Non-Technical Summary EPR/FP3628SH/P001

Brains Farm Anaerobic Digestion Plant

Japan Environmental Development and Investment UK Limited

Report No. CRM 0169 001 PE R 003 NTS

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Project:	Brains Farm Anaerobic Digestion Plant
For:	Japan Environmental Development and Investment UK Limited
Status:	Final
Date:	February 2024
Author:	Steph Charnaud, Director of Permitting
Reviewer:	Peter Cumberlidge, Director

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Tables and Figures

1.0 Non-Technical Summary

1.1 Introduction

1.1.1 This non-technical summary provides an overview of an application submitted to the Environment Agency (EA) for a Bespoke Environmental Permit reference EPR/FP3628SH/P001, for an Anaerobic Digestion (AD) Plant at Land at Brains Farm, Moor Lane, Wincanton Somerset, BA9 9DP referred to as 'The Facility' throughout this document.

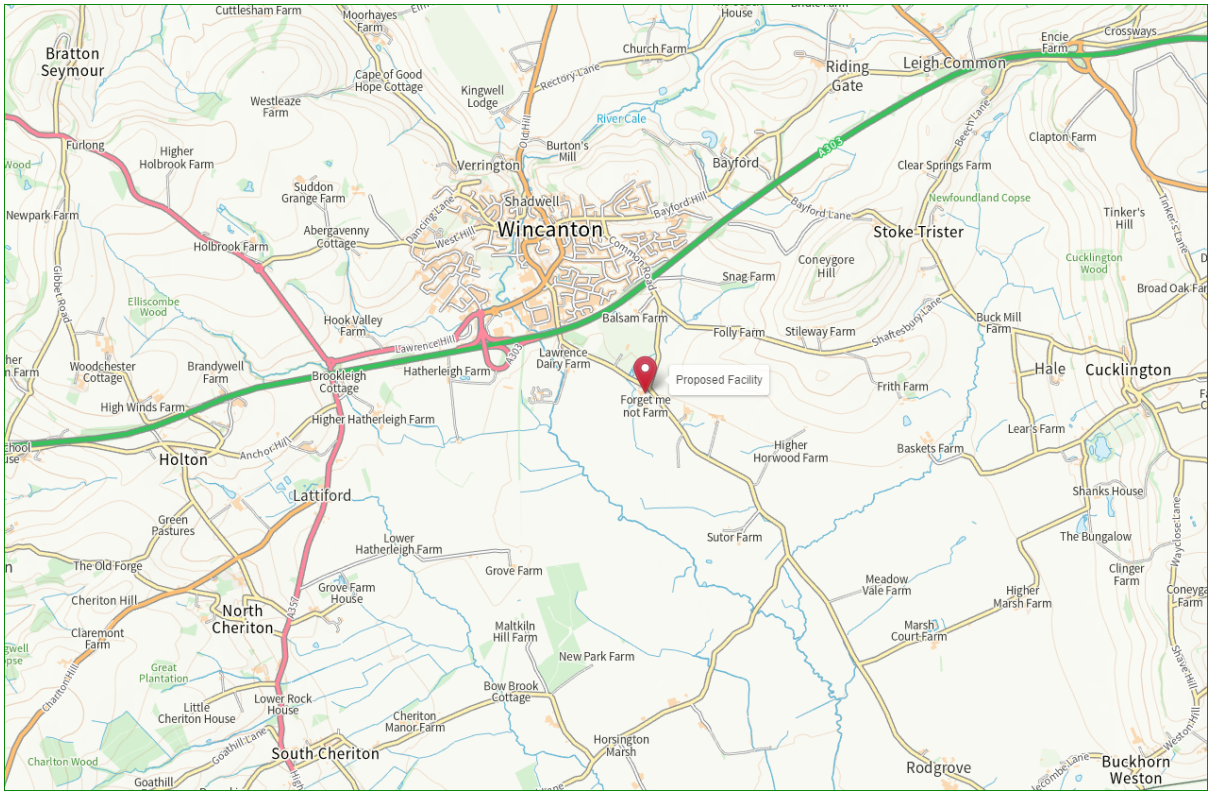
1.1.2 The Facility will be operated by Japan Environmental Development and Investment UK Limited (JEDI) ('The Operator') whose registered office is 95 Gresham Street, London, England, EC2V 7AB. The Company Number as registered on Companies House is 14330616.

1.1.3 The facility will process up to 50 000 tonnes per annum of non-waste energy crops and wastes, specifically maize, grass, straw, broiler and layer litter, pig and cattle manure mixed with straw, vegetable and fruit wastes to produce digestate and biogas which will be upgraded and injected into the medium pressure main gas main or utilised in the auxiliary biogas boiler.

Environmental Setting

1.1.4 Figure 1.2.1 below shows the location of the site, marked with a star.

Figure 1.2.1: Site Location



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1.1.5 The facility is located at:

Brains Farm Anaerobic Digestion Plant,
Moor Lane,
Wincanton,

1.1.6 The site is approximately centred at National Grid Reference ST 71892 27406.

1.1.7 The primary contact for the application is Steph Charnaud, Director of Permitting for Enzygo Limited who are employed to provide technical support to JEDI Limited as part of the Environmental Permit application process.

1.1.8 The proposed Facility covers an area of approximately 2.8 hectares. The town of Wincanton is located approximately 537m to the northwest of the Facility.

1.1.9 The site currently comprises a combination of arable agricultural land, agricultural buildings, a residential property, concrete hardstanding and drainage ditches. The site is bound by Moor Lane to the north with a pond, recreational sports fields and tennis courts beyond. The site is also bound by Moor Lane to the East with agricultural fields beyond the road. The south and west of the site is bound by agricultural fields.

1.1.10 The nearest residential property to the proposed Facility, will be the residential properties at Forget Me Know Farm located adjacent to the southern site boundary.

1.1.11 The nearest surface water feature to the Facility is the drainage ditch which is currently runs through the centre of the site. It is proposed that this watercourse is rerouted as part of the development and will run adjacent to the Facility's southern and western boundaries. The nearest main river, River Cale, is situated approximately 390m west of the site.

1.2 Sensitive Receptors

1.2.1 The key receptors that have the potential to be impacted by the Facility are summarised in Tables 1.3.1A and B below. These receptors have been considered where appropriate within each risk assessment undertaken.

1.2.2 There are no Special Protection Areas (SPA), Special Areas of Conservation (SAC) Local Nature Reserves (LNR), National Nature Reserves (NNR), Sites of Special Scientific Interest (SSSI) or Ramsar sites within 5km of the proposed Facility based on a search carried out using Defra's Magic website.

1.2.3 The EAs nature and heritage conservation screening assessment has identified one Local Wildlife Site (LWS) within 2km of the proposed Facility. The Common Lane LWS is located approximately 1,957m south of the site. No further protected sites or species are identified by the EAs nature and heritage conservation screening assessment within the designated screening distance for an AD facility at this site.

Table 1.3.1A: Sensitive Receptors

Receptor	Type	Distance (m)	Direction
Secondary A aquifer (superficial geology)	Hydrogeological	-	On site
Brains Farm	Agricultural	-	On site
Watercourse	Hydrological	0	E and S
Forget-me-not farm	Residential and agricultural	0	S
Agricultural land	Agricultural	9	N, E, S and W
Pond	Hydrological and ecological	35	N

Wincanton Sports Ground	Commercial/Recreational	190	NNE
River Cale	Hydrological and ecological	390	W
Home Farm	Residential and agricultural	400	ESE
Laurence Dairy Farm	Residential/ Agricultural	400	NNW
Somerset and Dorset Animal Rescue	Commercial	539	N
Balsam Farm	Residential	603	N
Chapper's Tailors	Commercial	631	N
Lower Horwood Farm	Residential and Agricultural	641	ESE
Explore Moto	Commercial	650	N
Matt's Respite Retreats	Commercial/residential	661	N
Nearest residence in Wincanton	Residential	673	NNE
Residence on Common Road	Residential	788	N
Bennetts Field Trading Estate	Commercial	800	WNW
Residence on Snag Lane	Residential	857	N
Honeyfield	Residential	912	ENE
Folly Farm	Residential	949	ENE

1.3 Proposed Permitted Activities

1.3.1 JEDI are proposing to operate a Part A Installation Environmental Permit for the operation of an Anaerobic Digestion Facility with the resultant biogas being upgraded and injected into the grid via a network entry facility or utilised on site in the biogas boiler.

1.3.2 A natural gas fuelled Combined Heat and Power Plant (CHP) will be utilised on site to provide heat and electricity to the process.

1.3.3 The feedstock to be processed at the Facility will be maize, grass, straw, broiler and layer litter, pig and cattle manure mixed with straw and vegetable and fruit wastes. Water and recirculated digestate will also be utilised. The Facility will accept a maximum of 50 000 tonnes of feedstock per year. A bespoke installation application has been prepared to fully assess the risks posed by the activity and to consider the proposed activity against Best Available Techniques (BAT).

1.4 Regulated Activities

1.4.1 The listed activities proposed within this permit application are in accordance with the Environmental Permitting (England and Wales) Regulations 2016 (as amended). Schedule 1 listed activities and Directly Associated Activities (DAAs) are summarised in Table 1.5.1 below.

Table 1.5.1: Regulated Activities

Activity	Description of Activity and WFD Annex I and Annex II operations	Limits of specified activity and waste types
Activity Listed in Schedule 1 of EPR		
Part A (1) Section 5.4 Part A()1) (b)(i)	**R13:** Storage of wastes pending the operations numbered R1, R3 and D10.	Total capacity of 50 000 tonnes per annum.

Activity	Description of Activity and WFD Annex I and Annex II operations	Limits of specified activity and waste types
Anaerobic Digestion Plant – Recovery or a mix of recovery and disposal of non-hazardous waste with a capacity exceeding 75 tonnes per day (or 100 tonnes per day if the only waste treatment is anaerobic digestion) involving one or more of the following activities, and excluding activities covered by Council Directive 91/217/EEC- (i) biological treatment	**R3:** Recycling or reclamation of organic substances that are not used as solvents.	Daily treatment capacity of 137 tonnes per day.
Directly Associated Activities		
DAA 1 Storage of waste pending recovery or disposal	**R13:** Storage of waste pending the operations numbered R1 and R3 (excluding the temporary storage, pending collection, on the site where it is produced).	From the receipt of permitted waste to pre-treatment and despatch for anaerobic digestion on site. Storage of layer and broiler litter and pig/cattle manure with straw on an impermeable surface with sealed drainage and a cover. Storage of vegetable and fruit waste on an impermeable surface with sealed drainage and a cover
DAA 2 Physical treatment for the purpose of recycling	**R3:** Recycling or reclamation of organic substances which are not used as solvents	From the receipt of waste to despatch for anaerobic digestion and/or off site for recovery. Pre-treatment of waste on an impermeable pavement with sealed drainage including shredding, sorting, screening, mixing,

Activity	Description of Activity and WFD Annex I and Annex II operations	Limits of specified activity and waste types
		compaction, crushing and maceration Gas cleaning by biological or physical (carbon filtration) or chemical scrubbing.
DAA 3 Heat and electrical power supply	**R1:-**Use Principally as a fuel to generate energy	From the receipt of biogas produced at the on-site anaerobic digestion process to combustion with the release of combustion gases. Combustion of biogas within one biogas boiler with a thermal input of 577kW.
DAA 4 Combustion of natural gas in a combined heat and power (CHP) unit	Combustion of natural gas within a CHP unit	Combustion of natural gas within one (CHP) with a thermal input of 2.11MWth
DAA 5 Emergency flare operation	**D10:** Incineration on land	From the receipt of biogas produced at the on-site anaerobic digestion process to incineration with the release of combustion gas. Use of one auxiliary flare required only during periods of breakdown or maintenance of the biogas upgrading plant and/or biogas boiler
DAA 6 Combustion of diesel in an emergency generator	Combustion of diesel within an emergency diesel generator	Combustion of diesel within one emergency generator with a thermal input of 410kWth For use only in an emergency <50 hours per annum
DAA 7 Gas Upgrading	Upgrading of biogas to biomethane (including the removal of moisture and other substances such as carbon dioxide, hydrogen sulphide and Volatile organic compounds) for injection	From the receipt of biogas produced at the on-site anaerobic digestion process to injection into the medium pressure gas main. This includes return of off-specification biogas for combustion to the on-site, back up boiler and/or emergency flare.
DAA 8 Biogas Storage	**R13:** Storage of waste pending any of the operations numbered R1 to R12 (excluding temporary storage,	From the receipt of biogas produced at the on-site anaerobic

Activity	Description of Activity and WFD Annex I and Annex II operations	Limits of specified activity and waste types
	pending collection, on the site where it is produced)	digestion process to despatch for use within the facility.
DAA 9 Raw material storage	Storage of raw materials including lubrication oils, antifreeze, propane, ferric chloride, activated carbon	From the receipt of raw materials to despatch for use within the facility.
DAA 10 Digestate Storage	Storage of liquid digestate derived from the anaerobic digestion of non -waste feedstocks and waste feedstocks including broiler and layer litter, cattle and pig manure with straw and fruit and vegetable waste only.	From the receipt of processed digestate produced from the on-site anaerobic digestion process to dispatch for use off site. Storage of processed liquid digestate in the on-site covered 4200m³ digestate lagoon. Storage of processed solid digestate
DAA 11 Surface water and groundwater collection and storage	Collection and storage of uncontaminated site surface rainwater	From the collection of uncontaminated roof and site surface water from non-operational areas only to reuse within the facility.
DAA 12 Process water collection and storage	Collection and storage of process water in one of 3no. 45 000l storage tanks	From the collection of effluent from the storage of waste to re-use within the facility.

1.5 Waste Types and Quantities

1.5.1 The Facility will process up to 50 000 tonnes per annum of maize, grass, whole crop silage, straw, broiler and layer litter, pig and cattle manure mixed with straw and vegetable and fruit wastes. Table 1.5.1 below gives the annual quantities of each feedstock to be processed at the Facility.

Table 5.1.1: Proposed Feedstocks and Annual Throughputs

Feedstock	Annual Quantity in Tonnes
Maize	15 750
Grass	4 750
Whole crop silage	2 850
Broiler and layer litter	10 000
Straw mixed pig and cattle manure	7 500
Vegetable and fruit waste	2 750
Straw	4 500
Top bales of straw	1 900

1.5.2 The maize, grass, whole crop silage and straw is stored within dedicated clamps which are designed to meet the Silage, Slurry and Agricultural Fuel Oil (SSAFO) regulations.

1.5.3 The broiler and layer litter will be brought onto the proposed facility, sheeted and stored on hardstanding with sealed drainage before being inputted into the process .

1.5.4 The pig and cattle manures mixed with straw will be brought onto the proposed facility, be sheeted and stored on hardstanding with sealed drainage before being inputted into the process.

1.5.5 The vegetable and fruit waste, will be brought onto the proposed facility, sheeted and stored within a covered area on hardstanding with sealed drainage next to the Facilities' clamps before being inputted into the AD process.

1.5.6 Normal Feedstock deliveries will be received at the site during the following restricted operational hours:

- 07:00 to 19:00 hours Monday to Friday;
- 08:00 – 14:00 hours on Saturday;
- 08:00 to 14:00 hours Sunday and Bank Holidays feedstock deliveries are only received during harvest times.
- The treatment of feedstock through the process and upgrading of biogas and injection into the grid will in general operate continuously 24 hours a day.

1.6 Facility Description

1.6.1 The proposed AD Facility will comprise of the following primary elements:

- Maize, grass, whole crop silage and straw to be stored within dedicated clamps which meet SSAFO requirements;
- Cattle and pig manure and straw mix acceptance and storage, sheeted on a concrete pad, with sealed drainage;
- Broiler and layer litter acceptance and storage, sheeted on storage on a concrete pad, with sealed drainage;
- Vegetable and fruit waste acceptance and storage, sheeted on a concrete pad with sealed drainage;
- 2no feeder units;
- Anaerobic digestion of the feedstock in 1no. primary digester;
- Anaerobic digestion of the feedstock in 1no. secondary digester;
- Pasteurisation of the digestate;
- Separation of the solid and liquid fractions of the digestate via a screw press;
- Biogas collection, cleaning and compression;
- Biogas injection into the gas grid;
- Natural gas combustion in the CHP;

- Biogas combustion in the back up boiler;
- Emergency diesel generator;
- Surface water storage lagoon; and,
- Digestate storage in a covered lagoon or within a bunker.

1.7 Planning Permission

1.7.1 Planning Permission was obtained from Somerset Council, planning reference 17/03257/CPO on 22nd August 2017 for the demolition of existing agricultural buildings and the erection of a farm anaerobic digestion plant.

1.8 Non-Permitted Activities

1.8.1 The operator is not proposing to undertake any activities at the site other than those which will be included within the Environmental Permit.

1.9 Point Source Emissions from the AD Facility

1.9.1 There are 4 main point source emissions to air at the Facility plus pressure relief valves and vents which only operate during emergencies. These are listed in Table 1.10.1 below.

Table 1.10.1: Point Source Emissions to Air

Air Emission Point Reference	Source of Emission	Emissions
A1	CHP Engine fueled by natural gas	CO, NOx,
A2	Biogas fired boiler	CO, NOx, SO2, VOCs
A3	Emissions from the Emergency High Temperature Flare Stack	CO, CO_2, NOx, SO_2, VOCs
A4	Biogas Upgrading Stack	CH_4, CO_2, NOx, VOC's
A5	Emergency diesel generator	CO, CO2, SO2, NOx, VOCs.
Vents	One primary digester tank vent One secondary digester tank vent One separation tank vent Three pasteurizer tank vents Vent on recirculation tank Vent on preliminary liquid feed tank	CO_2, CH_4, H_2S, NH_4, VOCs

1.9.2 Collection and storage of uncontaminated site surface rainwater will be discharged to the attenuation and used either in the anaerobic digestion process or in the case of a fire.

1.9.3 Leachate from the silage clamps along with condensate and potentially contaminated water from the bund will be stored in one of 3no. 45 000L tanks and reused in the process.

1.10 Management & Control

1.10.1 The approach to permitting and regulation relies heavily upon the use of Environmental Management Systems (EMS) as a driver for the Operator to ensure environmental compliance and improvement during operations. In England and Wales, under the Environmental Permitting Regime, modern regulation is fundamentally driven by applying a risk-based

approach to activities, where operators are encouraged to implement suitable management systems with which to operate, and to implement self-regulation and reporting. If an operator holds a permit under the Environmental Permitting (England & Wales) Regulations 2016 (as amended) the operator is required to have an Environmental Management System in place.

1.10.2 JEDI will develop and implement their own management system considering the relevant legal requirements, quality and safety standards and environmental elements that the facility needs to identify and comply with in order to carry out safe and environmentally sound operations.

1.11 Environmental Risk Assessment

1.11.1 An Environmental Risk Assessment has been completed to support this Permit Application to assess the environmental impacts of the operation. The assessments undertaken have followed guidance specified within the Environment Agency's Risk assessments for your environmental permit, updated November 2023, and Risk assessments for specific activities.

1.11.2 The risk assessments have concluded that the proposed activities will not result in an unacceptable impact on nearby sensitive receptors. The Environmental Risk Assessment is provided, with reference CRM 0169 001 PE R 005 for this Permit Application.

1.11.3 The Environment Agency also requires a standalone Odour Management Plan to be prepared and submitted as part of any Permit application for an Anaerobic Digestion Facility. A site-specific Odour Management Plan is provided in this application, reference CRM 0169 001 PE R 008.

1.12 Operational Techniques and BAT Assessment

1.12.1 Details contained within the Operations Techniques and Monitoring Plan (CRM.0169.001.PE.R.006) describes operations and pollution prevention techniques and demonstrate evidence of Best Available Techniques (BAT).

1.13 Monitoring

1.13.1 The Environmental Permit will stipulate the required monitoring schedule for the Facility. Anticipated monitoring requirements for all point source emissions and process monitoring are considered within the Operations Techniques and Monitoring Plan (CRM.0169.001.PE.R.006).

1.14 Closure & Decommissioning

1.14.1 If activities cease on site and decommissioning is required, a detailed 'Closure plan' will be submitted to the Environment Agency and other regulatory bodies as appropriate. This will include details of how the Facility will be dismantled, and how wastes produced from dismantling will be either recycled/reused or where appropriate disposed of. Finally, the site will be restored to its pre-operational condition.

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