

Notice of variation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

Finning (UK) Limited
Long Reach Combined Heat and Power Plant
Long Reach Sewage Treatment Works
Marsh Street
Dartford
Kent
DA1 5PP

Variation application number

EPR/WP3838UH/V004

Permit number

EPR/WP3838UH

Long Reach Combined Heat and Power Plant

Permit number EPR/WP3838UH

Introductory note

This introductory note does not form a part of the permit

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. The schedule of waste management activities includes the recovery 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, but excludes activities covered by the Urban Waste Water Treatment Regulations (UWWTR). However, UK environmental regulators concluded that the biological treatment of waste sewage sludge is not an activity covered by the UWWTR and is therefore within the scope of the IED. 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. BAT applies to new waste sewage sludge treatment not covered by the UWWTR. The operations at Long Reach Sludge Treatment Centre are existing but will be brought into environmental regulation for the first time and are required to operate using BAT.

This has meant that the activity covered by this permit now has to be varied in order to reflect that it is a standalone directly associated activity to the main sludge treatment centre.

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

This permit is now part of a multi operator installation. This variation amends the permit to become a standalone Directly Associated Activity (DAA) permit to the main the Section 5.4 Part A (1)(b)(i) for biological treatment of sludge by anaerobic digestion (AD) operated by Thames Water Utilities Limited (TWUL) under permit EPR/MP3838UP/V006 at Long Reach Sludge Treatment Centre (STC). The variation also requests the addition of 0.71 MWth blackstart generator as a DAA to the Combined Heat and Power (CHP) Plant authorised under this permit.

Brief description of the process

Long Reach Combined Heat and Power Plant (CHP) ("the site") is located within the Long Reach Sewage Treatment Works (STW), which is located immediately South of the River Thames near the town of Dartford, Kent. The centre of the site is NGR TQ5534076560.

Biogas is generated by TWUL under permit EPR/MP3838UP within eight primary digesters and this gas is transferred to two standalone gas holders also operated under EPR/MP3838UP. Gas is pressurised with gas boosters, undergoes siloxane removal in siloxane filter, and then transferred by existing above ground biogas pipework from TWUL EPR/MP3838UP and into the Finning (UK) Limited EPR/WP3838UH compound.

Once within the compound biogas is used for combustion in three CHP engines with a thermal input of 3.2 MWth each and aggregated thermal input of 9.6 MWth. The power produced by the CHPs produces electricity for the operation of assets on EPR/EA/MP3838UP. A heat recovery boiler is also operated to produce steam for the Thermal Hydrolysis Plant (THP) that is used at Long Reach Sludge Treatment Centre. The heat recovery boiler is dual fuel and uses biogas or fuel oil and has a thermal input of 2.4 MWth. The

site also utilises a diesel fuelled blackstart generator, with a thermal capacity of 0.71 MWth during maintenance testing and emergency events.

There are four designated habitats within the relevant distance from the site. Purfleet Chalk Pits Site Special Scientific Interest (SSSI) 1.8km North, West Thurrock Lagoon and Marshes SSSI 1.8km East, Inner Thames Marshes SSSI 2km North-West and Swanscombe Marine Conservation Zone (MCZ) 3km East.

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 WP3838UH/A001 received	Duly made 29/03/2007	Application for a combined heat and power plant as part of a multi-operator installation.
Permit determined WP3838UH (EAWML 400065)	05/10/2007	Permit issued to Finning (UK) Limited.
Environment Agency variation determined EPR/WP3838UH/V002	08/04/2013	Environment Agency variation to implement the changes introduced by the Industrial Emissions Directive.
Variation determined EPR/WP3838UH/V003	02/12/2014	Permit issued for a heat recovery boiler and a 15 metre high multi flue emission stack and to remove a flare stack from the permit.
Variation application EPR/WP3838UH/V004	Duly made 27/09/2023	Application to vary permit to become stand alone directly associated activity permit to MP3838UP.
Additional information	17/11/2023	Addition of a 0.71MWth blackstart generator to operate <50 hours a year. Assessment of potential impacts of emissions from blackstart generator.
Schedule 5 dated 02/07/2024	Response 30/07/2024	Confirmation of NGR for flue stack, confirmation of contract in place between operators of the installations.
Additional information	12/09/2024	Revised site plan
Permit determined	19/12/2024	Varied permit issued to Finning (UK) Limited.

Other Part A installation permits relating to this installation		
Operator	Permit number	Date of issue
Thames Water Utilities Limited	EPR/MP3838UP	19/12/2024

End of introductory note

Notice of variation

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/WP3838UH

The Environment Agency hereby authorises, under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2016

Finning (UK) Limited (“the operator”),

whose registered office is

Watling Street

Cannock

Staffordshire

WS11 8LL

company registration number 00367090

to operate an installation at

Long Reach Combined Heat and Power Plant

Long Reach Sewage Treatment Works

Marsh Street

Dartford

Kent

DA1 5PP

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

Name	Date
Rebecca Warren	19/12/2024

Authorised on behalf of the Environment Agency

Schedule 1

All conditions have been varied by the consolidated permit as a result of the application made by the operator.

Schedule 2 – consolidated permit

Consolidated permit issued as a separate document.

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/WP3838UH

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

Finning (UK) Limited (“the operator”),

whose registered office is

Watling Street

Cannock

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WS11 8LL

company registration number 00367090

to operate an installation at

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Name	Date
Rebecca Warren	19/12/2024

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.

1.5 Multiple operator installations

- 1.5.1 Where the operator notifies the Environment Agency under condition 4.3.1 (a) or 4.3.1 (c), the operator shall also notify without delay the other operator(s) of the installation of the same information.

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 green on the site plan at schedule 7 to this permit, which is with the area edged in red on the site plan that represents the extent of the installation covered by this permit and that of the other operator of the installation.

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 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.
- 2.3.5 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.
- 2.3.6 For the activities referenced in schedule 1, table S1.1:

- (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 the combustion plant as short as possible.
- (c) there shall 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 tables 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, 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 adequate secondary containment, unless other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container have been agreed in writing with the Environment Agency.
- 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 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.

3.3.2 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 tables S3.1 and S3.2;
- (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, S3.2 and S3.3 unless otherwise agreed in writing by the Environment Agency.

3.5.5 For the activities referenced in Schedule 1 Table S1.1:

- (a) For existing MCP Monitoring measurements shall be carried out before the relevant compliance date or within four months of the issue date of the permit whichever is the later.

3.5.6 Monitoring of MCP 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.

3.7.3 The operator shall undertake a DSEAR assessment and maintain an accident management plan.

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 S4.2 using the forms specified in table S4.3 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 S4.3; 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.
- 4.3.8 The operator shall notify the Environment Agency as soon as is practicable, in writing of any change of 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
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Directly Associated Activity			
AR1	Steam and electrical power supply	R1: Use principally as a fuel to generate energy	<p>Undertaken in relation to Activity AR1 of Permit EPR/MP3838UP.</p> <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 three combined heat and power (CHP) engines with an aggregated thermal input of 9.6 MWth.</p> <p>Combustion of biogas or gas oil in one dual fuel heat recovery boiler with a thermal input of 2.4MWth. Operation of the boiler shall be limited to less than 500 hours per year as a 5-year rolling average when operating on gas oil.</p> <p>Operation of a 0.71 MWth emergency generator fuelled on gas oil. Operation of the emergency generator shall be limited to less than 50 hours per year for testing purposes only.</p>
AR2	Surface water collection	Collection of uncontaminated roof and site surface water	From collection to discharge into Thames Water Utilities Limited's installation boundary prior to discharge into Long Reach Wastewater Treatment Works (WwTW)
AR3	Transfer of untreated effluent	Discharge of boiler blowdown water and biogas condensate	From collection to discharge into Thames Water Utilities Limited's installation boundary prior to discharge into Long Reach Wastewater Treatment Works (WwTW)
AR4	Raw material storage	Storage of raw materials including	From the receipt of raw materials to despatch for use within the facility.

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
		lubrication oil, fuel oil and diesel.	

Table S1.2 Operating techniques		
Description	Parts	Date Received
Application Variation EPR/WP3838UH/V004	Sections 1.2, 1.4, 1.6 and 1.8 of the application document in response to section 3a – technical standards , Part B of the application form. WERM P1175-D07-31-17 Long Reach Final Dwg: Site Drainage Plan	10/10/2023
Additional Information EPR/WP3838UH/V004	Request addition of DAA namely blackstart generator 0.71 MWth with additional air quality assessment. TW_EPR_STC_LGR_06b_APPL.1 Air Quality Assessment	17/11/2023
Response to Schedule 5 Notice dated 02/07/2024	C240730-1 Memo Response providing NGR for HRB, multioperator contract summary and additional information on black start generator. B22849AM-JAC-LGR-DR-0002 Site Plan with multi operator boundaries	30/07/2024

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
Improvement condition to address methane slip emissions from gas engines burning biogas		
IC1	The operator shall submit a written plan for approval by the Environment Agency which establishes the methane emissions in the exhaust gas from engines burning biogas and or biomethane and compare these to the manufacturer’s specification and benchmark levels. The plan shall develop proposals to assess the potential for methane slip and take corrective actions where emissions of methane above the manufacturer’s specification are identified. The operator shall establish methane emissions in the exhaust gas and methane slip using the following standards: <ul style="list-style-type: none"> • EN ISO 25139 • EN ISO 25140 	6 months of permit issue or as such other agreed in writing with the Environment Agency
Improvement condition for establishing a Leak detection and repair programme		
IC2	The operator shall establish a site-specific leak detection and repair (LDAR) programme to detect and mitigate the release of volatile organic compounds, including methane from diffuse sources. The programme	6 months of permit issue or as such other

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
	<p>shall include, but not be limited to an LDAR survey, diffuse emissions source inventory and associated monitoring arrangements. The programme shall be submitted to the Environment Agency for approval.</p> <p>The programme shall take into account the appropriate measures for LDAR plans specified in Section 11.9 of Environment Agency guidance, <i>Biological waste treatment: appropriate measures for permitted facilities</i>.</p> <p>The operator shall also have regard to BS EN 17628 when designing the LDAR programme and consider the use of optical gas imaging cameras in addition to the mandatory application of 'sniffer' techniques according to BS EN 15446.</p>	<p>date as agreed in writing with the Environment Agency</p>

Schedule 2 – Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	Specification
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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 MW to 5 MW)							
Point A1 on site plan in Schedule 7 [note 4]	CHP engine 2 via individual 5m stack [note 1]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	650 mg/m ³ [note 2]	Average over sample period	Annual	BS EN 14792	
			500 mg/m ³ [note 3]				
		Sulphur dioxide	350 mg/m ³ [note 2]			BS EN 14791 or CEN TS 17021 or by calculation based on fuel sulphur	
		Sulphur dioxide	162 mg/m ³ [note 3]				
		Carbon monoxide	1,680 mg/m ³ [note 2]				BS EN 15058
			1,400 mg/m ³ [note 3]				
Total VOCs	No limit set	--	--	BS EN 12619			
Point A2 on site plan in Schedule 7 [note 4]	CHP engine 3 via individual 5m stack [note 1]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	650 mg/m ³ [note 2]	Average over sample period	Annual	BS EN 14792	
			500 mg/m ³ [note 3]				
		Sulphur dioxide	350 mg/m ³ [note 2]			BS EN 14791 or CEN TS 17021 or by calculation based on fuel sulphur	
		Sulphur dioxide	162 mg/m ³ [note 3]				
		Carbon monoxide	1,680 mg/m ³ [note 2]				BS EN 15058

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
			1,400 mg/m ³ [note 3]			
		Total VOCs	No limit set	--	--	BS EN 12619
Point A3 on site plan in Schedule 7	CHP engine 4 via individual 8m stack [note 1]	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 [note 2]			BS EN 14791 or CEN TS 17021 or by calculation based on fuel sulphur
		Sulphur dioxide	162 mg/m ³ [note 3]			
		Carbon monoxide	1,680 mg/m ³ [note 2]			BS EN 15058
			1,400 mg/m ³ [note 3]			
		Total VOCs	No limit set			--
Point A6 and A7, on site plan in Schedule 7 [note 4]	Heat Recovery Boiler via CHP spark ignition engine 2 and 3 via multi flue 15m stack [operating on biogas] [note 1]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	650 mg/m ³ [note 2]	Average over sample period	Annual	BS EN 14792
			500 mg/m ³ [note 3]			
		Sulphur dioxide	350 mg/m ³ [note 2]			BS EN 14791 or CEN TS 17021 or by calculation based on fuel sulphur
			162 mg/m ³ [note 3]			
		Carbon monoxide	1,680 mg/m ³ [note 2]			BS EN 15058

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
			1,400 mg/m ³ [note 3]			
Existing medium combustion plant other than engines fuelled on biogas (1 MW to 5 MW)						
Point A8 on site plan in Schedule 7	Heat Recovery Boiler via multi flue 15m stack [operating on biogas] auxiliary mode [note 1]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	250 mg/m ³	Average over sample period	Annual	BS EN 14792
		Sulphur dioxide	200 mg/m ³ [note 3]			BS EN 14791 or CEN TS 17021 or by calculation based on fuel sulphur
Point A6 and A7 on site plan in Schedule 7	Boiler via CHP spark ignition engine 2 and 3 via multi flue 15m stack [operating on gasoil as a back-up fuel] [note 1]	--	--	--	--	--
Point A8 [note 5]	HRB stack via 15m multi flue stack [in heat recovery mode]	--	--	--	--	--
Existing combustion plant (less than 1 MW)						
Point A30 on site plan in schedule 7	Combustion Plant Blackstart Generator	--	--	--	--	--
<p>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 emergency flares and medium combustion plants other than engines and gas turbines burning biogas such as boilers).</p> <p>Note 2 – This emission limit applies until 31 December 2029, unless the gas engine or boiler is replaced.</p> <p>Note 3 – This emission limit applies from 1 January 2030, unless otherwise advised by the Environment Agency.</p> <p>Note 4 - Emissions may only occur from either emission points A1 and A2 or A6 and A7, not both simultaneously. During normal operation, emissions will occur from A6 and A7.</p> <p>Note 5 - The HRB will not be combusting either biogas or fuel oil in this mode.</p>						

Table S3.2 Point source emissions to sewer, effluent treatment plant or other transfers off-site – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (incl. unit)	Reference Period	Monitoring frequency	Monitoring standard or method
T4 on site plan in schedule 7 emission to Thames Water Utilities Limited's installation (EPR/MP3838 UP) prior to discharge to River Thames via Long Reach Waste Water Treatment Works.	Uncontaminated roof water, site surface water, boiler blowdown and biogas condensate	--	--	--	--	--

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
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	'Sniffing' and/or Optical Gas Imaging techniques in accordance with BS EN 15446 & BS EN 17628	Monitoring points as specified in a DSEAR risk assessment and LDAR programme.
				Limit as agreed with the Environment Agency as a percentage of the overall gas production.
CHP engine stacks	VOCs including methane	Annually	BS EN 12619	Total annual VOCs emissions from the CHP engines 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	--

Schedule 4 – Reporting

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

Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Emissions to air from CHP engines and boilers Parameters as required by condition 3.5.1.	A1, A2, A3, A6, A7 and A8	Every 12 months	1 January

Parameter	Frequency of assessment	Units
Water usage	Annually	tonnes or m ³
Energy usage	Annually	MWh
Electricity exported	Annually	MWh
CHP engine usage	Annually	hours
CHP engine efficiency	Annually	%
Auxiliary boiler usage	Annually	hours

Media/parameter	Reporting format	Date of form
Air	Form air 1 or other form as agreed in writing by the Environment Agency	19/12/2024
Process monitoring	Form process 1 or other form as agreed in writing by the Environment Agency	19/12/2024
Sewer	Form sewer 1 or other form as agreed in writing by the Environment Agency	--
Water usage	Form water usage 1 or other form as agreed in writing by the Environment Agency	19/12/2024
Energy usage	Form energy 1 or other form as agreed in writing by the Environment Agency	19/12/2024
Other performance indicators	Form performance 1 or other form as agreed in writing by the Environment Agency	19/12/2024

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.

“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.

“appropriate abatement system” means the appropriate treatment technique for channelled emissions to air defined in 6.6.1 ‘Channelled emissions to air’ from the ‘Best Available Techniques (BAT) Reference Document for Waste Treatment’.

“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.

“BREF” means Best Available Techniques (BAT) Reference Document.

“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. Further guidance [‘RGN2: Understanding the meaning of regulated facility Definition of regulated facility’](#) is available.

“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. See the guidance on the [level of competence and duration of attendance](#)

“compliance date” means 01/01/2025 for existing MCPs with net rated thermal input of greater than 5MWth or 01/01/2030 for existing MCPs with a net rated thermal input of less than or equal to 5MWth.

“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.

“composting” means the managed biological decomposition of biodegradable waste 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.

“composting batch” means an identifiable quantity of material that progresses through the composting system and when fully processed has similar characteristics throughout. For composting systems that operate on a continuous- or plug-flow basis, batches will be taken to mean a series of “portions of production”.

“direct discharge” means discharge to a receiving water body.

“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.

“DSEAR” means the Dangerous Substances and Explosive Atmospheres Regulations 2002.

“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.

“Indirect discharge” means a discharge to a sewer or off-site waste water treatment plant.

“Industrial Emissions Directive” and/or “IED” means DIRECTIVE 2010/75/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 November 2010 on industrial emissions, as read in accordance with Schedule 1A to the Environmental Permitting (England and Wales) Regulations 2016.

“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, as read in accordance with Schedule 1A to the Environmental Permitting (England and Wales) Regulations 2016.

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

“operating hours” means the time, expressed in hours, during which a combustion plant is operating and discharging emissions into the air, excluding start-up and shut-down periods

“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.

“PFOA” means Perfluorooctanoic acid.

“PFOS” means Perfluorooctanesulphonic acid.

“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.

“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. The operator also needs to meet ABPR requirements.

“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.

“specified generator” means a group of generators other than excluded between 1 and 50 megawatts or less than 50 megawatts as defined in Schedule 25B(2) of SI 2018 No.110 of the EPR.

“stable” and/or “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.

“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” and/or “WFD” means Waste Framework Directive 2008/98/EC of the European Parliament and of the Council on waste, as read in accordance with Schedule 1A to the Environmental Permitting (England and Wales) Regulations 2016.

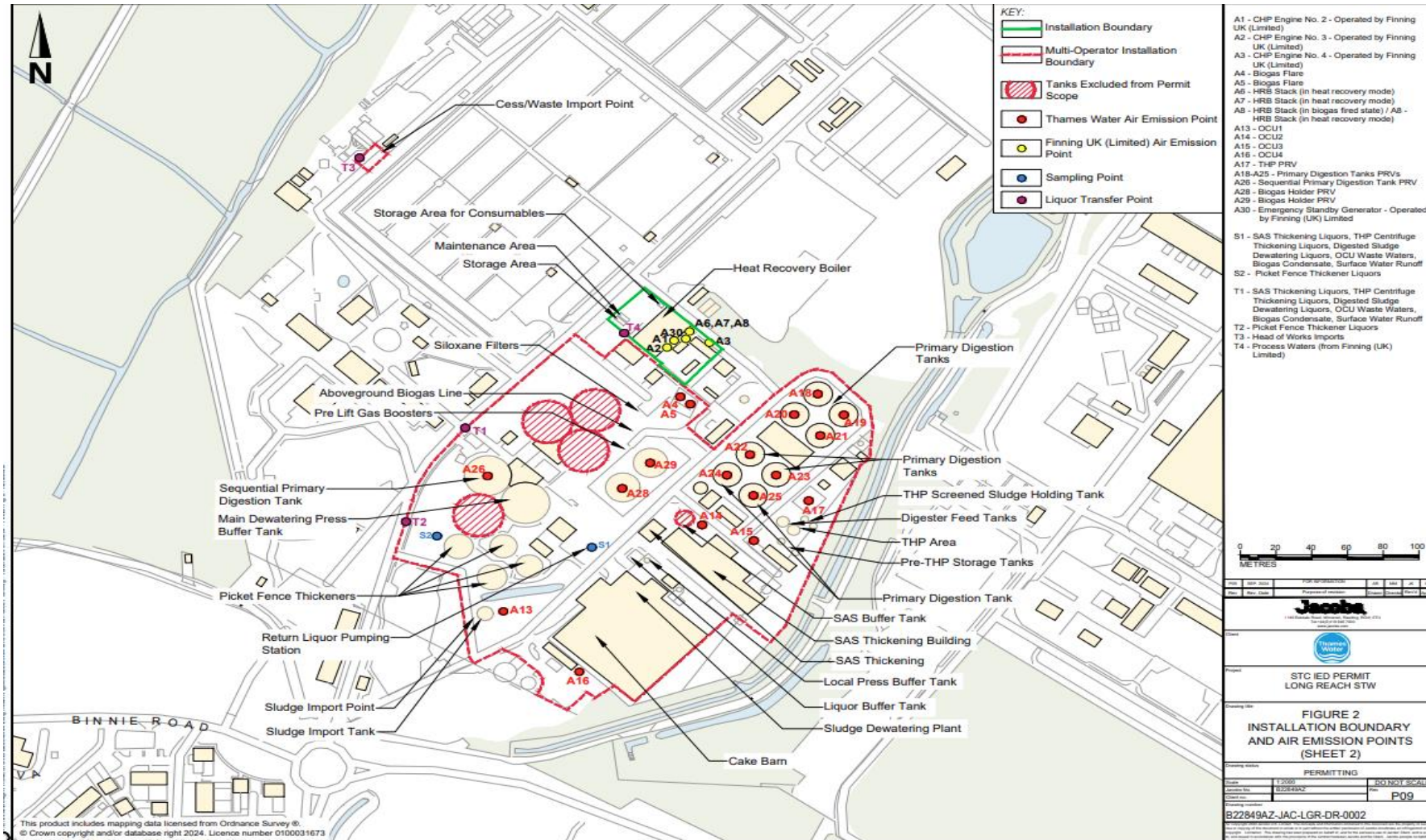
Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

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 a calendar year ending on 31 December.

Schedule 7 – Site plan



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Permit number
EPR/WP3838UH

Annex 1 of MCP

<p>1. Rated thermal input (MW) of the medium combustion plant.</p>	<p>CHP 2 -3.2 MWth CHP 3- 3.2 MWth CHP 4- 3.2 MWth Boiler 2.4 MWth</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>CHP 2- biogas CHP 3- biogas CHP 4- biogas Boiler- biogas or diesel</p>
<p>3. Type and share of fuels used according to the fuel categories laid down in Annex II.</p>	<p>CHP 2, 3 and 4 - Gaseous fuels other than natural gas Boiler - Gaseous fuels other than natural gas and gas oil Boiler - 500 hours when run on gas oil; above this threshold informing the need for emissions testing.</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>CHP 2, 3, 4 and boiler all operated prior to 20 December 2018.</p>
<p>5. Sector of activity of the medium combustion plant or the facility in which it is applied (NACE code).</p>	<p>37.00</p>
<p>6. Expected number of annual operating hours of the medium combustion plant and average load in use.</p>	<p>CHP 2-8,760 hours per year CHP 3-8,760 hours per year CHP 4- 8,760 hours per year Boiler- 8,760 hours per year when operating on biogas Boiler- 500 hours per year when operating on gas oil</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>N/A</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>Company name and registered office: Finning (UK) Limited, Watling Street, Cannock, Staffordshire, WS11 8LL Address where the plant is located: Long Reach Combined Heat and Power Plant Long Reach Sewage Treatment Works, Marsh Street, Dartford, Kent DA1 5PP</p>

END OF PERMIT