

Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

GB Bio Limited

Tansterne Biomass Power Plant
Hull Road
Aldbrough
East Yorkshire
HU11 4RE

Variation application number

EPR/WP3738DE/V002

Permit number

EPR/WP3738DE

Tansterne Biomass Power Plant

Permit number EPR/WP3738DE

Introductory note

This introductory note does not form a part of the notice

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

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

The effect of the variation is to:

- Amend the management of process water to allow discharge of process water to the reed bed, into the lagoon and then into the Fox Covert Drain via point W1;
- Add a package treatment plant for treatment of effluent from the site welfare facilities and discharge to the reed bed, into the lagoon and then into the Fox Covert Drain via point W1; and
- Amend the operator's registered office address.

Tansterne Biomass Power Plant is a commercial premises. The effluent is of a domestic nature only. The area is not served by a public foul sewer. The discharge is treated by a package sewage treatment plant, which will discharge to the Fox Covert Drain via the reed bed and lagoon.

There are no other changes to the installation which is operated as follows:

The installation is designed for the thermal treatment of waste wood derived biomass fuel. Energy will be recovered from the installation in the form of electricity, principally for export to the national grid. In addition the facility will be 'CHP ready' so that when a district heating market becomes available, the provision of heat to supply a local network will be achievable without any modifications to the installed system. The facility has a total capacity of approximately 76MW (thermal input) and is capable of generating up to 23 MWe (gross) of electricity with the capacity to export 21MWe to the national grid.

The installation is located at National Grid Reference TA 22500 37400, approximately 10km south of Hornsea and 16km northeast of Kingston upon Hull, East Yorkshire. The site is located upon former agricultural land located between Tansterne Lane and the B1238 near Aldbrough village. The site is relatively flat and is bounded on all sides by agricultural fields. The nearest residential dwellings are approximately 200 metres due west at Tansterne Fishery and Moat Farm, while to the southeast, Etherdwick Grange is located approximately 400 metres away. The nearest villages are Flinton, 1km due south, and Aldbrough, 2km to the northeast.

There is one Habitats Directive site (i.e. Special Area of Conservation, Special Protection Area or Ramsar) within 10km of the installation, namely, Hornsea Mere SPA, located approximately 9.5km due north of the installation. There are no Sites of Special Scientific Interest or non-statutory designated conservation sites within 2km of the installation. The nearest surface watercourse is Fox Covert Drain which runs along the edge of the site boundary. The site is not located within a designated floodplain.

The installation is capable of processing up to 257,120 tonnes of biomass per year in a twin line, fluidised bed gasification plant, with a maximum throughput in the order of 16 tonnes per hour per incineration line. The biomass, consisting of non-hazardous waste wood, will be delivered to site by road. The biomass will arrive pre-treated to a required specification but will receive further on-site pre-screening to remove oversize material (for return to the supplier) and any residual ferrous metals (for off-site recycling). All incoming biomass will be stored indoors within a dedicated fuel hall prior to being conveyed to two fluidised bed combustors (gasifiers).

The gasification process takes place in two zones within the gasifier, i.e. in the gasification zone, where the biomass fuel will be gasified within the fluidised bed, and in the oxidation zone, where the resultant syngas and any tars and char will be combusted. Combustion gases are then passed through a boiler to raise steam, which is then utilised in a steam turbine to generate electricity.

Combustion gases are cleaned before they are released to atmosphere. There are several components to flue gas cleaning and abatement:

- aqueous ammonia reagent is injected to control emissions of oxides of nitrogen in a selective non-catalytic reduction (SNCR) system. This is in addition to the incorporation of flue gas recirculation (FGR), to reduce the formation of oxides of nitrogen in the combustion chambers;
- dry sodium bicarbonate reagent is injected to neutralise acid gas compounds such as sulphur dioxide and hydrochloric acid;
- powdered activated carbon is injected to absorb heavy metals, dioxins and furans; and
- bag filtration is used to remove particulates.

Cleaned flue gases are discharged to atmosphere through a 55 metre tall stack and will be monitored either continuously or periodically in accordance with MCERTS requirements.

Uncontaminated surface water run-off from roofs and clean yard areas will be discharged to surface watercourse via an on-site lagoon, with the yard areas being served by Class 1 oil interceptors. Process effluent (consisting of condensate and boiler blowdown) will be recycled back to the boilers via a reverse osmosis plant, with the resultant wastewater being discharged to surface watercourse via the reed bed and lagoon. Foul water from staff welfare facilities will be treated in a dedicated on-site package sewage treatment plant and discharged to surface watercourse. There are no discharges to public sewer from the installation.

The incineration process results in several waste streams, including bottom ash and fly ash from the combustion process; air pollution control (APC) residues from the flue gas treatment process; and ferrous metals from the pre-screening process. These materials will be temporarily stored on site prior to recovery or disposal in a suitably licensed off-site facility.

The permit sets conditions controlling the management, operation and the control of emissions from the installation, including the monitoring and reporting of process emissions to all environmental media.

The schedules specify the changes made to the permit.

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

Status log of the permit		
Description	Date	Comments
Application EPR/WP3738DE/A001	Duly made 08/02/17	Application for 76MW thermal input Power Station
Response to Schedule 5 Notice dated 03/04/17 EPR/WP3738DE/A001	19/04/17	Information concerning the Applicant's Fire Prevention Plan (FPP)
Additional information received, response to email dated 14/08/17, EPR/WP3738DE/A001	22/08/17	Information concerning particulate control and abnormal operation conditions / emission limit values
Permit determined EPR/WP3738DE (Billing ref: WP3738DE)	03/11/17	Permit issued to GB-BIO Limited
Application EPR/WP3738DE/V002	Duly made 07/06/2021	Application for discharge of process effluent to surface water, for discharge of sewage to surface

Status log of the permit		
Description	Date	Comments
		water from package sewage treatment plant, update registered office address and consolidation of permit.
Additional information received	30/07/2021	Response to schedule 5 notice – information regarding mercury and copper for modelling
Additional information received	12/11/2021	Response to schedule 5 notice – revised site plan showing emission point to water
Variation determined and consolidation issued EPR/WP3738DE/V002 (Installation billing reference: HP3806LL)	09/12/2021	Varied and consolidated permit issued.

End of introductory note

Notice of variation and consolidation

The Environmental Permitting (England and Wales) Regulations 2016

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

Permit number

EPR/WP3738DE

Issued to

GB Bio Limited ("the operator")

whose registered office is

Regent's Court

Princess Street

Hull

East Yorkshire

HU2 8BA

company registration number 05847148

to operate regulated facilities at

Tansterne Biomass Power Plant

Hull Road

Aldbrough

East Yorkshire

HU11 4RE

to the extent set out in the schedules.

The notice shall take effect from 09/12/2021

Name	Date
Claire Roberts	09/12/2021

Authorised on behalf of the Environment Agency

Schedule 1

The following conditions were varied as a result of the application made by the operator:

- Condition 2.2.2 is added to identify the discharge point in relation to the package sewage treatment plant.
- Condition 2.3.14 is added to specify the design standard for package sewage treatment plant.
- Condition 4.3.6 is added to specify the notification requirements for changes to the package sewage treatment plant.
- Table S1.1, as referenced by condition 2.1.1, is amended to include the discharge of process water as a directly associated activity and the package sewage treatment activity.
- Table S1.2, as referenced by conditions 2.3.1 and 2.3.2, is amended to include the operating techniques for the changes to water management.
- Table S1.3, as referenced by condition 2.4.1, is amended to include a new improvement programme requirement.
- Table S3.2, as referenced by conditions 3.1.1, 3.5.1 and 3.5.4, is amended to include emission limits and monitoring requirements for the discharge of treated sewage and process water.
- Table S3.5, as referenced by condition 2.2.2, is added to specify the discharge point for the treated sewage.
- Schedule 7, as referenced by conditions 2.2.1 and 2.2.2, is amended by the replacement of the site plan with a new site plan.
- Conditions 1.2.1, 1.2.2, 1.2.3, 1.3.1, 1.4.1, 1.4.2, 2.2.1, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.3.2, 3.4.1, 3.4.2, 3.6.1, 3.6.2, 3.7.1, 4.2.2, 4.2.4 and 4.2.5 are amended by the addition of prefix text to reference the permitted activities that the condition applies to.

Schedule 2 – consolidated permit

Consolidated permit issued as a separate document.

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/WP3738DE

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/WP3738DE/V002 authorising,

GB Bio Limited ("the operator"),

whose registered office is

Regent's Court

Princess Street

Hull

East Yorkshire

HU2 8BA

company registration number 05847148

to operate an installation and a water discharge activity at

Tansterne Biomass Power Plant

Hull Road

Aldbrough

East Yorkshire

HU11 4RE

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

Name	Date
Claire Roberts	08/12/2021

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.

1.2 Energy efficiency

- 1.2.1 For the following activities referenced in schedule 1, table S1.1, AR1 to AR4, the operator shall:
- (a) take appropriate measures to ensure that energy is recovered with a high level of energy efficiency and 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.
- 1.2.2 For the following activities referenced in schedule 1, table S1.1, AR1 to AR4, the operator shall provide and maintain steam and/or hot water pass-outs such that opportunities for the further use of waste heat may be capitalised upon should they become practicable.
- 1.2.3 For the following activities referenced in schedule 1, table S1.1, AR1 to AR4, the operator shall review the viability of Combined Heat and Power (CHP) implementation at least every 4 years, or in response to any of the following factors, whichever comes sooner:
- (a) new plans for significant developments within 15 km of the installation;
 - (b) changes to the Local Plan;
 - (c) changes to the DECC UK CHP Development Map or similar; and
 - (d) new financial or fiscal incentives for CHP.

The results shall be reported to the Agency within 2 months of each review, including where there has been no change to the original assessment in respect of the above factors

1.3 Efficient use of raw materials

- 1.3.1 For the following activities referenced in schedule 1, table S1.1, AR1 to AR4, 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 For the following activities referenced in schedule 1, table S1.1, AR1 to AR4, 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 For the following activities referenced in schedule 1, table S1.1, AR1 to AR4, 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 Waste authorised by this permit shall be clearly distinguished from any other waste on the site.

2.2 The site

- 2.2.1 For the following activities referenced in schedule 1, table S1.1, AR1 to AR4, 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.
- 2.2.2 For the following activities referenced in schedule 1, table S1.1, AR5, the discharge activity shall take place at the discharge point marked on the site plan at schedule 7 to this permit, and as listed in table S3.5.

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 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.
- 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 fuel shall not be charged, or shall cease to be charged, if:
- (a) the combustion chamber temperature is below, or falls below, 850°C; or
 - (b) any continuous emission limit value in schedule 3 table S3.1(a) is exceeded; or
 - (c) any continuous emission limit value in schedule 3 table S3.1 is exceeded; or
 - (d) monitoring results required to demonstrate compliance with any continuous emission limit value in schedule 3 table S3.1 are unavailable other than under 'abnormal operating' conditions.
 - (e) there is a stoppage, disturbance or failure of the abatement plant, other than under abnormal operating conditions.
- 2.3.8 The operator shall have at least one auxiliary burner in each line which shall be operated at start up, shut down and as required during operation to ensure that the operating temperature specified in condition 2.3.7 is maintained as long as incompletely burned waste is present in the combustion chamber. Unless the temperature specified in condition 2.3.7 is maintained in the combustion chamber, such burner(s) shall be fed only with fuels which result in emissions no higher than those arising from the use of gas oil, liquefied gas or natural gas.
- 2.3.9 The operator shall record the beginning and end of each period of "abnormal operation".
- 2.3.10 During a period of "abnormal operation", the operator shall restore normal operation of the failed equipment or replace the failed equipment as rapidly as possible.
- 2.3.11 Where, during "abnormal operation", on a co-incineration line any of the following situations arise, waste shall cease to be charged on that line until normal operation can be restored:
- (a) continuous emission monitor(s) are out of service, for a total of 4 hours uninterrupted duration;
 - (b) there is a technically unavoidable stoppage, disturbance or failure of the abatement plant for a total of 4 hours uninterrupted duration;
 - (c) the cumulative duration of "abnormal operation" periods over 1 calendar year has reached 60 hours;
 - (d) continuous measurement shows that an emission exceeds any emission limit value in schedule 3 table S3.1(a);
 - (e) continuous emission monitors or alternative techniques to demonstrate compliance with the emission limit value(s) for particulates, TOC and / or CO in schedule 3 table S3.1 (a), agreed in writing with the Environment Agency, are unavailable.
- 2.3.12 The operator shall interpret the end of the period of "abnormal operation" as the earliest of the following:
- (a) when the failed equipment is repaired and brought back into normal operation;

- (b) when the operator initiates a shut-down of the waste fuel combustion activity, as described in the application or as agreed in writing with the Environment Agency;
- (c) when a period of four hours has elapsed from the start of the “abnormal operation”;
- (d) when, in any calendar year, an aggregated period of 60 hours “abnormal operation” has been reached.

2.3.13 Bottom ash and APC residues shall not be mixed.

2.3.14 The sewage treatment plant shall conform to all relevant British Standards in force at the time of installation.

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 tables S3.1 and S3.2 except in “abnormal operation”, when there shall be no point source emissions to air except from the sources and emission points listed in schedule 3 table S3.1(a).

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

3.1.3 Wastes produced at the site shall, as a minimum, be sampled and analysed in accordance with schedule 3 table S3.4. Additional samples shall be taken and tested and appropriate action taken, whenever:

- (a) disposal or recovery routes change; or
- (b) it is suspected that the nature or composition of the waste has changed such that the route currently selected may no longer be appropriate.

3.2 Emissions of substances not controlled by emission limits

3.2.1 For the following activities referenced in schedule 1, table S1.1, AR1 to AR4, emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.

3.2.2 For the following activities referenced in schedule 1, table S1.1, AR1 to AR4, 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 For the following activities referenced in schedule 1, table S1.1, AR1 to AR4, 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 For the following activities referenced in schedule 1, table S1.1, AR1 to AR4, the Operator shall carry out monitoring of soil and groundwater in accordance with IED articles 14(1)(b), 14(1)(e) and 16(2) to the protocol approved in writing with the Environment Agency under PO6.

3.3 Odour

3.3.1 For the following activities referenced in schedule 1, table S1.1, AR1 to AR4, 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 For the following activities referenced in schedule 1, table S1.1, AR1 to AR4, 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 For the following activities referenced in schedule 1, table S1.1, AR1 to AR4, 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 For the following activities referenced in schedule 1, table S1.1, AR1 to AR4, 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, S3.1(a) and S3.2;
- (b) process monitoring specified in table S3.3;
- (c) residue quality in table S3.4.

- 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) unless otherwise agreed in writing by the Environment Agency. Newly installed CEMs, or CEMs replacing existing CEMs, shall have MCERTS certification and have an MCERTS certified range which is not greater than 1.5 times the daily emission limit value (ELV) specified in schedule 3 table S3.1. The CEM shall also be able to measure instantaneous values over the ranges which are to be expected during all operating conditions. If it is necessary to use more than one range setting of the CEM to achieve this requirement, the CEM shall be verified for monitoring supplementary, higher ranges.
- 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, S3.1(a) and S3.2 unless otherwise agreed in writing by the Environment Agency.
- 3.5.5 Where Continuous Emission Monitors are installed to comply with the monitoring requirements in schedule 3 table S3.1; the Continuous Emission Monitors shall be used such that;
- the values of the 95% confidence intervals of a single measured result at the daily emission limit value shall not exceed the following percentages of the emission limit values:

• Carbon monoxide	10%
• Sulphur dioxide	20%
• Oxides of nitrogen (NO & NO ₂ expressed as NO ₂)	20%
• Particulate matter	30%
• Total organic carbon (TOC)	30%
• Hydrogen chloride	40%
 - valid half-hourly average values shall be determined within the effective operating time (excluding the start-up and shut-down periods) from the measured values after having subtracted the value of the confidence intervals in condition 3.5.5 (a);
 - where it is necessary to calibrate or maintain the monitor and this means that data are not available for a complete half-hour period, the half-hourly average shall in any case be considered valid if measurements are available for a minimum of 20 minutes during the half-hour. The number of half-hourly averages so validated shall not exceed 5 per day;
 - daily average values shall be determined as the average of all the valid half-hourly average values within a calendar day. The daily average value shall be considered valid if no more than five half-hourly average values in any day have been determined not to be valid;
 - no more than ten daily average values per year shall be determined not to be valid.

3.6 Pests

- 3.6.1 For the following activities referenced in schedule 1, table S1.1, AR1 to AR4, 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 For the following activities referenced in schedule 1, table S1.1, AR1 to AR4, the operator shall:

- (a) 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;
- (b) 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 For the following activities referenced in schedule 1, table S1.1, AR1 to AR4, 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.

4 Information

4.1 Records

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

4.2 Reporting

- 4.2.1 The operator shall send all reports and notifications required by the permit to the Environment Agency using the contact details supplied in writing by the Environment Agency.
- 4.2.2 For the following activities referenced in schedule 1, table S1.1, AR1 to AR4, 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.
 - (d) the functioning and monitoring of the incineration plant in a format agreed with the Environment Agency. The report shall, as a minimum requirement (as required by Chapter IV of the Industrial Emissions Directive) give an account of the running of the process and the emissions into air and water compared with the emission standards in the IED.

- 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 For the following activities referenced in schedule 1, table S1.1, AR1 to AR4, 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 For the following activities referenced in schedule 1, table S1.1, AR1 to AR4, 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.

4.3 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 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.

4.3.4 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.

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

4.3.6 For the following activities referenced in schedule 1, table S1.1, AR5, where the operator proposes to make a change in the nature of the activity by increasing the concentration of, or the addition of, or allowing the introduction of, a substance to the activity to an extent that the operator considers could have a significant adverse environmental effect on the receiving waters, and the change is not the subject of an application for approval under the EP Regulations or under the terms of this permit:

(a) the Environment Agency shall be notified in writing at least 14 days before the increase or addition or allowing the introduction; and

(b) the notification shall contain a description of the proposed change.

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	Limits of specified activity
AR1	S5.1 A1 (b)	The incineration of non-hazardous waste in a waste co-incineration plant with a capacity of 3 tonnes per hour or more. D10: Incineration on land	From receipt of waste to emission of exhaust gas and disposal of waste arising. Waste types and quantities as specified in Table S2.2 of this permit.
Directly Associated Activities			
AR2	Electricity Generation	Generation of 23MWe electrical power using a steam turbine from energy recovered from the flue gases.	From receipt of steam to export of electricity for either on-site use or export to the grid
AR3	Back-up diesel generator	For providing emergency electrical power to the plant in the event of supply interruption.	From receipt of fuel to generation of electricity for on-site use and emission of exhaust gases
AR4	Discharge of process water	Discharge of boiler blowdown and waste water from the water treatment plant to the Fox Covert Drain via the reed bed and lagoon.	From collection of boiler blow down and waste water in the process water tank to discharge to the reed bed and lagoon and then to the Fox Covert Drain via emission point W1.
Discharge of domestic sewage effluent			
AR5	-	Discharge of secondary treated sewage effluent via emission point W1	No more than 5 m ³ of sewage effluent shall be discharged to the reed bed per day.

Table S1.2 Operating techniques		
Description	Parts	Date Received
Application EPR/WP3738DE/A001	Parts B2 and B3 of the Application Form. The Supporting Information document including associated Appendices, with the exception of the Fire Prevention Plan.	01/12/16
Response to Not Duly Made letter, dated 26/01/17	Response to following questions: Q5 - incineration process diagram Q6 - biomass handling system diagram Q7 - emission points plan Q8 - site plan showing installation boundary Q11 - waste types accepted for incineration	08/02/17
Fire Prevention Plan	Report No. 70022642 Appendix J, Tansterne Biomass Power Plant, Fire Prevention Plan, June 2017 – Rev 2.	03/07/17

Table S1.2 Operating techniques		
Description	Parts	Date Received
	Site Layout Plan (Drawing no. 15457-H-DG-005, Rev. P1, dated June 2017)	
Application EPR/WP3738DE/V002	The following sections of document titled Tansterne Environmental Permit Variation, dated December 2020: 4.2 Discharge of Process Effluent 5.2 Point source emissions to water 5.7 Monitoring	13/01/2021
Response to schedule 5 notice dated 13/10/2021	Revised site plan reference 13800-H-DR-901-P1, dated November 2021 Completion of Attenuation plan reference 13800- H-DR-901-P6, dated June 2019	10/11/2021

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC1	The Operator shall submit a written report to the Environment Agency on the implementation of its Environmental Management System (EMS) and the progress made in the certification of the system by an external body or if appropriate submit a schedule by which the EMS will be certified.	Within 12 months of the completion of commissioning.
IC2	The Operator shall submit a written proposal to the Environment Agency to carry out tests to determine the size distribution of the particulate matter in the exhaust gas emissions to air from emission points A1 and A2, identifying the fractions within the PM ₁₀ , and PM _{2.5} ranges. On receipt of written approval from the Environment Agency to the proposal and the timetable, the Operator shall carry out the tests and submit to the Environment Agency a report on the results.	Within 6 months of the completion of commissioning.
IC3	The Operator shall submit a written report to the Environment Agency on the commissioning of the installation. The report shall summarise the environmental performance of the plant as installed against the design parameters set out in the Application. The report shall also include a review of the performance of the facility against the conditions of this permit and details of procedures developed during commissioning for achieving and demonstrating compliance with permit conditions and confirm that the Environmental Management System (EMS) has been updated accordingly.	Within 4 months of the completion of commissioning.
IC4	The Operator shall carry out checks to verify the residence time, minimum temperature and oxygen content of the exhaust gases in the furnace whilst operating under the anticipated most unfavourable operating conditions. The results shall be submitted in writing to the Environment Agency and include a comparison with the CFD modelling submitted with PO6.	Within 4 months of the completion of commissioning.

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC5	<p>The Operator shall submit a written report to the Environment Agency describing the performance and optimisation of:</p> <ul style="list-style-type: none"> • The Selective Non Catalytic Reduction (SNCR) system and combustion settings to minimise oxides of nitrogen (NO_x). The report shall include an assessment of the level of NO_x, N₂O and NH₃ emissions that can be achieved under optimum operating conditions. • The sodium bicarbonate injection system for minimisation of acid gas emissions. • The carbon injection system for minimisation of dioxin and heavy metal emissions. 	Within 4 months of the completion of commissioning.
IC6	<p>The Operator shall submit a written summary report to the Environment Agency to confirm by the results of calibration and verification testing that the performance of Continuous Emission Monitors for parameters as specified in Table S3.1 and Table S3.1(a) complies with the requirements of BS EN 14181, specifically the requirements of QAL1, QAL2 and QAL3.</p>	<p>Initial calibration report to be submitted to the Agency within 3 months of completion of commissioning.</p> <p>Full summary evidence compliance report to be submitted within 18 months of completion of commissioning.</p>
IC7	<p>The Operator shall submit a noise impact assessment report undertaken in accordance with the procedures given in BS4142:2014, <i>Methods for rating and assessing industrial and commercial sound</i>. The assessment shall include the identification and assessment of the impact of noise emissions upon surrounding sensitive receptors arising from the operation of the installation, in order to verify the results of the predictive noise modelling submitted with the permit application.</p> <p>In the event that the report indicates an adverse impact (or greater) at residential receptors, the report shall include proposals for the further attenuation and/or management of noise and shall include a timescale, to be agreed with the Environment Agency, for the implementation of these proposed measures.</p>	Within 12 months of the completion of commissioning.
IC8	<p>The operator shall collect a minimum of 12 representative samples over a 12 month period from the discharge at SW1 and from the Fox Covert Drain upstream of the discharge. The samples shall be obtained monthly or when discharging and shall be tested for the following parameters:</p> <ul style="list-style-type: none"> • Ammonia • Cadmium and its compounds • Chloride • Copper • Fluoride • Iron • Lead • Mercury and its compounds • Sulphate 	01/06/2023

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
	<ul style="list-style-type: none"> • Zinc <p>in accordance with the methods specified in schedule 3, table S3.2 of the permit. The limits of detection used in the analysis shall be 10% of the environmental quality standards or lower.</p> <p>The operator shall submit a written report of the testing together with an assessment of impact of the emissions on the Fox Covert Drain to the Environment Agency for approval.</p> <p>The report shall include:</p> <ul style="list-style-type: none"> • the results of this sampling; • an assessment of the impact of the emissions based on the sampling data using the H1 screening tool; • proposals and justification for: <ul style="list-style-type: none"> ○ any changes to monitoring; ○ any emission limits, including where none are proposed; ○ any actions to be carried out to reduce the impact of the discharge, as necessary. 	

Table S1.4 Pre-operational measures	
Reference	Pre-operational measures
PO1	Prior to the commencement of commissioning, the Operator shall send a summary of the site Environment Management System (EMS) to the Environment Agency and make available for inspection all documents and procedures which form part of the EMS. The EMS shall be developed in line with the requirements set out in Environment Agency web guide on developing a management system for environmental permits (found on www.gov.uk). The documents and procedures set out in the EMS shall form the written management system referenced in condition 1.1.1 (a) of the permit.
PO2	Prior to the commencement of commissioning, the Operator shall submit to the Environment Agency for approval a protocol for the sampling and testing of incinerator bottom ash for the purposes of assessing its hazard status. Sampling and testing shall be carried out in accordance with the protocol as approved.
PO3	Prior to the commencement of commissioning, the Operator shall provide a written commissioning plan, including timelines for completion, for approval by the Environment Agency. The commissioning plan shall include the expected emissions to the environment during the different stages of commissioning, the expected durations of commissioning activities and the actions to be taken to protect the environment and report to the Environment Agency in the event that actual emissions exceed expected emissions. Commissioning shall be carried out in accordance with the commissioning plan as approved.
PO4	<p>Prior to the commencement of commissioning, the Operator shall submit a written report to the Agency detailing the waste acceptance procedure to be used at the site. The waste acceptance procedure shall include the process and systems by which wastes unsuitable for incineration at the site will be controlled.</p> <p>The procedure shall be implemented in accordance with the written approval from the Agency.</p>

Table S1.4 Pre-operational measures	
Reference	Pre-operational measures
PO5	After completion of furnace design and at least three calendar months before commencement of commissioning; the operator shall submit a written report to the Agency of the details of the computational fluid dynamic (CFD) modelling. The report shall demonstrate whether the design combustion conditions comply with the residence time and temperature requirements as defined by Chapter IV and Annex VI of the IED.
PO6	<p>The Operator shall submit the written protocol referenced in condition 3.2.4 for the monitoring of soil and groundwater for approval by the Environment Agency. The protocol shall demonstrate how the Operator will meet the requirements of Articles 14(1)(b), 14(1)(e) and 16(2) of the IED.</p> <p>The procedure shall be implemented in accordance with the written approval from the Agency.</p>

Schedule 2 – Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	Specification
Fuel Oil	< 0.1% sulphur content

Table S2.2 Permitted waste types and quantities for incineration plant	
Maximum quantity	257,120 tonnes per annum
Waste code	Description
03	Wastes from wood processing and the production of panels and furniture, pulp, paper and cardboard
03 01	wastes from wood processing and the production of panels and furniture
03 01 01	waste bark and cork
03 01 05	sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04
03 03	wastes from pulp, paper and cardboard production and processing
03 03 01	waste bark and wood
15	Waste packaging, absorbents, wiping cloths, filter materials and protective clothing not otherwise specified
15 01	packaging (including separately collected municipal packaging waste)
15 01 03	wooden packaging
17 02	wood, glass and plastic
17 02 01	wood
19	Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use
19 12	wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified
19 12 07	wood other than that mentioned in 19 12 06
20	Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions
20 01	separately collected fractions (except 15 01)
20 01 38	wood other than that mentioned in 20 01 37

Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point(s) ref. & location	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A1 & A2 [Points A1 & A2 on drawing C152-PP-GA-10001 Rev 02, submitted with application A001]	Particulate matter	Incineration exhaust gases	15 mg/m ³	daily average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A1 & A2 [Points A1 & A2 on drawing C152-PP-GA-10001 Rev 02, submitted with application A001]	Total Organic Carbon (TOC)	Incineration exhaust gases	15 mg/m ³	daily average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A1 & A2 [Points A1 & A2 on drawing C152-PP-GA-10001 Rev 02, submitted with application A001]	Hydrogen chloride	Incineration exhaust gases	15 mg/m ³	daily average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A1 & A2 [Points A1 & A2 on drawing C152-PP-GA-10001 Rev 02, submitted with application A001]	Hydrogen fluoride	Incineration exhaust gases	3 mg/m ³	periodic over minimum 1-hour period	Quarterly in first year. Then Bi-annual	BS ISO 15713
A1 & A2 [Points A1 & A2 on drawing C152-PP-GA-10001 Rev 02, submitted with application A001]	Carbon monoxide	Incineration exhaust gases	75 mg/m ³	daily average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A1 & A2 [Points A1 & A2 on drawing C152-PP-GA-10001 Rev 02, submitted with application A001]	Sulphur dioxide	Incineration exhaust gases	75 mg/m ³	daily average	Continuous measurement	BS EN 14181 and BS EN 15267-3

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point(s) ref. & location	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A1 & A2 [Points A1 & A2 on drawing C152-PP-GA-10001 Rev 02, submitted with application A001]	Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)	Incineration exhaust gases	300 mg/m ³	daily average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A1 & A2 [Points A1 & A2 on drawing C152-PP-GA-10001 Rev 02, submitted with application A001]	Cadmium & thallium and their compounds (total)	Incineration exhaust gases	0.05 mg/m ³	periodic over minimum 30 minute, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 14385
A1 & A2 [Points A1 & A2 on drawing C152-PP-GA-10001 Rev 02, submitted with application A001]	Mercury and its compounds	Incineration exhaust gases	0.05 mg/m ³	periodic over minimum 30 minute, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 13211
A1 & A2 [Points A1 & A2 on drawing C152-PP-GA-10001 Rev 02, submitted with application A001]	Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)	Incineration exhaust gases	0.5 mg/m ³	periodic over minimum 30 minute, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 14385
A1 & A2 [Points A1 & A2 on drawing C152-PP-GA-10001 Rev 02, submitted with application A001]	Nitrous oxide (N ₂ O)	Incineration exhaust gases	No limit set	daily average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A1 & A2 [Points A1 & A2 on drawing C152-PP-GA-10001 Rev 02, submitted with application A001]	Dioxins / furans (I-TEQ)	Incineration exhaust gases	0.1 ng/m ³	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Parts 1, 2 and 3
A1 & A2 [Points A1 & A2 on drawing C152-PP-GA-10001 Rev 02, submitted with application A001]	Dioxins / furans (WHO-TEQ Humans / Mammals)	Incineration exhaust gases	No limit set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Parts 1, 2 and 3

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point(s) ref. & location	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A1 & A2 [Points A1 & A2 on drawing C152-PP-GA-10001 Rev 02, submitted with application A001]	Dioxins / furans (WHO-TEQ Fish)	Incineration exhaust gases	No limit set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Parts 1, 2 and 3
A1 & A2 [Points A1 & A2 on drawing C152-PP-GA-10001 Rev 02, submitted with application A001]	Dioxins / furans (WHO-TEQ Birds)	Incineration exhaust gases	No limit set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Parts 1, 2 and 3
A1 & A2 [Points A1 & A2 on drawing C152-PP-GA-10001 Rev 02, submitted with application A001]	Dioxin-like PCBs (WHO-TEQ Humans / Mammals)	Incineration exhaust gases	No limit set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948-4
A1 & A2 [Points A1 & A2 on drawing C152-PP-GA-10001 Rev 02, submitted with application A001]	Dioxin-like PCBs (WHO-TEQ Fish)	Incineration exhaust gases	No limit set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948-4
A1 & A2 [Points A1 & A2 on drawing C152-PP-GA-10001 Rev 02, submitted with application A001]	Dioxin-like PCBs (WHO-TEQ Birds)	Incineration exhaust gases	No limit set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948-4
A1 & A2 [Points A1 & A2 on drawing C152-PP-GA-10001 Rev 02, submitted with application A001]	Specific individual polycyclic aromatic hydrocarbons (PAHs), as specified in Schedule 6.	Incineration exhaust gases	No limit set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	Procedure shall use BS ISO 11338-1 and BS-ISO 11338-2.

Table S3.1(a) Point source emissions to air during abnormal operation of incineration plant – emission limits and monitoring requirements						
Emission point ref. & location	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A1 & A2 [Points A1 & A2 on drawing C152-PP-GA-10001 Rev 02, submitted with application A001]	Particulate matter	Incineration exhaust gases	150 mg/m ³	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3 [during abatement plant failure]
A1 & A2 [Points A1 & A2 on drawing C152-PP-GA-10001 Rev 02, submitted with application A001]	Total Organic Carbon (TOC)	Incineration exhaust gases	20 mg/m ³	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3 [during abatement plant failure]
A1 & A2 [Points A1 & A2 on drawing C152-PP-GA-10001 Rev 02, submitted with application A001]	Carbon monoxide	Incineration exhaust gases	100 mg/m ³	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3 [during abatement plant failure]

Table S3.2 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (incl. unit)	Reference Period	Monitoring frequency	Monitoring standard or method
W1 ^{Note 1} As shown on drawing reference H-DR-901 rev P2, dated Nov 2021	Uncontaminated surface water run-off from roof and clean yard areas, secondary treated sewage effluent and process water	Maximum daily flow	407 m³/day	Total daily volume	Monthly	-
		Visual appearance	The discharge must so far as is reasonably practicable have no significant adverse visible effect on the receiving water, the bed of the watercourse or any plants or animals within the watercourse	Instantaneous (visual examination)	-	Visual examination
		Visible oil or grease	No significant trace present so far as is reasonably practicable	Instantaneous (visual examination)	-	Visual examination
		Ammonia	Note 2	Spot	Monthly or when discharging ^{Note 3}	Environment Agency web guide: <i>Monitoring discharges to water: CEN and ISO monitoring methods</i>
		Cadmium and its compounds	Note 2			
		Chloride	Note 2			
		Copper	Note 2			
		Fluoride	Note 2			
		Iron	Note 2			
		Lead and its compounds	Note 2			
		Mercury and its compounds	Note 2			
		Sulphate	Note 2			
		Zinc	Note 2			
		Note 1: Monitoring shall take place at the monitoring point in the lagoon at NGR TA 22688 37349 as shown on drawing reference H-DR-901 revision P2, dated Nov 2021				
Note 2: Limit (if required) to be determined following outcome of completion of IC8 in table S1.3						
Note 3: Frequency (if required) to be determined following outcome of completion of IC8 in table S1.3						

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
As agreed in writing with the Agency	Wind Speed and Direction	Continuous	Anemometer	-
Location close to the Combustion Chamber inner wall or as identified and justified in Application	Temperature (°C)	Continuous	Traceable to national standards	As agreed in writing with the Agency.
A1 & A2 [Points A1 & A2 on drawing C152-PP-GA-10001 Rev 02, submitted with application A001]	Exhaust gas temperature	Continuous	Traceable to national standards	As agreed in writing with the Agency.
A1 & A2 [Points A1 & A2 on drawing C152-PP-GA-10001 Rev 02, submitted with application A001]	Exhaust gas pressure	Continuous	Traceable to national standards	As agreed in writing with the Agency.
A1 & A2 [Points A1 & A2 on drawing C152-PP-GA-10001 Rev 02, submitted with application A001]	Exhaust gas oxygen content	Continuous	BS EN 15267-3 BS EN 14181	-
A1 & A2 [Points A1 & A2 on drawing C152-PP-GA-10001 Rev 02, submitted with application A001]	Exhaust gas water vapour content	Continuous	BS EN 15267-3 BS EN 14181	Unless gas is dried before analysis of emissions.

Table S3.4 Residue quality					
Emission point reference or source or description of point of measurement	Parameter	Limit	Monitoring frequency	Monitoring standard or method *	Other specifications
Bottom Ash	TOC / LOI #	<3% TOC <5% LOI	Monthly in the first year of operation. Then Quarterly	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	-
Bottom Ash	Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs.	-	Monthly in the first year of operation. Then Quarterly	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	-
Bottom Ash	Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions	-	Before use of a new disposal or recycling route	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	-
APC Residues	Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs.	-	Monthly in the first year of operation. Then Quarterly	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	-
APC Residues	Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions	-	Before use of a new disposal or recycling route	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	-

Table S3.4 Residue quality					
Emission point reference or source or description of point of measurement	Parameter	Limit	Monitoring frequency	Monitoring standard or method *	Other specifications
Fly Ash	Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs.	-	Monthly in the first year of operation. Then Quarterly	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	-
Fly Ash	Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions	-	Before use of a new disposal or recycling route	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	-

* Or other equivalent standard as agreed in writing with the Environment Agency.

At least one of TOC or LOI to be reported.

Table S3.5 Discharge points			
Effluent Name	Discharge Point	Discharge point NGR	Receiving water/Environment
Secondary treated sewage effluent	W1	TA 22688 37349	Fox Covert Drain

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 Parameters as required by condition 3.5.1	A1 & A2	Quarterly	1 Jan, 1 Apr, 1 Jul and 1 Oct
TOC / LOI Parameters as required by condition 3.5.1	Bottom Ash	Quarterly (but monthly for the first year of operation)	1 Jan, 1 Apr, 1 Jul and 1 Oct
Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs Parameters as required by condition 3.5.1	Bottom Ash	Quarterly (but monthly for the first year of operation)	1 Jan, 1 Apr, 1 Jul and 1 Oct
Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions Parameters as required by condition 3.5.1	Bottom Ash	Before use of a new disposal or recycling route	-
Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs Parameters as required by condition 3.5.1	APC Residues	Quarterly (but monthly for the first year of operation)	1 Jan, 1 Apr, 1 Jul and 1 Oct
Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions Parameters as required by condition 3.5.1	APC Residues	Before use of a new disposal or recycling route	-
Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs Parameters as required by condition 3.5.1	Fly Ash	Quarterly (but monthly for the first year of operation)	1 Jan, 1 Apr, 1 Jul and 1 Oct

Table S4.1 Reporting of monitoring data			
Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions Parameters as required by condition 3.5.1	Fly Ash	Before use of a new disposal or recycling route	-
Functioning and monitoring of the incineration plant as required by condition 4.2.2	-	Annually	1 Jan
Emissions to water	W1	Annually	1 Jan

Table S4.2: Annual production/treatment	
Parameter	Units
Total waste wood incinerated	tonnes
Electrical energy produced	KWh
Thermal energy produced, e.g. steam for export	KWh
Electrical energy exported	KWh
Electrical energy used on the installation	KWh
Heat energy exported from the installation	KWh
Waste heat utilised by the installation	KWh

Table S4.3 Performance parameters		
Parameter	Frequency of assessment	Units
Electrical energy exported, imported and used at the installation	Annually	KWh / tonne of waste incinerated
Fuel oil consumption	Annually	Kg / tonne of waste incinerated
Mass of Bottom Ash produced	Annually	Kg / tonne of waste incinerated
Mass of APC residues produced	Annually	Kg / tonne of waste incinerated
Mass of Fly Ash produced	Annually	Kg / tonne of waste incinerated
Mass of other solid residues produced	Annually	Kg / tonne of waste incinerated
Ammonia consumption	Annually	Kg / tonne of waste incinerated
Activated Carbon consumption	Annually	Kg / tonne of waste incinerated
Sodium Bicarbonate consumption	Annually	Kg / tonne of waste incinerated

Table S4.3 Performance parameters		
Parameter	Frequency of assessment	Units
Water consumption	Annually	Kg / tonne of waste incinerated
Periods of abnormal operation	Annually	No of occasions and cumulative hours for current calendar year for each line.

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	01/11/17
Water and raw material usage	Form WU/RM1 1 or other form as agreed in writing by the Environment Agency	01/11/17
Energy usage	Form energy 1 or other 1.2.form as agreed in writing by the Environment Agency	01/11/17
Waste disposal/recovery	Form R1 or other form as agreed in writing by the Environment Agency	01/11/17
Residue quality	Form residue 1 or other form as agreed in writing by the Environment Agency	01/11/17
Other performance indicators	Form performance 1 or other form as agreed in writing by the Environment Agency	01/11/17
Water	Emissions to Water Reporting Form, or other form as agreed in writing by the Environment Agency	Version 1, 08/03/2021

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

“abatement equipment” means that equipment dedicated to the removal of polluting substances from releases from the installation to air or water media.

“abnormal operation” means any technically unavoidable stoppages, disturbances, or failures of the abatement plant or the measurement devices

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

“APC residues” means air pollution control residues

“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.

“bottom ash” means the solid residue removed from the fluidised bed

“CEM” Continuous emission monitor

“CEN” means Comité Européen de Normalisation

“bi-annual” means twice per year with at least five months between tests;

“commissioning” means testing of the new incineration plant that involves any operation of the furnace or as agreed with the Environment Agency.

“daily average” for releases of substances to air means the average of valid half-hourly averages over a calendar day during normal operation.

“dioxin and furans” means polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans.

“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 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.

“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.

“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.

“Hazardous property” has the meaning in Annex III of the Waste Framework Directive

“incineration line” means all of the incineration equipment related to a common discharge to air location.

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

“ISO” means International Standards Organisation.

“List of Wastes” means the list of wastes established by Commission Decision 2000/532/EC replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste and Council Decision 94/904/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 91/689/EEC on hazardous waste, as amended from time to time

“LOI” means loss on ignition a technique used to determine the combustible material by heating the ash residue to a high temperature

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

“PAH” means Poly-cyclic aromatic hydrocarbon, and comprises Anthanthrene, Benzo[a]anthracene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Benzo[b]naph(2,1-d)thiophene, Benzo[c]phenanthrene, Benzo[ghi]perylene, Benzo[a]pyrene, Cholanthrene, Chrysene, Cyclopenta[c,d]pyrene, Dibenzo[ah]anthracene, Dibenzo[a,i]pyrene Fluoranthene, Indo[1,2,3-cd]pyrene, Naphthalene

“PCB” means Polychlorinated Biphenyl. Dioxin-like PCBs are the non-ortho and mono-ortho PCBs listed in the table below.

“pests” means Birds, Vermin and Insects.

“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.

“shut down” is any period where the plant is being returned to a non-operational state and there is no waste being burned.

“start up” is any period, where the plant has been non-operational, after igniting the auxiliary burner until waste fuel has been fed to the plant in sufficient quantity to cover the grate and to initiate steady-state conditions.

“TOC” means Total Organic Carbon. In respect of releases to air, this means the gaseous and vaporous organic substances, expressed as TOC. In respect of Bottom Ash, this means the total carbon content of all organic species present in the ash (excluding carbon in elemental form).

“Waste code” means the six digit code referable to a type of waste in accordance with the List of Wastes 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.

“year” means calendar year ending 31 December.

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:

- (a) 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, 6% dry for solid fuels; and/or
- (b) 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;
- (c) in relation to gases from co-incineration plants the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 6% dry.

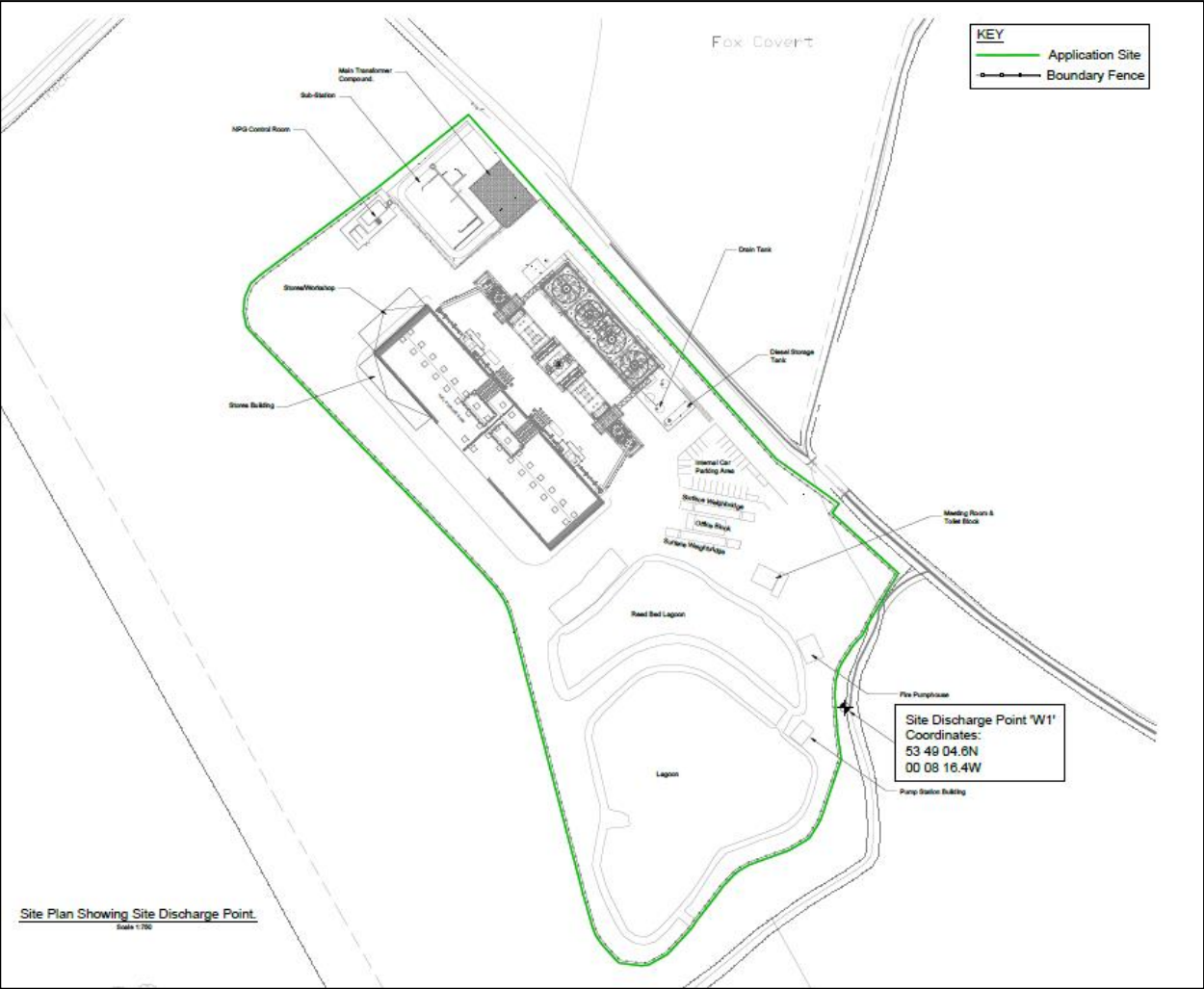
For dioxins/furans and dioxin-like PCBs the determination of the toxic equivalence concentration (I-TEQ, & WHO-TEQ for dioxins/furans, WHO-TEQ for dioxin-like PCBs) stated as a release limit and/ or reporting requirement, the mass concentrations of the following congeners have to be multiplied with their respective toxic equivalence factors before summing. When reporting on measurements of dioxins/furans and dioxin-like PCBs, the toxic equivalence concentrations should be reported as a range based on: all congeners less than the detection limit assumed to be zero as a minimum, and all congeners less than the detection limit assumed to be at the detection limit as a maximum. However the minimum value should be used when assessing compliance with the emission limit value in table S3.1.

TEF schemes for dioxins and furans				
Congener	I-TEF	WHO-TEF		
	1990	2005	1997/8	
		Humans / Mammals	Fish	Birds
Dioxins				
2,3,7,8-TCDD	1	1	1	1
1,2,3,7,8-PeCDD	0.5	1	1	1
1,2,3,4,7,8-HxCDD	0.1	0.1	0.5	0.05
1,2,3,6,7,8-HxCDD	0.1	0.1	0.01	0.01
1,2,3,7,8,9-HxCDD	0.1	0.1	0.01	0.1
1,2,3,4,6,7,8-HpCDD	0.01	0.01	0.001	<0.001
OCDD	0.001	0.0003	-	-
Furans				
2,3,7,8-TCDF	0.1	0.1	0.05	1
1,2,3,7,8-PeCDF	0.05	0.03	0.05	0.1
2,3,4,7,8-PeCDF	0.5	0.3	0.5	1
1,2,3,4,7,8-HxCDF	0.1	0.1	0.1	0.1
1,2,3,7,8,9-HxCDF	0.1	0.1	0.1	0.1
1,2,3,6,7,8-HxCDF	0.1	0.1	0.1	0.1
2,3,4,6,7,8-HxCDF	0.1	0.1	0.1	0.1
1,2,3,4,6,7,8-HpCDF	0.01	0.01	0.01	0.01
1,2,3,4,7,8,9-HpCDF	0.01	0.01	0.01	0.01
OCDF	0.001	0.0003	0.0001	0.0001

TEF schemes for dioxin-like PCBs			
Congener	WHO-TEF		
	2005	1997/8	
	Humans / mammals	Fish	Birds
Non-ortho PCBs			
3,4,4',5-TCB (81)	0.0001	0.0005	0.1
3,3',4,4'-TCB (77)	0.0003	0.0001	0.05
3,3',4,4',5 - PeCB (126)	0.1	0.005	0.1
3,3',4,4',5,5'-HxCB(169)	0.03	0.00005	0.001
Mono-ortho PCBs			
2,3,3',4,4'-PeCB (105)	0.00003	<0.000005	0.0001
2,3,4,4',5-PeCB (114)	0.00003	<0.000005	0.0001

TEF schemes for dioxin-like PCBs			
Congener	WHO-TEF		
	2005	1997/8	
	Humans / mammals	Fish	Birds
2,3',4,4',5-PeCB (118)	0.00003	<0.000005	0.00001
2',3,4,4',5-PeCB (123)	0.00003	<0.000005	0.00001
2,3,3',4,4',5-HxCB (156)	0.00003	<0.000005	0.0001
2,3,3',4,4',5'-HxCB (157)	0.00003	<0.000005	0.0001
2,3',4,4',5,5'-HxCB (167)	0.00003	<0.000005	0.00001
2,3,3',4,4',5,5'-HpCB (189)	0.00003	<0.000005	0.00001

Schedule 7 – Site plan



END OF PERMIT