

Response to Natural England's Information Request - 19 October 2023

Planning consultation: PL/2023/03359 Construction and operation of anaerobic digestion facility, ancillary infrastructure, and construction of new access from Ashton Road.

Location: Land West of Ashton Road, Ashton Keynes, Wilts, SN6 6QT

This document responds to a request for further information from Natural England (NE) ref. 433029 dated 22nd September 2023, regarding the proposed construction and operation of an anaerobic digestion (AD) plant on land west of Ashton Road, Ashton Keynes, hereafter referred to as 'the site'.

The following information was requested by NE:

- Clarification of the amount of rainwater that is to be captured.
- Measures proposed to prevent impacts on the SSSI in the event of a fire/explosion.
- Measures proposed to minimise potential impacts on water quality from increase in maize production.

1. Clarification of the amount of rainwater capture the Applicant expects the site to capture and reuse in the facility.

NE Question

We understand from the documents that there is an intention to use rainwater as the AD process can be water intensive (Design and Access Statement). To understand the potential impact of this on the SSSI, can the Applicant please clarify the amounts. The Design and Access Statement states that this will provide approximately 100% of the process water demand, whereas the AD Plant Dirty Water Usage Strategy (GGP) states that the contaminated catchment will provide 70%. Is the intention to make up the difference with clean water? What is the total amount of rainwater capture expected to be? Will it be 62,000m³?

Acorn Bioenergy Limited Response:

The annual water requirement for the plant will be 62,000m³. The site will consist of around 4.52ha of impermeable hardstanding and lagoons that do not allow water infiltration and runoff from these areas will contribute to the AD plant's process water demand.

Runoff from designated 'dirty areas' of the site will be used to meet the AD plant's water requirement in the first instance; these are areas where rainwater falling on hard surfaces may be contaminated with surface runoff from materials such as silage. Dirty water runoff generated from areas such as the silage clamps, lagoons, and the bund, will be collected within below ground containment tanks via drainage channels, pipes, and chambers. A below ground containment volume of 1,200m³ will be available for the temporary storage of dirty water, which will be continuously fed back into the process. Site areas designated as 'dirty' amount to 36,770m². Given



the Ashton Keynes site's average annual rainfall, it is predicted that 35,000 m³ of dirty water will be captured for reuse in this way.

Clean water will also be harvested from clean areas of the site such as roofs and clean hardstanding. This will be conveyed by gravity to an underground crate system installed under the hardstanding at the west of the site. The crate system has a storage capacity of approximately 1,500m³ and is connected to a surface water storage lagoon with a capacity of 278m³. The lagoon is located at the lowest point to the southeast corner of the Site, north of the access gate and allows for additional contingency storage during peak rainfall events. The AD plant will aim to harvest and reuse as much clean water as possible to limit the use of mains potable water and will do so in preference to the controlled release of surface water runoff to the highways ditch from the surface water storage lagoon during an exceptional rainfall event. This is in line with Best Available Techniques (BAT)¹ for preventing and minimising emissions and impacts to the environment from the operation of the AD plant.

2. NE question: What measures are proposed to ensure that in the event of a fire or explosion, polluting materials/ liquids are prevented from polluting the SSSI?

Acorn Bioenergy Limited Response:

Site setting: As stated within the Flood Risk Assessment and Surface Water Drainage Strategy, ground levels slope from west to east from maximum elevation of 102.25m Above Ordnance Datum (AOD) to 89.75m AOD in the southeastern corner of the site. The reports identify that the site will be situated on the east side of an isolated hill known as Ashton Downs, with the SSSI (Cotswold Water Park SSSI) located approximately 500m away, further downhill to the southeast.

Several control measures will be in place to reduce and mitigate the risk of fire or explosion on site in line with the Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR). Plans and procedures will be prepared to deal with accidents, incidents and emergencies involving dangerous substances. Employees will be informed about the DSEAR study and appropriately trained. Areas of the site which may give rise to explosive atmospheres will be clearly identified to avoid interaction of ignition sources. The site will be subject to daily checks to ensure equipment is correctly maintained and operated. The site will have a lighting protection system installed.

All response actions will from part of the site's written Accident Management Plan (AMP), part of the overall Environmental Management System for the site's operation. The AMP and associated emergency response procedures will be trained out to all staff on site prior to commencing duties at the AD Plant.

¹ Guidance: Best Available Techniques: environmental permits, Environment Agency, February 2016



The site design incorporates hardstanding and secondary containment constructed in accordance with CIRIA C736F². This requires that the secondary containment system will be suitably sized to accommodate either 25% of the combined volume of the digester tanks or 110% of the volume of the largest tank; whichever is the greater volume. Consequently, the containment will be designed to capture a minimum 25% of the combined volume of the tanks as this represents the slightly larger volume.

An additional 100mm freeboard will be provided to allow for firefighting foam as required by the CIRIA736F, to accommodate the combined volume of firewater and digestate materials in the rare event of a catastrophic tank failure and a fire happening together.

In addition, all roads and other areas of the site will be designed with a kerb to assist containment and levels across the site will be set so as to contain surface water runoff within the site.

The Drainage Strategy for the site includes the following features:

- 1,200m³ volume below ground containment tanks for 'dirty' contaminated water collected through drainage, channels, pipes, and chambers.
- 1,500m³ Storage crates below ground to attenuate 'clean' surface water and pump to the rainwater storage lagoon.
- 278m³ volume rainwater storage lagoon that collects water from underground pipes, channel drains and pumped water from the storage crates.
- Full retention petrol interceptor, to reduce the presence of hydrocarbons discharged from the clean water system.

In the event of a fire or explosion within the secondary containment bund, potentially polluting liquids should be contained, with fire water retained within the bund and/or the below ground containment tanks. This would contain and prevent the discharge of any materials that might otherwise cause harm to the SSSI and allow the site operators to contain polluting liquids prior to pumping into tankers for removal from the site.

In the event of a fire occurring outside of the containment system a number of design features and control measures are available to prevent potentially polluting runoff reaching the SSSI, including kerb bunding. The surface water drainage and attenuation features, including the below ground storage crates and rainwater storage lagoon can be employed as temporary containment for any fire water generated during an incident. Under these circumstances, the outfall from the surface water lagoon to the highways ditch would always be closed, to prevent pollution of the watercourse.

Spill kits with temporary bund booms will be located around the site for use during an incident. Following any incident, a root cause analysis will be undertaken, and a review of the site's spill kit

² Containment systems for the prevention of pollution (C736F), CIRIA, June 2014



inventory carried out with any items that have been used replaced to ensure the site is suitably stocked to deal with any future incidents.

In addition to the measures above, sandbags will be stored at strategic locations on site to deploy to contain firewater should the fire service need to suppress a fire at the AD plant. The sandbags will be used to build up temporary barriers and further strengthen existing containment. The proposed access gate to the site is positioned at the southeastern corner of the site; the SSSI is located further downhill to the south east. In the event of an incident on site, sandbags would be deployed across the access gate to block any potential pathway of polluting materials, including fire water, preventing it reaching the highway ditch and thence potentially impacting the SSSI 500m away. Any fire water collected will be transferred via pumps to the surface water storage lagoon in the first instance.

A puddle pump will also be available on site to pump fire water, where it has collected at shallow depths unsuitable for transferring via a standard pump. If the surface water lagoon is not available for fire water storage, an interim vessel such as a mobile storage tank will be used to pump into prior to transfer into a tanker and removal from site. There will be an agreement in place, emergency contact details available within the AMP with a suitable tanker company.

2.1. NE Question: The proposal site is on a hill that slopes towards to the SSSI. In the event of a fire/ explosion will the proposed drainage system be adequate? Can it handle fire water? Is this written into the drainage strategy?

Acorn Bioenergy Limited Response:

As previously described, the site will temporarily retain fire water on site within the designed secondary containment, dirty and clean water attenuation systems outlined below:

- Secondary containment constructed in accordance with CIRIA C736, to accommodate either 25% of the combined volume of the digester tanks or 110% of the volume of the largest tank; whichever is the greater volume. An additional 100mm freeboard will be provided to allow for firefighting foam.
- 1200m³ volume below ground containment tanks for contaminated water collected through drainage, channels, pipes, and chambers.
- The below ground 'crate' system as outlined in the Surface Water Drainage Strategy, which provides 1,529m³ of attenuation storage volume.
- 278m³ volume attenuation lagoon.

To build upon these existing features, during an incident, sandbags will be deployed to create a temporary barrier at the access gate at the south east of the site. Discharge to the highway ditch will be stopped. This will remove the potential overland pathway, downhill to the SSSI in the unlikely event that any potentially polluting liquids escape the containment and attenuation systems.



Pump systems will be available on site to ensure firewater can be pumped into either the secondary containment bund or the attenuation lagoon before being removed offsite by tanker. A puddle pump will also be available on site to pump fire water, where it has collected at shallow depths unsuitable for transferring via a standard pump.

Furthermore, in the event of an environmental incident, site staff will undertake walk arounds in the locality to ensure nearby sensitive receptors, including the SSSI are closely monitored so that it can be confirmed they remain unaffected. If staff observe polluting materials may escape the site, sandbags will be used to form a barrier to polluting materials which will then be removed via pump and tanker.

3. Measures proposed to minimise potential impacts on water quality from increase in maize production.

***NE Question:** An indirect impact of the proposed anaerobic digestion facility is that it could drive up maize production in the area which could have impacts on water quality. We have noted the Applicants response to residents and consultees and their comments on the use of maize feedstocks. How will the Applicant ensure that the recommendations are undertaken? Are they intending to have agreed standards with farms who supply them? What sized buffer strips are proposed along water courses?*

Acorn Bioenergy Limited Response:

Acorn Bioenergy Ltd have team members who are both BASIS fertiliser adviser's certification and training scheme (FACTS) qualified and Registered BASIS Environmental Advisers. The applicant will set out the expected standards that should be met by the suppliers of maize feedstock which will include following:

- Rules for farmers and land managers to prevent water pollution³, referred to as 'the farming rules for water'.
- Rules within Nitrate Vulnerable Zones (NVZ)⁴ – The Ashton Keynes area is designated NVZ.
- Protecting our Water, Soil and Air: A Code of Good Agricultural Practice for farmers, growers, and land managers (the 'CoGAP')⁵
- Guidance: Nitrates and phosphates: plan organic fertiliser and manufactured fertiliser use⁶

Field locations used to grow maize will be selected for their suitability. North-facing and exposed fields are considered less suitable, as maturity will be achieved more slowly. Heavier soils will be avoided both due to an increased risk of soil erosion and difficulties in achieving a good seedbed for

³ Guidance: Rules for farmers and land managers to prevent water pollution, Defra, 2 April 2018

⁴ Nitrate vulnerable zones, Rules farmers and landowners must follow if their land is in a nitrate vulnerable zone (NVZ), Defra, last updated 17 September 2021.

⁵ Protecting our Water, Soil and Air: A Code of Good Agricultural Practice for farmers, growers and land managers (the 'CoGAP'), Defra, last updated 27 July 2018

⁶ Nitrates and phosphates: plan organic fertiliser and manufactured fertiliser use, Defra 22 December 2016.



maize. Steeply sloping fields will not be used for growing maize and the proximity of fields to surface waters and environmentally sensitive receptors will be considered. Wiltshire is a southwestern county and is therefore considered to be a good area to grow maize in terms of sunlight and warmth.

When setting up maize growing contracts with local farmers the applicant will help them to carry out a runoff and soil erosion risk assessment for fields which will grow maize. This will involve looking at soil type and drainage characteristics, slope within individual fields and their potential connectivity to drainage ditches and surface waters. These characteristics can be checked using Land App⁷ by Acorn Bioenergy staff.

In line with the water body buffering standard of the Sustainable Farming Incentive Pilot, buffer strips will be 6 metres wide within fields at low to moderate risk of soil erosion or run-off, including the 2 metre or 1 metre cross compliance buffers required under GAEC1.

If a field location is determined to be high risk a 10-metre buffer will be required next to water bodies, though the applicant will seek to not use such locations.

Acorn Bioenergy will enter contracts with all farmers supplying maize to the proposed AD plant which will clearly set out the standards required when growing maize for the proposed AD Plant.

19th October 2023

⁷ The landapp.com

