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Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

BioConstruct NewEnergy Ltd Court Lodge Farm AD Plant Court Lodge Stack Road Horton Kirby Kent DA4 9DU

Permit number EPR/UP3401PS

Court Lodge Farm AD Plant Permit number EPR/UP3401PS

Introductory note

This introductory note does not form a part of the permit

The main features of the permit are as follows:

The installation is located at Court Lodge Farm, east of Horton Kirby at National Grid Reference TQ 5721268178. The site is surrounded by agricultural fields. The nearest residential property is located 500 metres south west of the installation. There are thirteen non-statutory sites located within 2 km of the installation. The nearest surface watercourse is the River Darent, located approximately 1.2 km to the west of the site.

The Installation will comprise the following site infrastructure:

- Anaerobic digestion plant (two digesters);
- Four silage clamps;
- Three pre-storage tanks;
- Combustion plant consisting of one combined heat and power (CHP) engine (1.25 MWth) and one emergency flare;
- Biogas upgrading plant;
- One digestate storage lagoon and an attenuation pond; and
- Other ancillary plant (solid feed hopper and digestate separator)

This permit application is for the processing of up to 45,500 tonnes per annum of waste (cattle slurry, farm yard manure and straw, poultry manure and whey permeate) and non-waste feedstocks (maize and rye silage). Maize and rye silage will be delivered to site via tractor and trailer and will be stored in the storage clamps under cover. Farm yard manure and straw will be transported to site via tractor and trailer as and when required. The manure and straw will be stored temporarily within the silage clamps prior to transfer to the digesters.

The farm yard manure, straw and silage will be loaded into the feed hopper. In the hopper, the solid feedstock will be further mixed with re-circulated digestate from the digesters and /or separator, to create a pumpable slurry prior to transfer into the digesters for biological treatment. Liquid whey permeate and cattle slurry will be delivered to site by tanker and will be stored in pre-storage tanks prior to transfer to the digesters via a closed pipeline.

Biological treatment via anaerobic digestion will take place in two digesters with an average 55-day hydraulic retention time across the two primary digesters. The temperature in the digesters will be maintained between 39°C and 41°C. Biogas generated will be stored in the roof space above the digesters prior to transfer to the biogas upgrading plant or combustion via the CHP engine.

The majority of the raw biogas will be transferred to the biogas upgrading plant for treatment to remove contaminants such as hydrogen sulphide. The treated biogas (now biomethane) will be injected into the grid, following addition of odorant and propane. A small proportion of the biogas drawn from the digesters will be used to generate electricity and heat via the CHP engine to power the facility. Any surplus electricity produced will be fed into the grid. The heat produced from the CHP engine will be recovered and integrated in the process heating requirements. Biogas will be burnt in the emergency flare in the event it cannot be utilised by the CHP engine and /or biogas upgrading plant.

Following digestion, the by-product from the process (whole digestate) will be separated into solid and liquid fractions by an external digestate separator. The liquid fraction of the digestate will be transferred from the

separator to a digestate storage lagoon which will be constructed in accordance with the Silage, Slurry and Agricultural Fuel Oil (England) Regulations (SSAFO), prior to removal from site by tanker. The solid fraction of the digestate will be collected and stored temporarily on site under cover prior to removal for storage in field heaps at the intended site of spreading. Both fractions of the digestate will be used off-site as a soil improver or agricultural fertiliser. This environmental permit does not authorise the spreading of liquid and/or solid digestate on land.

Main releases to air will be odour emissions from the processing of waste and emissions from the combustion of biogas (CHP engine and emergency flare) and upgrading of biogas. Oxides of nitrogen, sulphur dioxide, carbon monoxide will be monitored periodically.

Clean rainwater falling within the secondary containment area will be collected and removed daily to an attenuation pond or to a storage tank (150 m³) within the bunded area and will be used for site processes. There will be no discharge of site surface water or process effluent from the installation to surface waters or to land.

The site is provided with surfacing and secondary containment constructed in line with industry best practice standards to reduce the impact of pollution to surface water and groundwater. An Environmental Management System (EMS) will be in place prior to the commencement of site operations with waste.

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

Status log of the permit					
Description	Date	Comments			
Application EPR/UP3401PS/A001	Duly made 08/10/19	Application for an anaerobic digestion facility with combustion and upgrading of resultant biogas.			
Additional information received	24/10/19	Air quality modelling report including model input files.			
Additional information received	20/12/19	Response to Schedule 5 notice dated 25/11/19.			
Additional information received	15/01/20	Additional information regarding biogas upgrading plant and odour management plan.			
Permit determined (Billing reference: UP3401PS)	23/01/20	Permit issued to BioConstruct NewEnergy Ltd.			

End of introductory note

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/UP3401PS

The Environment Agency hereby authorises, under regulation 13 of the Environmental Permitting (England and Wales) Regulations 2016

BioConstruct NewEnergy Ltd ("the operator"),

whose registered office is

PO Box SE13PH 54-58 Tanner Street The Brandenburg Suite London SE1 3PH

company registration number 09112259

to operate an installation at

Court Lodge Farm AD Plant Court Lodge Stack Road Horton Kirby Kent DA4 9DU

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

Name	Date
Rebecca Warren	23/01/2020

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:
 - 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.
- 2.1.4 Waste authorised by this permit shall be clearly distinguished from any other waste on the site.

2.2 The site

2.2.1 The activities shall not extend beyond the site, being the land shown edged in green 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.

2.4 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.

2.5 Pre-operational conditions

2.5.1 The activities shall not be brought into operation until the measures specified in schedule 1 table S1.4 have been completed.

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.
- 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.
- 3.1.4 For the following activities referenced in schedule 1, table S1.1 (AR4), 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.

3.2 Emissions of substances not controlled by emission limits

- 3.2.1 Emissions of substances not controlled by emission limits (excluding odour, but including ammonia) 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.

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.
- 3.3.2 The operator shall:
 - (a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency for approval within the period specified, an odour management plan which identifies and minimises the risks of pollution from odour;
 - (b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

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;
 - (b) process monitoring specified in table S3.2.
- 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 table S3.1 unless otherwise agreed in writing by the Environment Agency.
- 3.5.5 For 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.

3.6 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.

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.
- 4.1.3 The operator shall maintain a record of the type and quantity of fuel used and the total annual hours of operation of each MCP.

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 re-occurrence 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.

4.4 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 ac	ctivities		
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	R3: Recycling/reclamation of organic substances which are not used as solvents	From receipt of waste and non-waste feedstock through to digestion and recovery of by-products (digestate).
	tonnes per day if the only waste treatment activity is anaerobic digestion) involving biological treatment.		Anaerobic digestion of waste and non-waste feedstock in two tanks followed by burning of biogas produced from the process.
			Waste types suitable for acceptance are limited to those specified in Table S2.2.
	Directly Associated Activity	y	
AR2	Storage of waste pending recovery or disposal	R13: Storage of waste pending the operations numbered R1 and R3 (excluding temporary storage, pending collection, on the site where it is produced)	From the receipt of permitted waste to despatch for anaerobic digestion on site. Storage of waste in silage clamps under cover and in enclosed pre-storage tanks on an impermeable surface
			with sealed drainage. Waste types suitable for acceptance are limited to those specified in Table S2.2.
AR3	Physical treatment for the purpose of recycling	R3: Recycling/reclamation of organic substances which are not used as solvents	From the receipt of waste to despatch for anaerobic digestion or despatch off site for recovery.
			Post-treatment of whole digestate on an impermeable surface with sealed drainage system, including separation and centrifuge or pressing.
			Biogas cleaning by biological scrubbing and

			physical treatment (carbon filtration).
AR4	Steam and electrical power supply	R1:Use principally as a fuel to generate energy	From the receipt of biogas produced at the on-site anaerobic digestion process to combustion with the release of combustion gases.
			Combustion of biogas in one CHP engine with a thermal input of 1.25 MWth.
			Use of one back-up generator required only during periods of power outage.
AR5	Emergency flare operation	D10: Incineration on land	From the receipt of biogas produced at the on-site anaerobic digestion process to incineration with the release of combustion gases.
			Use of one auxiliary flare required only during periods of breakdown or maintenance of the CHP engine and biogas upgrading plant.
AR6	Gas upgrading	Upgrading of biogas to biomethane (including the removal of moisture and other substances such as carbon dioxide, hydrogen sulphide and VOCs) for injection into the National Grid.	From the receipt of biogas produced at the on-site anaerobic digestion process to injection into the National Grid. This includes return of off-specification biogas for combustion to the on-site CHP engine and/or emergency flare.
AR7	Raw material storage	Storage of raw materials including engine oil, antifreeze, diesel, propane, ferric hydroxide, oxygen, activated carbon, diesel, odorant, sulphuric acid, pesticides and disinfectants.	From the receipt of raw materials to despatch for use within the facility.
AR8	Biogas 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 raw biogas produced from on-site anaerobic digestion 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.

AR9	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 one covered lagoon.
			Storage of processed uncertified solid digestate in a covered bay on an impermeable surface with sealed drainage system.
AR10	Surface water collection and storage	Collection and storage of site surface water in one attenuation pond.	From the collection of site surface water and bund water to re-use within the facility or storage in attenuation pond.

Table S1.2 Operating techniques					
Description	Parts	Date Received			
Application EPR/UP3401PS/A001	Documents D2 EN121/AD/2018/NTS and D3 EN121/AD/2018/BAT of the application document in response to section 3a – technical standards, Part B of the application form.	Duly Made 08/10/19			
Response to Schedule 5 Notice dated 25/11/19	 Response to question 1 detailing compliance with Waste Treatment BREF and BAT Conclusions. 	20/12/19			
	 Response to questions 2 to 7 detailing secondary containment and storage design. 				
	 Response to questions 8 to 11 detailing raw materials. 				
	 Response to questions 12 to 16 detailing site operating techniques. 				
	Technical specifications and supporting documents				
	 HAZOP and DSEAR and supporting documents 				
	Plandescil report and plans				
	 Updated BCNE Procedures & Overarching Documents 				
Additional information	Odour management plan	Updated and approved as required by preoperational condition 1.			

Reference	Requirement	Date
IP1	The operator shall carry out a monitoring study to verify the assumptions made in the application in relation to the releases of pollutants to air. The study shall include the monitoring of point source releases to air from the biogas upgrading plant emission point A5 (Table S3.1) during normal operation, having regard to the Environment Agency technical guidance M2 and to MCERTS standards. As a minimum, two separate monitoring campaigns in a year shall be completed (one monitoring survey six months following commissioning of the biogas upgrading plant). The pollutants to be monitored shall include: • total volatile organic compounds; and • hydrogen sulphide	31/01/2021
IP2	Following the completion of IP1, the operator shall undertake an emissions impact assessment of point source releases to air from A5 (Table S3.1), using the information obtained through the emissions monitoring. The emissions impact assessment report and all associated monitoring reports and assessments shall be submitted in writing to the Environment Agency for review.	26/02/2021
	The emissions impact assessment shall, as a minimum, include:	
	 reports showing details of the monitoring undertaken and the results obtained; 	
	 results of the assessment of long and short term impacts from the emissions in accordance with Environment Agency Guidance Air emissions risk assessment for your environmental permit 	
	 a completed H1 assessment software tool 	
	If the H1 assessment shows potential long or short term impacts from the emissions, the operator shall propose an action plan to reduce the impacts of the substances identified.	

Table S1.4 Pre-op	Table S1.4 Pre-operational measures					
Reference	Pre-operational measures					
1	At least four weeks (or any other date as agreed with the Environment Agency prior to the commencement of commissioning of the installation with waste, the operator shall submit an updated odour management plan to the Environment Agency for written approval. In particular, the plan shall include a commitment:					
	to monitor the transfer of liquid feedstock into the pre-storage tanks investigate whether further measures are required;					
	 to cover the farm yard and poultry manure in the silage clamps with suitable material prior to transfer to the digesters; 					
	 to cover the solid digestate fraction following separation prior to despatch off-site; and 					
	 to install a carbon filter to abate odour emissions during transfer of liquid digestate from storage lagoon (tank filling). 					
	No waste shall be accepted at the installation unless the Environment Agency has given prior written permission under this condition.					

Schedule 2 – Waste types, raw materials and fuels

Table S2.1 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		

Table S2.2 Permitted waste types and quantities for anaerobic digestion				
Maximum quantity	Annual throughput of waste feedstock shall not exceed 32,000 tonnes. The total site annual throughput consisting of wastes and non-wastes shall not exceed 45,500 tonnes.			
Exclusions	Wastes having any of the following characteristics shall not be accepted:			
	 waste that is not biodegradable; biodegradable waste that is significantly contaminated with non-biodegradable contaminants like plastic and litter beyond incidental level of 0.5% by volume; wastes containing treated wood and post-consumer wood, wood-preserving agents or other biocides, 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 2011. 			
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 06	animal faeces, urine and manure (including spoiled straw) only			
02 05	wastes from the dairy products industry			
02 05 01	materials unsuitable for consumption or processing			

Schedule 3 – Emissions and monitoring

Emission point ref. &	Source	Parameter	Limit (including	Reference period	Monitoring frequency	Monitoring standard
location			unit)	-		or method
A1 [Point A1 on Drawing	CHP engine 1 stack	Oxides of Nitrogen	500 mg/m ³	Hourly average	Annual	BS EN 14792
24076/180 Rev A dated December 2019]	[note 1]	(NO and NO ₂ expressed as NO ₂)				
2019]		Sulphur dioxide	107 mg/m ³			BS EN 14791
		Carbon monoxide	1400 mg/m ³			BS EN 15058
		Total VOCs	No limit set			
A2 [Point A2 on Drawing 24076/180 Rev A dated December	Emergency flare stack [note 2]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	150 mg/m ³	Hourly average	[note 3]	BS EN 14792
2019]		Carbon monoxide	50 mg/m ³			BS EN 15058
		Total VOCs	10 mg/m ³			BS EN 12619:2013
A3 [Point A3 on Drawing 24076/180 Rev A dated December 2019]	Back-up generator	No parameter set	No limit set			
A4 [Point A4 on Drawing 24076/180 Rev A dated December 2019]	Digester 1 & 2 pressure release valves	Biogas release and operational events	No limit set	Recorded duration and frequency	Record of operational hours	
A5 [Point A5 on Drawing 24076/180 Rev A dated December 2019]	Biogas upgrading plant – CO ₂ vent stack	VOCs	No limit set		Continuous	Leak detection and repair (LDAR) programme
Vents from tanks	Fuel storage tanks and pre-storage tanks	No parameter set	No limit set			

Note 1 - These limits are based on normal operating conditions and load - temperature 0°C (273K); pressure: 101.3 kPa and oxygen: 5 per cent (dry gas).

Note 2 - These limits are based on normal operating conditions and load - temperature 0°C (273K); pressure: 101.3 kPa and oxygen: 3 per cent (dry gas).

Note 3 - Monitoring to be undertaken 12 months after commissioning of the emergency flare. 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.

Table S3.2 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	рН	As described in	As described	Process monitoring to be recorded using SCADA system		
(digestion process)	Alkalinity	the site operating techniques	in the site operating			
	Temperature	,,,,,,	techniques			
	Hydraulic loading rate					
	Organic loading rate					
	Volatile fatty acids concentration					
	Ammonia					
	Digester liquid level					
	Digester foam level					
Biogas production	Biogas flow	Continuous	As described	Process monitoring		
	Methane	Continuous	in the site operating	to be recorded using SCADA		
	CO ₂	Continuous	techniques	system.		
	O ₂	Continuous		0		
	Pressure	Continuous		Gas monitors to be calibrated every 6		
	Hydrogen sulphide	Daily		months or in accordance with the manufacturer's recommendations.		
Digester operation	Agitation /mixing	Once a year				
	Tank capacity and sediment assessment					
Waste reception and storage areas; Digesters and storage tanks	Odour	Daily	Olfactory monitoring	Odour detection at the site boundary.		
Carbon filtration system	Temperature	Daily	Recorded	Carbon filtration		
(biogas upgrading plant and tanker filling of digestate)	Moisture	Daily	using industry standard techniques	system shall be regularly checked and maintained to ensure appropriate		
	Efficiency assessment	Yearly		temperature and moisture content.		
				Carbon filter(s) to be replaced when saturated in accordance with manufacturer's recommendations.		

Table S3.2 Process mo	nitoring requirements	S		
Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
Biogas upgrading plant	VOCs including methane	In accordance with written management system	In accordance with written management system	Methane monitoring points as specified in the DSEAR risk assessment and leak detection and repair programme (LDAR)
Diffuse emissions from gas storage membrane	VOCs including methane	Every 6 months	In accordance	Leak detection and repair (LDAR)
/biogas upgrading plant /digestate storage	Odour		with written management	programme
lagoon /tank vents	Ammonia		system	
CHP engine stack	Total VOCs	As agreed in writing by the Environment Agency	As agreed in writing by the Environment Agency	
Site meteorological conditions	Wind speed. wind direction, temperature	Continuous	As specified in the site operating techniques	Conditions to be recorded in operational diary and records. Equipment shall be calibrated on a 4 monthly basis, in accordance with manufacturer's recommendations or as agreed in writing by the Environment Agency.
Emergency flare	Operational hours	As required	Recording using a SCADA system	Date, time and duration of use of emergency flare shall be recorded.
Pressure relief valves	Biogas release	In accordance with manufacturer's recommendations	Daily visual inspection or remote monitoring	Date, time and duration of use of pressure relief events shall be recorded. Annual mass release shall be calculated. Pressure relief valves to be reseated after release.
Digesters and storage tanks	Integrity checks	Weekly	Visual assessment	

Table S3.2 Process monitoring requirements				
Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
Storage lagoons and storage tanks	Volume	Daily	Visual or flow metre measurement	750 mm freeboard must be maintained for the digestate storage lagoon.

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 engine Parameters as required by condition 3.5.1.	A1, A2	Every 12 months	1 January
Process monitoring Parameters as required by condition 3.5.1	As specified in schedule 3 table S3.2	Every 12 months	1 January

Table S4.2 Annual production/treatment		
Parameter	Units	
Electricity generated	MWh	
Biomethane generated	tonnes or m ³	
Whole digestate	tonnes	
Liquid digestate	m ³	
Solid digestate	tonnes	

Table S4.3 Performance parameters		
Parameter	Frequency of assessment	Units
Water usage	Annually	tonnes or m ³
Energy usage	Annually	MWh
Raw material usage	Annually	tonnes or m ³
Emergency flare operation	Annually	hours
Electricity exported	Annually	MWh
Biomethane exported to grid	Annually	tonnes or m ³
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	23/01/2020
Water usage	Form water usage 1 or other form as agreed in writing by the Environment Agency	23/01/2020
Energy usage	Form energy 1 or other form as agreed in writing by the Environment Agency	23/01/2020

Table S4.4 Reporting forms		
Media/parameter	Reporting format	Date of form
Other performance indicators	Form performance 1 or other form as agreed in writing by the Environment Agency	23/01/2020
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	
	any malfunction, breakdown or failure of equipment or techniques, ince not controlled by an emission limit which has caused, is 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 t	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 otherw	rise specified below
Measures taken, or intended to be taken, to stop the emission	
Time periods for notification following detection of a brea	ach of a limit
Parameter	Notification period
raiailietei	Notification period
_	
(c) Notification requirements for the detection of any sign	nificant 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 Any more accurate information on the matters for	practicable
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	

^{*} authorised to sign on behalf of the operator

Schedule 6 - Interpretation

"accident" means an accident that may result in pollution.

"accident management plan" means a plan that identifies risks and failures which can have an impact on the environment or have environmental consequences. The plan forms part of the management system. The plan must minimise the potential causes and consequences and identify clearly the roles, responsibilities and action to be taken to minimise the consequences of accidents. This includes measures to prevent and control fires on site, DSEAR assessment and clearly marked zones.

"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 methanerich biogas and whole digestate.

"animal waste" means any waste consisting of animal matter that has not been processed into food for human consumption. This does include blood, feathers, uncooked butchers waste and any other animal waste that is not catering waste or former foodstuffs. This does not include faecal matter from animals (e.g. chicken litter or farmyard manure).

"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 the 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 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 aby 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.

"competent persons and resources" means that a technically competent person accredited to a relevant scheme must attend site and record their attendance, and that all roles and responsibilities are clearly stated in the management systems along with records of operatives' training.

"compost" means solid particulate material that is the result of composting, which has been sanitised and stabilised, and which confers beneficial effects when added to soil, used as a component of growing media or used in another way in conjunction with plants.

"compostable plastics" means plastics that are certified to meet the standards of EN 13432, EN 14995 or equivalent.

"composting" means the biological decomposition of organic materials, under conditions that are predominantly aerobic and that allow the development of thermophilic temperatures as a result of biologically produced heat and that result in compost.

"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.

"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 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.

"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 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.

"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.

"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 venner).

"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.

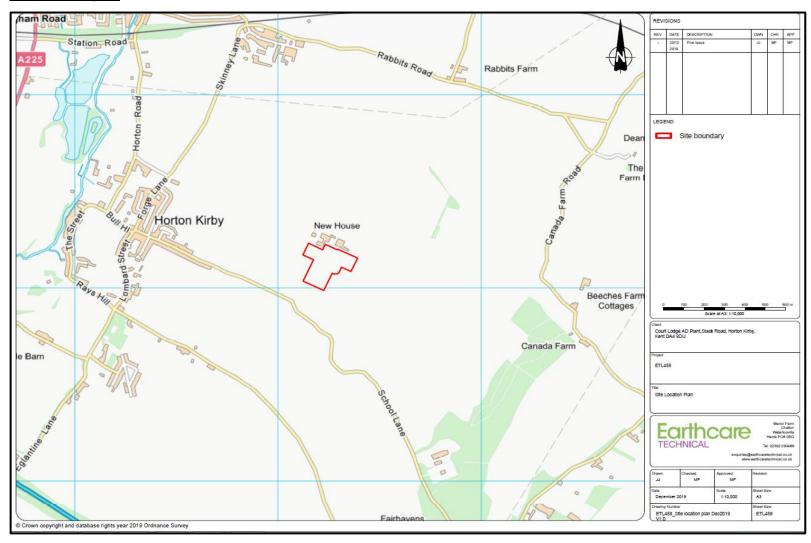
Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means:

- 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 and gaseous fuels other than gas engines or gas turbines, 6% dry for solid fuels; and/or
- in relation to emissions from gas engines or gas turbines, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 15% dry for liquid and gaseous fuels

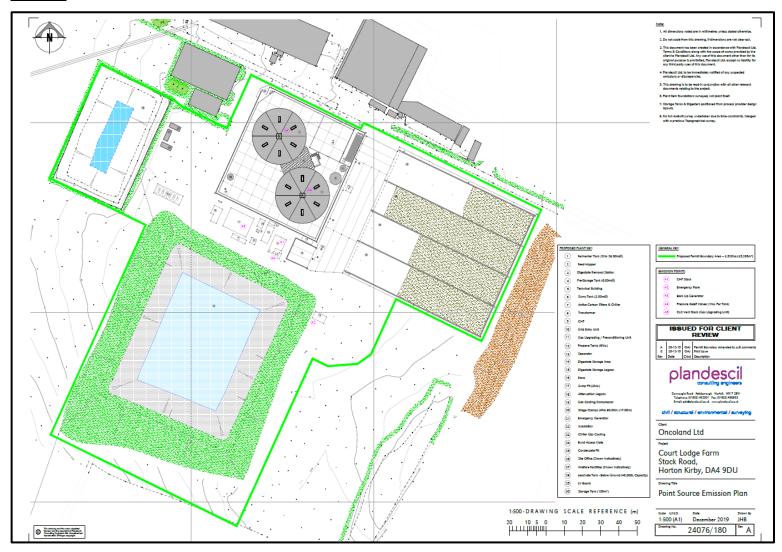
"year" means calendar year ending 31 December.

Schedule 7 – Site plan

Site location plan



Site plan



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Annex 1 of MCP

Rated thermal input (MW) of the medium combustion plant.	1.251 MW
2. Type of the medium combustion plant (diesel engine, gas turbine, dual fuel engine, other engine or other medium combustion plant).	Gas engine
3. Type and share of fuels used according to the fuel categories laid down in Annex II.	Biogas
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.	N/A New site
5. Sector of activity of the medium combustion plant or the facility in which it is applied (NACE code.	NACE E38 - Waste collection, treatment and disposal activities; materials recovery
6. Expected number of annual operating hours of the medium combustion plant and average load in use.	8,760
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.	N/A
8. Name and registered office of the operator and, in the case of stationary medium combustion plants, the address where the plant is located.	Registered office address: BioConstruct NewEnergy Ltd PO Box SE13PH 54-58 Tanner Street The Brandenburg Suite London, England SE1 3PH
	Where the MCP is located: Court Lodge Farm AD Plant Court Lodge Farm Stack Road Horton Kirby Kent DA4 9DU

END OF PERMIT