</p>	14/06/2016

Table S1.2 Operating techniques		
Description	Parts	Date Received
Additional information	<p>The following parts of the letter received from Wardell Armstrong dated 28/11/2016, ref. DB/ST/NT12050/004:</p> <ul style="list-style-type: none"> • Items 1.1, 1.2, 1.3 and 1.4 (b) relating to the Odour Management Plan; • Item 3.1 relating to the quarantine area; and • Item 3.2 and associated appendices relating to the drainage and bund arrangements, (to include maintenance of the vehicular access “flood gates” in accordance with the manufacturers recommendations). 	28/11/2016
Response to Regulation 61 Notice dated 19/07/2019	<ul style="list-style-type: none"> • Annex 1 Returns Spreadsheet • Compliance and operating techniques identified in response to BAT Conclusions 1 to 8, 10 to 24 and 33 to 38 in the Waste Treatment BREF published on 17 August 2018. 	Received 20/02/2020

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
Improvement condition for progress report to achieve BAT-AELs		
IC 01	<p>The operator shall carry out a monitoring study in order to verify the assumptions made in the application in relation to the emission concentration of sulphur dioxide to air.</p> <p>The study shall include quantification of the actual sulphur dioxide emission concentration from the gas engine multi-flue stack, (emission points A1 to A4) by either:</p> <ul style="list-style-type: none"> – representative monitoring of sulphur dioxide stack emissions; or – calculation from the continuous hydrogen sulphide monitoring of the feed gas. 	Complete
IC 02	<p>Using the emission concentration established in accordance with improvement condition IC01 above, the operator shall submit a risk assessment of sulphur dioxide emissions to air to the Environment Agency for review.</p> <p>This risk assessment shall be carried out in accordance with Environment Agency Guidance: ‘<i>Air emissions risk assessment for your environmental permit</i>’ and shall also include:</p> <ul style="list-style-type: none"> – details of how the sulphur dioxide emission concentration has been derived; – a proposed emission limit value and monitoring for sulphur dioxide if the process contribution or predicted environmental concentration is considered significant in relation to an environmental standard; and – a timetable for the implementation of any measures for further action that have been identified in the risk assessment. <p>Once agreed in writing by the Environment Agency, any emission limit value and monitoring shall be implemented and form part of schedule 3, table S3.1 of this permit.</p> <p>Any identified further actions shall be implemented as agreed in writing by the Environment Agency.</p>	18/03/2021

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC 03	<p>The operator shall submit a report of the commissioning of the odour abatement system to the Environment Agency that shall include, but not be limited to:</p> <ul style="list-style-type: none"> – odour control and abatement systems performance; and – details of any additional procedures developed during commissioning for achieving satisfactory process control and compliance with permit conditions relating to odour. 	Complete
IC 04	<p>The operator shall submit a report of the commissioning of the bund vehicular access 'flood gates' to the Environment Agency that shall include, but not be limited to:</p> <ul style="list-style-type: none"> – a review of the effectiveness of the functioning and containment provided by the flood gates; and – details of any additional procedures developed during commissioning for achieving satisfactory containment. 	18/03/2021
Improvement condition for progress report to achieve BAT-AEL		
IC 05	<p>The operator shall submit, for approval by the Environment Agency, a report setting out progress to achieving the Best Available Techniques Conclusion Associated Emission Levels (BAT-AELs) where BAT is currently not achieved, but will be achieved before 17 August 2022. The report shall include, but not be limited to, the following:</p> <ol style="list-style-type: none"> 1) Current performance against the BAT-AELs 2) Methodology for reaching the BAT-AELs and associated monitoring requirements 3) Associated targets/timelines for reaching compliance by 17 August 2022 4) Any alterations to the initial plan (in progress reports). <p>The report shall address the BAT Conclusions for Waste Treatment with respect to the following:</p> <ul style="list-style-type: none"> • BAT 34 Table 6.7 (compliance with BAT-AEL for channelled NH₃ from the biological treatment of waste) <p><i>Refer to BAT Conclusions for a full description of the BAT requirement.</i></p>	<p>Progress reports at six monthly intervals from date of permit issue:</p> <p>18/03/2021</p> <p>18/09/2021</p> <p>18/03/2022</p>
Improvement condition for progress reports to achieve Narrative BAT		
IC 06	<p>The operator shall submit, for approval by Environment Agency, a report setting out progress to achieving the 'Narrative' BAT where BAT is currently not achieved, but will be achieved before 17 August 2022. The report shall include, but not be limited to, the following:</p> <ol style="list-style-type: none"> 1) Methodology for achieving BAT 2) Associated targets/timelines for reaching compliance by 17 August 2022 3) Any alterations to the initial plan (in progress reports). <p>The report shall address the BAT Conclusions for Waste Treatment with respect to:</p> <ul style="list-style-type: none"> • BAT 3 (in relation to <u>waste gas</u> emissions) <p>In order to facilitate the reduction of emissions to air, BAT is to establish and to maintain an inventory of waste gas streams, as part of the environmental management system (see BAT 1).</p>	<p>Progress reports at six monthly intervals from date of permit issue:</p> <p>18/03/2021</p> <p>18/09/2021</p> <p>18/03/2022</p>

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
	<ul style="list-style-type: none"> • BAT 12 Review, update and implement the Odour Management Plan for the site. In particular in relation to an odour prevention and reduction programme designed to identify the source, to characterise the contributions of the sources and to implement prevention/reduction measures. Include the operating parameters, current limits and design criteria of the odour abatement plant. • BAT 14 (h) Set up and implement a leak detection and repair (LDAR) programme for organic compounds emissions. This is a structured approach to reduce fugitive emissions of organic compounds by detection and subsequent repair or replacement of leaking components. • BAT 23 (a) Draw up and implement an energy efficiency plan. <p><i>Refer to BAT Conclusions for a full description of the BAT requirement.</i></p>	
Improvement condition for primary containment		
IC 07	<p>The operator shall submit a written 'primary containment plan' and shall obtain the Environment Agency's written approval to it. The plan shall contain the results of a review conducted, by a competent person, and shall compare the design specification of primary containment systems where all polluting liquids and solids are being stored, treated, and/or handled against the design standards within CIRIA C535 guidance or equivalent.</p> <p>The review shall include:</p> <ul style="list-style-type: none"> • physical condition of all primary containment systems (storage and treatment vessels); • the suitability for providing primary containment when subjected to the dynamic and static loads caused by the vessels' contents; • any work required to ensure compliance with the standards set out in CIRIA C535 or equivalent; and • a preventative maintenance and inspection regime <p>The plan must contain dates for the implementation of individual improvement measures necessary for the primary containment to adhere to the standards detailed/referenced within CIRIA C535 guidance, or equivalent.</p> <p>The plan shall be implemented in accordance with the Environment Agency's written approval.</p>	18/09/2021
Improvement condition for secondary containment design		
IC 08	<p>The operator shall submit a written 'secondary and tertiary containment plan' and shall obtain the Environment Agency's written approval to it. The plan shall contain the results of a review conducted, by a competent person, in accordance with the risk assessment methodology detailed within CIRIA C736 (2014) guidance, of the condition and extent of secondary and tertiary</p>	18/09/2021

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
	<p>containment systems where all polluting liquids and solids are being stored, treated, and/or handled.</p> <p>The review shall consider, but not limited to, the storage vessels, bunds, loading and unloading areas, transfer pipework/pumps, temporary storage areas, and liners underlying the site.</p> <p>The plan must contain dates for the implementation of individual improvement measures necessary for the secondary and tertiary containment systems to adhere to the standards detailed/referenced within CIRIA C736 (2014) guidance, or equivalent.</p> <p>The plan shall be implemented in accordance with the Environment Agency's written approval.</p>	
Improvement condition for assessment of methane slip		
IC09	<p>The operator shall establish the methane emissions in the exhaust gas from engines burning biogas and compare these to the manufacturer's specification and benchmark levels agreed in writing with the Environment Agency. The operator shall, as part of the methane leak detection and repair (LDAR) programme, develop proposals to assess the potential for methane slip and take corrective actions where emissions above the manufacturer's specification or appropriate benchmark levels are identified.</p>	18/09/2021
Improvement condition for review of effectiveness of abatement plant		
IC10	<p>The operator shall carry out a review of the abatement plant on site, in order to determine whether the measures have been effective and adequate to prevent and where not possible minimise emissions released to air including but not limited to odour and ammonia.</p> <p>The operator shall submit a written report to the Environment Agency following this review for assessment and approval.</p> <p>The report shall include but not limited to the following aspects:</p> <ul style="list-style-type: none"> • Full investigation and characterisation of the waste gas streams. • Abatement stack monitoring results (not limited to odour and ammonia) • Abatement process monitoring results (not limited to odour and ammonia) • Details of air quality quantitative impact assessment including modelling and a proposal for site-specific "action levels" (not limited to odour concentration, hydrogen sulphide and ammonia). • Odour monitoring results at the site boundary • Records of odour complaints and odour related incidents • Details of air quality quantitative impact assessment including modelling and a proposal for site-specific "action levels" (not limited to odour concentration, hydrogen sulphide and ammonia). 	18/09/2021

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
	<ul style="list-style-type: none"> • Recommendations for improvement including the replacement or upgrading the abatement plant • Timescales for implementation of improvements to the abatement plant <p>The operator shall implement the improvements in line with the timescales as approved by the Environment Agency.</p>	
Improvement condition for review of abatement plant design		
IC11	<p>The operator shall submit to the Environment Agency a written review report of the design details of the site ventilation system and abatement plant and obtain the Environment Agency's written approval to it.</p> <p>The report shall include but not limited to:</p> <ol style="list-style-type: none"> a) Ventilation design performance criteria for effective fugitive odorous emission control b) Design of the abatement systems that will ensure compliance with the odour condition 3.3. The report shall include a demonstration (whether by a detailed review of technical papers or by trial results) that all odorous chemical compounds and their loading rates expected in the relevant air streams have been considered in the design; and supporting evidence that the odorous compounds will be controlled and/or abated either by operating techniques or by the proposed abatement systems. c) Design alarms and triggers for each relevant scenario to alert the operator to the malfunction of both ventilation and abatement systems. The report should further list all relevant contingency mitigation actions to minimise risk of elevated odour pollution from the installation linked to each malfunction scenario and detail the actions to restore systems to normal operating conditions for effective odour control. <p>Ventilation and abatement systems should be designed by suitably qualified named engineers who can supervise and sign-off on construction quality assurance.</p>	18/09/2021

Schedule 2 – Waste types, raw materials and fuels

Raw materials and fuel description	Specification
Vegetable matter (energy crops)	Substantially free of non-vegetable matter
Maize silage	Substantially free of non-vegetable matter

Maximum quantity	Annual throughput shall not exceed 109,500 tonnes
Exclusions	<p>Wastes having any of the following characteristics shall not be accepted:</p> <ul style="list-style-type: none"> separately collected loads of plastic unless the whole load is certified compostable to BS EN13432 co-mingled green and food waste containing more than 5% w/w plastic, unless the plastic is certified compostable to BS EN 13432 food wastes containing more than 5% w/w plastic unless there is sufficient technology to remove non-compostable plastic prior to treatment from package food waste to a processing limit of 1% w/w or decreasing year on year by 2025. wastes containing wood-preserving agents or other biocides and post-consumer wood wastes containing persistent organic pollutants wastes containing Japanese Knotweed or other invasive plant species listed in the Alien Invasive Species Regulations 2014 manures, slurries and spoiled bedding and straw from farms where animals have notifiable diseases as stipulated in the Animal By-Products (Enforcement) (England) Regulations 2013.
Waste code	Description
02	Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing
02 01	wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing
02 01 01	sludges from washing and cleaning – vegetables, fruit and other crops
02 01 02	animal tissue waste
02 01 03	plant tissue waste
02 01 06	animal faeces, urine and manure (including spoiled straw) only
02 01 07	wastes from forestry
02 01 99	residues from commercial mushroom cultivation
02 02	wastes from the preparation and processing of meat, fish and other foods of animal origin
02 02 01	sludges from washing and cleaning
02 02 02	animal tissue waste
02 02 03	materials unsuitable for consumption or processing
02 02 04	sludges from on-site effluent treatment

Table S2.2 Permitted waste types and quantities for anaerobic digestion	
Maximum quantity	Annual throughput shall not exceed 109,500 tonnes
Exclusions	<p>Wastes having any of the following characteristics shall not be accepted:</p> <ul style="list-style-type: none"> • separately collected loads of plastic unless the whole load is certified compostable to BS EN13432 • co-mingled green and food waste containing more than 5% w/w plastic, unless the plastic is certified compostable to BS EN 13432 • food wastes containing more than 5% w/w plastic unless there is sufficient technology to remove non-compostable plastic prior to treatment from package food waste to a processing limit of 1% w/w or decreasing year on year by 2025. • wastes containing wood-preserving agents or other biocides and post-consumer wood • wastes containing persistent organic pollutants • wastes containing Japanese Knotweed or other invasive plant species listed in the Alien Invasive Species Regulations 2014 • manures, slurries and spoiled bedding and straw from farms where animals have notifiable diseases as stipulated in the Animal By-Products (Enforcement) (England) Regulations 2013.
Waste code	Description
02 03	wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee, tea and tobacco preparation and processing; conserve production; yeast and yeast extract production, molasses preparation and fermentation
02 03 01	sludges from washing, cleaning, peeling, centrifuging and separation
02 03 04	materials unsuitable for consumption or processing
02 03 05	sludges from on-site effluent treatment
02 04	wastes from sugar processing
02 04 03	sludges from on-site effluent treatment
02 05	wastes from the dairy products industry
02 05 01	materials unsuitable for consumption or processing
02 05 02	sludges from on-site effluent treatment
02 06	wastes from the baking and confectionery industry
02 06 01	materials unsuitable for consumption or processing
02 06 03	sludges from on-site effluent treatment
02 07	wastes from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa)
02 07 01	wastes from washing, cleaning and mechanical reduction of raw materials
02 07 02	wastes from spirits distillation
02 07 04	materials unsuitable for consumption or processing
02 07 05	sludges from on-site effluent treatment
03	Wastes from wood processing and the production of panels and furniture, pulp, paper and cardboard
03 01	wastes from wood processing and the production of panels and furniture
03 01 05	sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04
03 03	wastes from pulp, paper and cardboard production and processing

Table S2.2 Permitted waste types and quantities for anaerobic digestion	
Maximum quantity	Annual throughput shall not exceed 109,500 tonnes
Exclusions	<p>Wastes having any of the following characteristics shall not be accepted:</p> <ul style="list-style-type: none"> separately collected loads of plastic unless the whole load is certified compostable to BS EN13432 co-mingled green and food waste containing more than 5% w/w plastic, unless the plastic is certified compostable to BS EN 13432 food wastes containing more than 5% w/w plastic unless there is sufficient technology to remove non-compostable plastic prior to treatment from package food waste to a processing limit of 1% w/w or decreasing year on year by 2025. wastes containing wood-preserving agents or other biocides and post-consumer wood wastes containing persistent organic pollutants wastes containing Japanese Knotweed or other invasive plant species listed in the Alien Invasive Species Regulations 2014 manures, slurries and spoiled bedding and straw from farms where animals have notifiable diseases as stipulated in the Animal By-Products (Enforcement) (England) Regulations 2013.
Waste code	Description
03 03 02	green liquor sludge
03 03 08	paper and cardboard – not allowed if any non biodegradable coating or preserving substance is present
03 03 10	fibre rejects, fibre-, filler- and coating-sludges from mechanical separation
03 03 11	sludges from on-site effluent treatment other than those mentioned in 03 03 10
04	Wastes from the leather, fur and textile industries
04 01	wastes from the leather and fur industry
04 01 01	fleshings and lime split wastes
04 01 05	tanning liquor free of chromium
04 01 07	sludges not containing chromium
04 02	wastes from the textile industry
04 02 10	organic matter from natural products, e.g. grease, wax
07	Wastes from organic chemical processes
07 01	wastes from the manufacture, formulation, supply and use (MFSU) of basic organic chemicals
07 01 08*	glycerol waste from bio-diesel manufacture from non-waste vegetable oils only
15	Waste packaging, absorbents, wiping cloths, filter materials and protective clothing not otherwise specified
15 01	packaging (including separately collected municipal packaging waste)
15 01 01	paper and cardboard packaging – excludes laminates such as Tetrapaks and must conform to BS EN 13432 and not allowed if any non-biodegradable coating or preserving substance is present
15 01 02	biodegradable plastic packaging – must conform to BS EN 13432 and not allowed if any non-biodegradable coating or preserving substance is present
15 01 03	untreated wooden packaging – not allowed if any non-biodegradable coating or preserving substance is present

Table S2.2 Permitted waste types and quantities for anaerobic digestion	
Maximum quantity	Annual throughput shall not exceed 109,500 tonnes
Exclusions	<p>Wastes having any of the following characteristics shall not be accepted:</p> <ul style="list-style-type: none"> separately collected loads of plastic unless the whole load is certified compostable to BS EN13432 co-mingled green and food waste containing more than 5% w/w plastic, unless the plastic is certified compostable to BS EN 13432 food wastes containing more than 5% w/w plastic unless there is sufficient technology to remove non-compostable plastic prior to treatment from package food waste to a processing limit of 1% w/w or decreasing year on year by 2025. wastes containing wood-preserving agents or other biocides and post-consumer wood wastes containing persistent organic pollutants wastes containing Japanese Knotweed or other invasive plant species listed in the Alien Invasive Species Regulations 2014 manures, slurries and spoiled bedding and straw from farms where animals have notifiable diseases as stipulated in the Animal By-Products (Enforcement) (England) Regulations 2013.
Waste code	Description
15 01 05	composite packaging – must conform to BS EN 13432 and not allowed if any non-biodegradable coating or preserving substance is present
16	Wastes not otherwise specified in the list
16 10	aqueous liquid wastes destined for off-site treatment
16 10 02	liquor/leachate from a composting process that accepts waste input types listed in this table only
19	Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use
19 02	wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)
19 02 03	waste types listed within this table, Table S2.2, that have been mixed together only
19 02 06	sludge types from waste listed within this table, Table S2.2, that have been heat treated only
19 05	wastes from aerobic treatment of solid wastes
19 05 01	non-composted fraction of municipal and similar wastes
19 05 02	non-composted fraction of animal and vegetable waste
19 05 03	off-specification compost
19 06	wastes from anaerobic treatment of waste
19 06 03	liquor from anaerobic treatment of municipal waste (from a process that treats wastes which are listed in this table only)
19 06 04	digestate from anaerobic treatment of source segregated biodegradable waste (from a process that treats wastes which are listed in this table only)
19 06 05	liquor from anaerobic treatment of animal and vegetable waste (from a process that treats wastes which are listed in this table only)
19 06 06	digestate from anaerobic treatment of animal and vegetable waste (from a process that treats wastes which are listed in this table only)
19 08	wastes from waste water treatment plants not otherwise specified

Table S2.2 Permitted waste types and quantities for anaerobic digestion	
Maximum quantity	Annual throughput shall not exceed 109,500 tonnes
Exclusions	<p>Wastes having any of the following characteristics shall not be accepted:</p> <ul style="list-style-type: none"> separately collected loads of plastic unless the whole load is certified compostable to BS EN13432 co-mingled green and food waste containing more than 5% w/w plastic, unless the plastic is certified compostable to BS EN 13432 food wastes containing more than 5% w/w plastic unless there is sufficient technology to remove non-compostable plastic prior to treatment from package food waste to a processing limit of 1% w/w or decreasing year on year by 2025. wastes containing wood-preserving agents or other biocides and post-consumer wood wastes containing persistent organic pollutants wastes containing Japanese Knotweed or other invasive plant species listed in the Alien Invasive Species Regulations 2014 manures, slurries and spoiled bedding and straw from farms where animals have notifiable diseases as stipulated in the Animal By-Products (Enforcement) (England) Regulations 2013.
Waste code	Description
19 08 09	grease and oil mixture from oil/water separation containing only edible oil and fats
19 08 12	sludges from biological treatment of industrial waste water (from a process that treats wastes which are listed in this table only).
19 12	wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified
19 12 12	waste types listed in this table, Table S2.2, that have been subjected to mechanical treatment only (from a process that treats wastes which are listed in this table only).
20	Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions
20 01	separately collected fractions (except 15 01)
20 01 01	paper and cardboard packaging – excludes laminates such as Tetrapaks and must conform to BS EN 13432 and not allowed if any non-biodegradable coating or preserving substance is present.
20 01 08	biodegradable kitchen and canteen waste
20 01 25	edible oil and fat
20 02	garden and park wastes (including cemetery waste)
20 02 01	biodegradable waste
20 03	other municipal wastes
20 03 01	mixed municipal waste – only separately collected biodegradable wastes of types listed within this table, Table S2.2
20 03 02	waste from markets – allowed only if source segregated biodegradable fractions e.g. plant material, fruit and vegetables

Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
Existing medium combustion plant which are engines fuelled on biogas (1 – 5 MW)						
A1 to A4 [Point A1 to A4 on site plan in Schedule 7]	Individual 28.25 metre high flues from CHP engines 1 to 4, contained within a common windshield/stack <small>[note 1]</small>	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	500 mg/m ³	Average over sample period	Annual	BS EN 14792
		Sulphur dioxide	350 mg/m ³ <small>[note 2]</small>			BS EN 14791 or CEN TS 17021 or by calculation based on fuel sulphur
		Sulphur dioxide	162 mg/m ³ <small>[note 3]</small>			
		Carbon monoxide	1400 mg/m ³			BS EN 15058
		Total VOCs	No limit set			--
A5 [Point A5 on site plan in schedule 7]	Emergency flare stack with a combustion temperature of at least 1,000°C and a residence time of at least 0.3 seconds <small>[note 4]</small>	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	150 mg/m ³	Average over sample period	<small>[note 5]</small>	BS EN 14792
		Carbon monoxide	50 mg/m ³			BS EN 15058
		Total VOCs	10 mg/m ³			BS EN 12619
A6 [Point A6 on site plan in schedule 7]	Odour abatement stack	Hydrogen sulphide	No limit set	Average over sample period	Once every 6 months	CEN TS 13649 for sampling NIOSH 6013 for analysis
		Ammonia	20 mg/m ³ <small>[Note 6]</small>	Average over sample period	Once every 6 months	EN ISO 21877
		Odour concentration	No limit set	--	Once every 6 months	BS EN 13725
Pressure relief valves	Digesters/Digestate storage tank(s)	Biogas release and	No limit set	Recorded duration	Daily inspection	--

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
		operational events		and frequency		
Vents from tank(s)	Oil/Fuel Storage tank(s)	No parameter set	No limit set	--	--	--

Note 1 – These emission limits are based on normal operating conditions and load - temperature 0°C (273 K); pressure 101.3 kPa and oxygen 5% (for gas engines burning biogas) and oxygen 3% (for medium combustion plants other than engines and gas turbines burning biogas).

Note 2 – This emission limit applies until 31 December 2024, unless otherwise advised by the Environment Agency and /or the gas engine is replaced.

Note 3 – This emission limit applies from 1 January 2025, unless otherwise advised by the Environment Agency.

Note 4 – These emission limits are based on normal operating conditions and load - temperature 0°C (273K); pressure 101.3 kPa and oxygen 3%.

Note 5 – Following commissioning, monitoring to be undertaken in the event the emergency flare has been operational for more than 10 per cent of a year (876 hours). Record of operating hours to be submitted annually to the Environment Agency.

Note 6 – The emission limit applies from 17 August 2022, unless otherwise advised by the Environment Agency

Table S3.2 Point source emissions to water – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (incl. unit)	Reference Period	Monitoring frequency	Monitoring standard or method
W1 on site plan in schedule 7 emission to surface water sewer	Uncontaminated site surface water from roofs and non-operational areas ^[Note 1]	No parameter set	No limit set	--	Weekly	Visual assessment – no visible oil or grease

Note 1 – Clean surface water from roofs, or from areas of the site that are not being used in connection with storing and treating waste can be discharged directly to surface waters, or to groundwater by seepage through the soil via a soakaway.

Table S3.3 Process monitoring requirements				
Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
Digester feed (digestion process)	pH	As described in site operating techniques	As described in site operating techniques	Process monitoring to be recorded using a SCADA system where relevant.
	Alkalinity			
	Temperature			
	Hydraulic loading rate			
	Organic loading rate			
	Volatile fatty acids concentration			
	Ammonia			
	Liquid / foam level			
Biogas in digester	Flow	Continuous	In accordance with EU weights and measures Regulations	Process monitoring to be recorded using a SCADA system where relevant. Gas monitors to be calibrated every 6 months or in accordance with the manufacturer's recommendations.
	Methane	Continuous	None specified	
	CO ₂	Continuous	None specified	
	O ₂	Continuous	None specified	
	Pressure	Continuous	None specified	
	Hydrogen sulphide	Daily	None specified	
Digestate batch	Volatile fatty acids concentration	One sample at the end of each batch (hydraulic retention time) cycle.	As described in site operating techniques	--
	Ammonia			
Digesters and storage tanks	Integrity checks	Weekly	Visual assessment	--
Digesters	Agitation / mixing	Continuous	Systems controls. Yearly lithium or thermal imaging.	Records maintained in daily operational records.
	Tank capacity and sediment assessment	Once a year		In accordance with design specification and tank integrity checks.
Waste reception building or area; Digesters and storage tanks	Odour	Daily	Olfactory monitoring	Odour detection at the site boundary.

Table S3.3 Process monitoring requirements				
Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
Odour abatement - Acid scrubber	Gas temperature – inlet and outlet	Continuous	Temperature probe / traceable to national standards	Odour abatement plant shall be regularly checked and maintained to ensure appropriate temperature and moisture content. Carbon filter(s) to be replaced when saturated in accordance with manufacturer's recommendations.
	Moisture content or humidity – outlet (for wet scrubbers if used before other abatement)	Daily	Moisture meter	
	Back pressure	Weekly	Pressure differential using sensors	
	Efficiency assessment	Annually	Emission removal efficiency (BS EN 13725 for odour removal)	The odour abatement plant shall be managed in accordance with permit condition 3.3, the odour management plan and manufacturer's recommendations.
	Gas flow rate – inlet and outlet	Continuous	Gas flow meter / EN 16911-1 and MID for EN 16911-1	Equipment shall be calibrated on a 4 monthly basis, or as agreed in writing by the Environment Agency
	pH scrubber solution (pre-abatement)	Continuous	pH meter	
	pH scrubber solution (post-abatement)	Continuous	pH meter	
	Hydrogen sulphide – inlet and outlet gas stream	Every 6 months or as agreed in writing by the Environment Agency.	CEN TS 13649 for sampling NIOSH 6013 for analysis	
Ammonia – inlet	Every 6 months or as agreed in writing by the	EN ISO 21877	Action levels to be agreed on completion of	

Table S3.3 Process monitoring requirements				
Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
		Environment Agency.		IC10 as approved in writing by the Environment Agency. Action levels to be achieved in accordance with permit condition 3.2 and the odour management plan.
Odour abatement – carbon filter	Carbon bed temperature – inlet and outlet	Continuous	Temperature probe	Odour abatement plant shall be managed in accordance with permit condition 3.3, the odour management plan and manufacturer's recommendations. Carbon filter(s) to be replaced in accordance with manufacturer's recommendations. Equipment shall be calibrated on a 4 monthly basis, or as agreed in writing by the Environment Agency.
	Gas flow rate – inlet and outlet	Continuous	Gas flow meter	
	Moisture or humidity	Daily	Moisture meter	
	Back pressure	Weekly	Recognised industry method	
	Efficiency assessment	Annually	Emission removal efficiency (BS EN 13725 for odour removal)	
	Hydrogen sulphide – inlet and outlet gas stream	Every 6 months or as agreed in writing by the Environment Agency.	CEN TS 13649 for sampling NIOSH 6013 for analysis	Action levels to be agreed on completion of IC10 as approved in writing by the Environment Agency. Action levels to be achieved in accordance with permit condition 3.2 and the odour management plan.
	Ammonia - inlet	Every 6 months or as agreed in	EN ISO 21877	Action levels to be agreed on

Table S3.3 Process monitoring requirements				
Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
		writing by the Environment Agency.		completion of IC10 as approved in writing by the Environment Agency. Action levels to be achieved in accordance with permit condition 3.2 and the odour management plan.
Diffuse emissions from all sources identified in the Leak Detection and Repair (LDAR) programme	VOCs including methane	Every 6 months or otherwise agreed in accordance with the LDAR programme	In accordance with the LDAR programme	Leak detection and repair (LDAR) programme in accordance with permit condition 3.2.4.
CHP engine stack(s)	VOCs including methane	Annually	BS EN 12619	Total annual VOCs emissions from the CHP engine(s) to be calculated and submitted to the Environment Agency.
	Exhaust gas temperature		Traceable to National Standards	-
	Exhaust gas pressure		Traceable to National Standards	-
	Exhaust gas water vapour content		BS EN 14790-1	Unless gas is dried before analysis of emissions.
	Exhaust gas oxygen		BS EN 14789	-
	Exhaust gas flow		BS EN 16911-1	-
Meteorological conditions	Wind speed, air temperature, wind direction	Continuous	Method as specified in management system	Conditions to be recorded in operational diary and records. Equipment shall be calibrated on a 4 monthly basis, in accordance with manufacturer's

Table S3.3 Process monitoring requirements				
Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
				recommendations or as agreed in writing by the Environment Agency.
Emergency flare	Operating hours	Continuous	Recorded duration and frequency. Recording using a SCADA system or similar system	Date, time and duration of use of auxiliary flare shall be recorded.
Pressure relief valves	Biogas release and operational events	Daily inspection	Recorded duration and frequency.	Operational record including date, time duration of pressure relief events and calculated annual mass release. Pressure relief valves to be re-seated after release.

Schedule 4 – Reporting

Parameters, for which reports shall be made, in accordance with conditions of this permit, are listed below.

Table S4.1 Reporting of monitoring data			
Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Emissions to air from CHP engines Parameters as required by condition 3.5.1.	A1, A2, A3, A4	Every 12 months	1 January
Emissions to air from emergency flare Parameters as required by condition 3.5.1.	A5 (subject to the requirements of Table S3.1)	Every 12 months	1 January
Emissions to air from odour abatement plant Parameters as required by condition 3.5.1.	A6	Every 6 months	1 January, 1 July
Process monitoring Parameters as required by condition 3.5.1	As specified in schedule 3 table S3.3	Every 12 months	1 January
Total annual VOCs emissions from gas engines (calculated)	As specified in schedule 3 table S3.3	Every 12 months	1 January

Table S4.2 Annual production/treatment	
Parameter	Units
Electricity generated	MWh
Liquid digestate	tonnes or m ³
Non-waste outputs	tonnes

Table S4.3 Performance parameters		
Parameter	Frequency of assessment	Units
Water usage	Annually	tonnes or m ³
Energy usage	Annually	MWh
Emergency flare operation	Annually	hours
Electricity exported	Annually	MWh
CHP engine usage	Annually	hours
CHP engine efficiency	Annually	%

Table S4.4 Reporting forms		
Media/parameter	Reporting format	Date of form
Air	Form air 1 or other form as agreed in writing by the Environment Agency	18/09/2020

Table S4.4 Reporting forms		
Media/parameter	Reporting format	Date of form
Process monitoring	Form process 1 or other form as agreed in writing by the Environment Agency	18/09/2020
Water usage	Form water usage 1 or other form as agreed in writing by the Environment Agency	20/12/2016
Energy usage	Form energy 1 or other form as agreed in writing by the Environment Agency	20/12/2016
Other performance indicators	Form performance 1 or other form as agreed in writing by the Environment Agency	20/12/2016
Waste returns	E-waste Return Form or other form as agreed in writing by the Environment Agency	--

Schedule 5 – Notification

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

Part A

Permit Number	
Name of operator	
Location of Facility	
Time and date of the detection	

(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution	
To be notified within 24 hours of detection	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Measures taken, or intended to be taken, to stop the emission	

Time periods for notification following detection of a breach of a limit	
Parameter	Notification period

(c) Notification requirements for the detection of any significant adverse environmental effect	
To be notified within 24 hours of detection	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B – to be submitted as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 – Interpretation

“accident” means an accident that may result in pollution.

“ADQP” means Anaerobic Digestion Quality Protocol

“anaerobic digestion” means a process of controlled decomposition of biodegradable materials under managed conditions where free oxygen is absent, at temperatures suitable for naturally occurring mesophilic or thermophilic anaerobes and facultative anaerobe bacteria species, which convert the inputs to a methane-rich biogas and whole digestate.

“animal waste” means any waste consisting of animal matter that has not been processed into food for human consumption.

“application” means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

“authorised officer” means any person authorised by the Environment Agency under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in section 108(4) of that Act.

“Best available techniques” means the most effective and advanced stage in the development of activities and their methods of operation which indicates the practical suitability of particular techniques for providing the basis for emission limit values and other permit conditions designed to prevent and, where that is not practicable, to reduce emissions and the impact on the environment as a whole:

(a) ‘techniques’ includes both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned;

(b) ‘available techniques’ means those developed on a scale which allows implementation in the relevant industrial sector, under economically and technically viable conditions, taking into consideration the costs and advantages, whether or not the techniques are used or produced inside the Member State in question, as long as they are reasonably accessible to the operator;

(c) ‘best’ means most effective in achieving a high general level of protection of the environment as a whole.

“Biodegradable” means a material is capable of undergoing biological anaerobic or aerobic degradation leading to the production of CO₂, H₂O, methane, biomass, and mineral salts, depending on the environmental conditions of the process.

“building” means a construction that has the objective of providing sheltering cover and minimising emissions of noise, particulate matter, odour and litter.

“Capacity” means the potential capacity and not historical or actual production levels or throughput. This means that the designed capacity is the maximum rate at which the site can operate. Biological treatment of waste usually takes place over more than one day, so the physical daily capacity can be calculated by dividing the maximum quantity of waste that could be subject to biological treatment at any one time by the minimum residence time. For in-vessel composting, the residence time for sanitisation should be calculated separately and then aggregated to the complete composting time.

“channelled emissions” means the emissions of pollutants into the environment through any kind of duct, pipe, stack, etc. This also includes emissions from open top biofilters.

“combined heat and power” (CHP) or Cogeneration means the simultaneous generation in one process of thermal energy and electrical or mechanical energy.

“compostable plastics” means plastics that are certified to meet the standards of EN 13432, EN 14995 or equivalent and is capable of breaking down by microbial digestion to create compost.

“diffuse emissions” mean non-channelled emissions (e.g. of dust, organic compounds, odour) which can result in ‘area’ sources (e.g. tanks) or ‘point’ sources (e.g. pipe flanges). This also includes emissions from open-air windrow composting.

“digestate” means material resulting from an anaerobic digestion process.

“disposal” means any of the operations provided for in Annex I to Directive 2008/98/EC of the European Parliament and of the Council on waste.

“emissions of substances not controlled by emission limits” means emissions of substances to air, water or land from the activities, either from the emission points specified in schedule 3 or from other localised or diffuse sources, which are not controlled by an emission limit.

“emissions to land” includes emissions to groundwater.

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations SI 2016 No.1154 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

“existing medium combustion plant” means an MCP which was put into operation before 20 December 2018.

“generator” means any combustion plant which is used to generate electricity, excluding mobile, unless it is connected to the national grid.

“groundwater” means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

“impermeable surface” means a surface or pavement constructed and maintained to a standard sufficient to prevent the transmission of liquids beyond the pavement surface.

“Industrial Emissions Directive” means DIRECTIVE 2010/75/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 November 2010 on industrial emissions

“Leak detection and repair (LDAR) programme” means a structured approach to reduce fugitive emissions of organic compounds by detection and subsequent repair or replacement of leaking components. Currently, sniffing (described by EN 15446) and optical gas imaging methods are available for the identification of leaks as set out in BAT 14 and section 6.6.2 of the Waste Treatment BAT Conclusions.

“MCERTS” means the Environment Agency’s Monitoring Certification Scheme.

“medium combustion plant” or “MCP” means a combustion plant with a rated thermal input equal to or greater than 1 MW but less than 50 MW.

“Medium Combustion Plant Directive” or “MCPD” means Directive 2015/2193/EU of the European Parliament and of the Council on the limitation of emissions of certain pollutants into the air from medium combustion plants.

“new medium combustion plant” means an MCP which was put into operation after 20 December 2018. This includes replacement MCP and Generators.

“operational area” means any part of a facility used for the handling, storing and treatment of waste.

“operator” means in relation to a regulated facility:

- (a) the person who has control over the operation of the regulated facility,
- (b) if the regulated facility has not yet been put into operation, the person who will have control over the regulated facility when it is put into operation, or
- (c) if a regulated facility authorised by an environmental permit ceases to be in operation, the person who holds the environmental permit

“pests” means Birds, Vermin and Insects.

“pollution” means emissions as a result of human activity which may—

- (a) be harmful to human health or the quality of the environment,

- (b) cause offence to a human sense,
- (c) result in damage to material property, or
- (d) impair or interfere with amenities and other legitimate uses of the environment.

“quarter” means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

“recovery” means any of the operations provided for in Annex II to Directive 2008/98/EC of the European Parliament and of the Council on waste.

“representative internal” – means representative monitoring at a point internally of the windrows that will give a representative assessment of temperature. Note: Larger windrows will require more bespoke temperature equipment to adequately assess temperature profiles accurately.

“sanitisation” means the actively managed and intensive stage of composting, lasting for at least 5 days, characterised by high oxygen demand and temperatures of over 55°C, during which biological processes, together with conditions in the composting mass, eradicate human and animal pathogens or reduce them to acceptably low levels.

“sealed drainage system” in relation to an impermeable surface, means a drainage system with impermeable components which does not leak and which will ensure that:

- no liquids will run off the surface otherwise than via the system
- all liquids entering the system are collected in a sealed sump, except where liquids may be lawfully discharged to foul sewer.

“stable, stabilised” means the degree of processing and biodegradation at which the rate of biological activity has slowed to an acceptably low and consistent level and will not significantly increase under favourable, altered conditions.

“stabilisation stage” means the stage of composting following sanitisation, during which biological conditions in the composting mass, give rise to compost that is nominally stable.

“treated wood” means any wood that has been chemically treated (e.g. to enhance or alter the performance of the original wood). Treatments may include penetrating oils, tar oil preservatives, water-borne preservatives, organic-based preservatives, boron and organo-metallic based preservatives, boron and halogenated flame retardants and surface treatments (including paint and varnish).

“VOC” means Volatile organic compounds as defined in Article 3(45) of Directive 2010/75/EU – ‘volatile organic compound’ means any organic compound as well as the fraction of creosote, having at 293.15K a vapour pressure of 0.01 kPa or more, or having a corresponding volatility under the particular conditions of use.

“Waste code” means the six digit code referable to a type of waste in accordance with the List of Wastes (England) Regulations 2005, or List of Wastes (Wales) Regulations 2005, as appropriate, and in relation to hazardous waste, includes the asterisk.

“Waste Framework Directive” or “WFD” means Waste Framework Directive 2008/98/EC of the European Parliament and of the Council on waste.

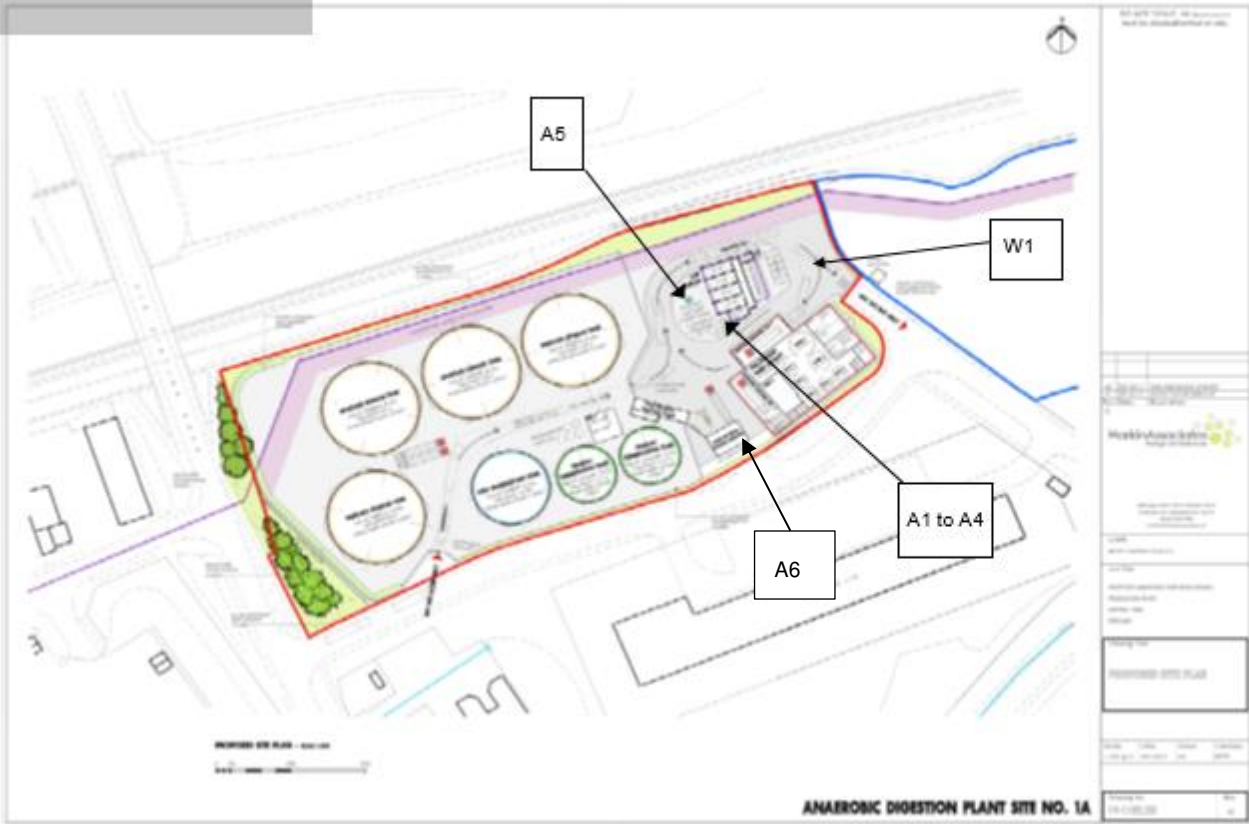
Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means:

- in relation to emissions from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3% dry for liquid fuels and gaseous fuels, 6% dry for solid fuels; and/or
- in relation to emissions from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content.

“year” means calendar year ending 31 December.

Schedule 7 – Site plan



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END OF PERMIT

Annex 1 of MCP

<p>1. Rated thermal input (MW) of the medium combustion plant.</p>	<p>4 CHP engines with an aggregated thermal input of 12.5 MW_{th}. (3 x CHP 1487 KW electrical output, 1 x CHP 527 KW electrical output).</p>
<p>2. Type of the medium combustion plant (diesel engine, gas turbine, dual fuel engine, other engine or other medium combustion plant).</p>	<p>Combined heat and power</p>
<p>3. Type and share of fuels used according to the fuel categories laid down in Annex II.</p>	<p>Biogas</p>
<p>4. Date of the start of the operation of the medium combustion plant or, where the exact date of the start of the operation is unknown, proof of the fact that the operation started before 20 December 2018.</p>	<p>April 2017</p>
<p>5. Sector of activity of the medium combustion plant or the facility in which it is applied (NACE code).</p>	<p>E38.3.2</p>
<p>6. Expected number of annual operating hours of the medium combustion plant and average load in use.</p>	
<p>7. Where the option of exemption under Article 6(3) or Article 6(8) is used, a declaration signed by the operator that the medium combustion plant will not be operated more than the number of hours referred to in those paragraphs.</p>	<p>NA</p>
<p>8. Name and registered office of the operator and, in the case of stationary medium combustion plants, the address where the plant is located.</p>	<p>Operator name: BioConstruct NewEnergy Ltd.</p> <p>Registered address P.O. Box SE1 3PH 54-58 Tanner Street The Brandenburg Suite Tanner Place London SE1 3PH</p> <p>Plant location Imperial Park Anaerobic Digestion Plant Imperial Avenue Imperial Park South Bank Middlesbrough TS6 6BA</p>

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