

1.0 Introduction

SLR Consulting Limited (SLR) has been appointed by Acorn Bioenergy Limited (Acorn) to provide consultancy services to support a Planning Application for the construction of a new AD Facility. This Transport Technical Note (TTN) provides further information relating to comments made by Wiltshire County Council Highway Development Control as acting Local Highway Authority (WCC Highways).

1.1 Proposals Summary

Acorn are seeking to develop land at Ashton Keynes, Wiltshire, to provide a new Anaerobic Digestion (AD) Facility to serve local farms. The proposed AD Facility would process a maximum of 91,000tpa of agricultural feedstock, likely to comprise the following:

- silage (rye, maize, and grass);
- straw;
- poultry litter; and
- farmyard manures.

The feedstock would be transported to site in HGVs (tractor-trailers and lorries). The feedstock material would undergo a process of controlled decomposition (anaerobic digestion) within the proposed facility. The process produces biogas which would be upgraded to biomethane on site before being transported by tanker to a central gas injection point.

The process would also result in the production of CO₂ as a natural by-product. All of Acorn's AD facilities are fitted with the equipment required to capture the clean CO₂ to a food grade level standard which makes it suitable for almost all industrial and commercial applications in the UK. Purified CO₂ would be liquefied and transported by road to end users, ideally located locally. A further output of the anaerobic digestion process is digestate, which would be used on local farms in place of raw manures and artificial fertilisers.

1.2 Purpose of the Transport Technical Note

SLR produced a Transport Statement (TS) dated April 2023 which was submitted as part of the planning application which was received by the Council on 9th May 2023.

WCC Highways provided a statutory consultation response dated 21st June 2023 requesting clarifications and additional information to satisfy concerns regarding:

- the location and general arrangements of the site access gates;
- car parking arrangements;
- consideration of Road Condition Survey requirement; and
- the Catchment Plan and Primary Routes.

This TTN addresses the above, providing clarifications and additional information to WCC Highways, as requested. The WCC Highways full response is provided at **Appendix 01**.

2.0 Consideration of Requests

The following Section considers the items and concerns highlighted within the WCC Response, addressing each in turn.

2.1 Site Access Arrangements

2.1.1 WCC Highways Comments:

...It is mentioned that the site access gates will be set back sufficiently within the site, however details are required to ensure the gates are set back an appropriate distance to enable the largest length of vehicle to pull up to the gates and be clear of the highway, in the event that a vehicle arrives when the gates are unopened.

2.1.2 SLR Response:

The drawing included at **Appendix 02** shows an updated proposed site layout with the proposed location of the gates added. The gates will be set back 22.2 metres back from the end of the kerb entry/exit radius, with adequate access road length to accommodate a maximum sized HGV clear of the highway.

2.2 Car Parking Arrangements:

2.2.1 WCC Highways Comments:

The operation of the facility would require 5 FTE staff, working 0700-1900 each day of the week, with extended working hours being required during peak harvest periods.

Provision for 6 parking spaces for staff and visitors is stated to be provided in the vicinity of the site office, although there is no detailed plan to indicate the parking location.

2.2.2 SLR Response:

The drawing included at **Appendix 02** shows an updated proposed site layout with the car parking arrangements marked. The proposals show 6 car parking spaces on the western edge of the site access corridor.

2.3 Road Condition Survey

2.3.1 WCC Highways Comments:

In terms of both the construction and operational stages of the development, the nature of the traffic will be vehicles that would have the most impact on the integrity of the carriageway surface, and it is considered that an initial dilapidation survey of the existing road network, followed by planned and frequent inspections and commitment to address site created degradations should be required.

2.3.2 SLR Response:

It is agreed that a Road Condition Survey should be undertaken to monitor site related carriageway wear and tear.

It is recommended that this should be included as a Planning Condition and an initial survey should be undertaken prior to construction commencing on site, and then repeat surveys undertaken at appropriate milestones/intervals.

Site traffic related carriageway degradation should be repaired, as agreed with the local highway authority, following the necessary consultation and procedures.

2.4 Catchment Plan and Primary Routes

2.4.1 WCC Highways Comments:

Having regard to the above, whilst the Wiltshire highway network serving the site would appear to have the capacity to accommodate the proposed development traffic and in compliance with appropriate traffic increase forecasts, I consider that more detailed information of the locations of the farms expected to use the facility is required to identify the routes likely to be used, and the impacts on the local areas.

2.4.2 SLR Response:

The origin of feedstock and destination of byproducts is subject to contractual agreement. However, a plan has been provided by Acorn which shows the distribution of interested feedstock counterparties. This is attached at **Appendix 03**. The plan shows the proposal site for context and the likely primary traffic routes.

3.0 Closure

This TTN has considered requests made by Wiltshire County Council and provided additional information to confirm that the impacts of the proposals would be acceptable in terms of operational capacity and access design. It is maintained that the proposals will not result in any detrimental impacts in terms of highway safety and the impacts on network operation would be imperceptible.

NPPF Paragraph 111 states:

‘Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe’.

For the above reasons, the proposed development of the site accords with the national and local planning policies and is therefore considered to be acceptable in traffic and transport terms.

Appendix 01

Wiltshire County Council Response

Highway Development Control Consultation Response

Planning Application Ref: PL/2023/03359

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

Proposal: Construction and operation of anaerobic digestion facility, ancillary infrastructure and construction of new access from Ashton Road

Date of Consultation Response: 21st June 2023

I refer to the above planning application received on 9th May 2023 for full planning permission for an anaerobic digestion facility, together with the construction of a new access.

Application PL/2022/09477 was submitted in December 2022 for an EIA Screening Opinion in respect of this proposed development, for which highway comments were made advising an EIA was not required in respect of highway matters.

Application 20/04771 for a new agricultural access, located at the southern end of the application site was approved in August 2020, with visibility splays of 2m by 215m. This point of access is indicated as the intended means of access to serve the proposed development.

The site is currently arable farmland, generating limited traffic.

Application proposal

The Planning, Design and Access Statement (PDAS) explains the applicant, Acorn, “*creates & procures biogas from anaerobic digestion (AD) facilities in the UK and upgrades it to biomethane. It transports biomethane from the anaerobic digestion facility to its point of use, utilising biomethane-powered trucks. The carbon negative biomethane will be directly used as an alternative fuel to power vehicles and also injected into the gas grid to create renewable heat for homes and businesses.*”

With regard to the application site, the proposal is for an AD facility which would be expected to accept around 91,000 tonnes of feedstock from local farms per year. Such feedstocks would include: silage, rye, maize, grass, straw, poultry litter and farmyard manures.

The anaerobic digestion process would generate approximately 9,815,904Nm³ of biomethane per year, which would be removed from site by tankers for injection into the National Grid.

As the AD process involves a continuous biological process, the plant would be in continuous operation. However the staffing of the facility would be between 0700-1900, 7 days of the week, although extended working hours during peak harvest periods may be necessary.

The AD process would also produce a solid fertiliser, a soil conditioner and a liquid fertiliser, which is understood to be used on local farmland. It would also produce carbon dioxide (CO₂), as a by-product, which would be upgraded, liquefied and transported off site. It is understood that the AD facility would produce approximately 13,714 tonnes of CO₂ per year.

The AD plant is assumed to have an operational life of around 25 years.

The application has been supported by a Transport Statement (TS) which details the highway conditions, proposed traffic generation, construction traffic generation and proposed mitigation.

Site access

The site is located off the Class 3 road (C2), Ashton Road, approximately 1km north of its junction with the B4696/C85 Spine Road East/West.

The development would involve the upgrading of the permitted agricultural access to achieve a 15m radii priority junction onto Ashton Road which has been demonstrated, through swept path analysis, to accommodate a maximum sized articulated HGV. The design of the access would accommodate two-way HGV movement, such that an entering HGV would not be restricted access if an HGV were exiting from the site at the same time.

Visibility splays at the junction are indicated with a set-back of 2.4m and extending 160 metres in each direction. This level of visibility is considered applicable for road speeds in the order of 50mph, and the recorded speeds shown in Table 3-2 of the TS confirm that the 85%ile speeds are within this range, and therefore the suggested visibility splays are considered acceptable.

It should also be noted that the permitted access plan indicated the provision of visibility splays of 215 metres in each direction, but with a set-back distance of 2m.

It is mentioned that the site access gates will be set back sufficiently within the site, however details are required to ensure the gates are set back an appropriate distance to enable the largest length of vehicle to pull up to the gates and be clear of the highway, in the event that a vehicle arrives when the gates are unopened.

Audit of highway

The TS has provided an audit of the surrounding highway network, including automatic traffic counts (ATC), speed surveys and a review of accidents.

The carriageway width of Ashton Road has been indicated as around 6 metres, and the width of Spine Road East and West, to the south, are generally in excess of 6 metres.

The Spine Road East and West already carry a high level of HGV traffic, and Ashton Road serves Aggregate Industries, to the south, which is accessed by HGV traffic.

The access roads to the north of the application site, including a section of Ashton Road, falls outside of the Wiltshire Council administrative boundary, and the neighbouring authorities will be expected to make comments regarding the impact on their highway network.

There are no pedestrian facilities along Ashton Road, and the nature of the road would not provide sustainable travel options, although the level of staff proposed for the development is very limited in number.

The location of the site does have the benefit of easy access to the wider highway network via the B4696 to the A419 to the east.

The accident data provided within the TS has been reviewed and *“it has been concluded that no incident occurring within the identified study area for the five-year period may be attributed to a highway deficiency of any kind, and that all recorded incidents are attributable to human error.”*

Accident data has also been interrogated by Wiltshire Council, and the same conclusions have been reached. I would further add that of the reported incidents, none in the past 5 years have involved an HGV.

The Wiltshire highway network also has an appropriate level of signage as advance warning of the junctions.

Traffic generation

Chapter 9 Traffic of the ES (which includes a Transport Statement (TS)) and the PDAS provide information relating to forecast traffic generation for delivery of feedstocks. It suggests that the nature of the facility is likely to generate varied HGV traffic generation across the year, with approximately 37-44 HGV/tractor trips per day (76-88 movements) for 10 months of the year and peaking to around 80 HGV/tractor trip (160 movements) for two weeks in June and July. A further peak time would occur in September/October, generating around 72 HGV/tractor trips (144 movements).

In terms of daily traffic movements, and based on a 10-hour working day, the feedstock deliveries would generate an average of 4-5 vehicle loads (8-10 movements) per hour. This would be increased in the harvest peak periods to 8 vehicle loads (16 movements) per hour. This would equate to 2 HGV movements (arrival and departure) every 12-15 minutes and 2 HGV movements every 8 minutes respectively.

The delivery of feedstock loads from the local farms would be made using tractors and trailers or hired vehicles. The TS has not provided any detail of the location of the farms that would be likely to use this facility, in order to understand the level of movements and directions of travel to and from these farms. This should be provided in order to assess the impact on the road network, and the local areas that fall outside of the Wiltshire boundary.

In addition to the traffic generated by the delivery of feedstock for the anaerobic digestion process, the bi-products produced to provide the solid and liquid digestate, the biomethane and the CO₂ will generate HGV trips for the exportation.

The table 6.1 within the TS indicates a total number of vehicle movements generated for exporting these products to be 7,458 per year.

With regard to the traffic generated by the development, it is stated that *"Whilst the proposed site traffic will be new to the application site, a large proportion of the generated movements would already be on the wider local network as the proposed AD Facility will service existing local farms which have an existing traffic generation."*

This is qualified in the TS on the basis that the AD facility will service existing local farms, which have existing levels of traffic generation.

It is suggested that approximately 5,843 annual loads are already generated by existing farms in the locality, which would be expected to be redirected to the proposed AD facility and represents 47% of the total of 12,530 annual loads proposed as part of the AD development. This is suggested to result in a proposed increase in 18 additional HGV/tractor loads per day in the local area.

With regard to the existing level of traffic on Ashton Road, details of Automatic Traffic Count (ATC) data on Ashton Road have been submitted and this section of the Class 3 road, C2, was recorded to carry a total of 3,754 vehicles, of which 212 were HGVs. In the AM peak (0800-0900), 21 of a total of 373 vehicles movements were recorded as HGVs and in the PM peak (1700-1800), 6 of a total of 363 vehicle movements were HGVs.

The TS has demonstrated that the increase in HGVs on the network, as a result of the proposed development, would be within an acceptable level of increase in traffic.

Construction process

It is understood that the construction of the proposed development would be around 70 weeks and would require 7,296 HGV deliveries. Based on a suggested 275-day year, this is averaged as 27 HGV trips per day (54 two-way HGV movements).

The access would be constructed in advance of the main construction of the site, and the construction process would be based on a 12-hour day (0700-1900) Monday to Friday, with reduced hours on a Saturday.

During the construction of the facility, there would be around 100 FTE jobs, with up to 50 staff on site during the peak construction time. No details have been submitted to indicate the likely number of trips, or how the construction could be managed to minimise the number of vehicles generated, such as car sharing etc.

The activity on site for deliveries and construction is stated to be proposed to be between 0700-1900, Monday to Friday, with reduced hours on a Saturday.

It is proposed that the amended site access would be constructed in advance of the main construction of the site, with the construction phase being subject to a Construction Traffic Management Plan (CTMP), which would ensure the site traffic is managed and all parking and loading would be contained within the site. The TS suggests the “*CTMP will include the following:*

- *detailed construction traffic forecast, including any abnormal load requirements;*
- *vehicle/plant/delivery scheduling;*
- *establish construction site access junction prior to main construction activities;*
- *staff parking to be accommodated within the site away from the public highway; and*
- *all lorry parking/loading will occur within the site, away from the public highway.”*

A programme of the construction would be required as part of a Construction Management Plan, as well as detailed site plans to indicate the provision of parking, materials storage, welfare facilities etc.

Operational stage

The operation of the facility would require 5 FTE staff, working 0700-1900 each day of the week, with extended working hours being required during peak harvest periods.

Provision for 6 parking spaces for staff and visitors is stated to be provided in the vicinity of the site office, although there is no detailed plan to indicate the parking location.

It is understood that the vehicle movements associated with the delivery of agricultural by-products and the export of digestate would be limited to Monday – Friday 0700-1800 and Saturday 0700-1300.

The export of biomethane would be once every 12 hours, and there would be 1-2 HGV trips per day for the export of CO₂.

It is understood that a Traffic Management Plan (TMP) is suggested to be imposed as a condition of any approval which would include details of the routing of HGVs, management of the timings of deliveries, wheel washing facilities etc.

In terms of both the construction and operational stages of the development, the nature of the traffic will be vehicles that would have the most impact on the integrity of the carriageway

surface, and it is considered that an initial dilapidation survey of the existing road network, followed by planned and frequent inspections and commitment to address site created degradations should be required.

Having regard to the above, whilst the Wiltshire highway network serving the site would appear to have the capacity to accommodate the proposed development traffic and in compliance with appropriate traffic increase forecasts, I consider that more detailed information of the locations of the farms expected to use the facility is required to identify the routes likely to be used, and the impacts on the local areas.

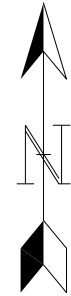
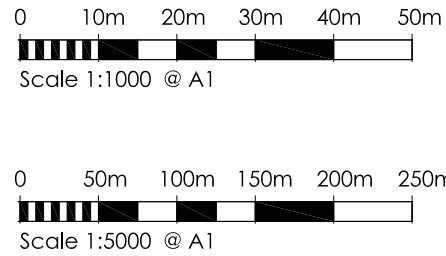
I therefore offer a holding objection, pending the receipt of this information, together with details of the set-back of the access gates and the parking layout, as referred to above.

If you have any queries regarding the above advice, please contact Amanda Hall on 01225 713323, amanda.hall@wiltshire.gov.uk

Appendix 02

Proposed Site Layout

Updated to show Location of Gates and Car Parking



SITE LOCATION PLAN
Scale: 1:5000 @ A1



SITE PLAN
Scale: 1:1000 @ A1

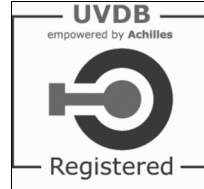
NOT FOR CONSTRUCTION

- NOTES:
1. All dimensions must be checked on site and not scaled from this drawing.
 2. The Contractor shall make a survey of the site and shall be responsible for obtaining all dimensions and levels necessary for the proper fabrication of the structure as indicated.
 3. All levels shown on this drawing are relative to Agreed Topographic survey
 4. This drawing is to be read in conjunction with 29419/100 Series Drawings.
 5. All existing invert levels are to be confirmed by contractor prior to construction. Connection subject to approval.

Site Red Line Boundary (6.99Ha)

G	04/09/23	Parking & Gate Added	JHC	JHC
F	24/03/23	Issued For Approval	JHC	JHC
E	08/12/22	Hatched Plan	JHC	JHC
D	30/11/22	Layout update	JHC	JHC
C	02/11/22	Redline & Entrance Update	JHC	JHC
B	28/10/22	Redline Update	JHC	JHC
A	04/10/22	Concept Layout	JHC	JHC
Rev	Date	Description	DR	CH

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Job Title
AD Plant.
Ashton Keynes

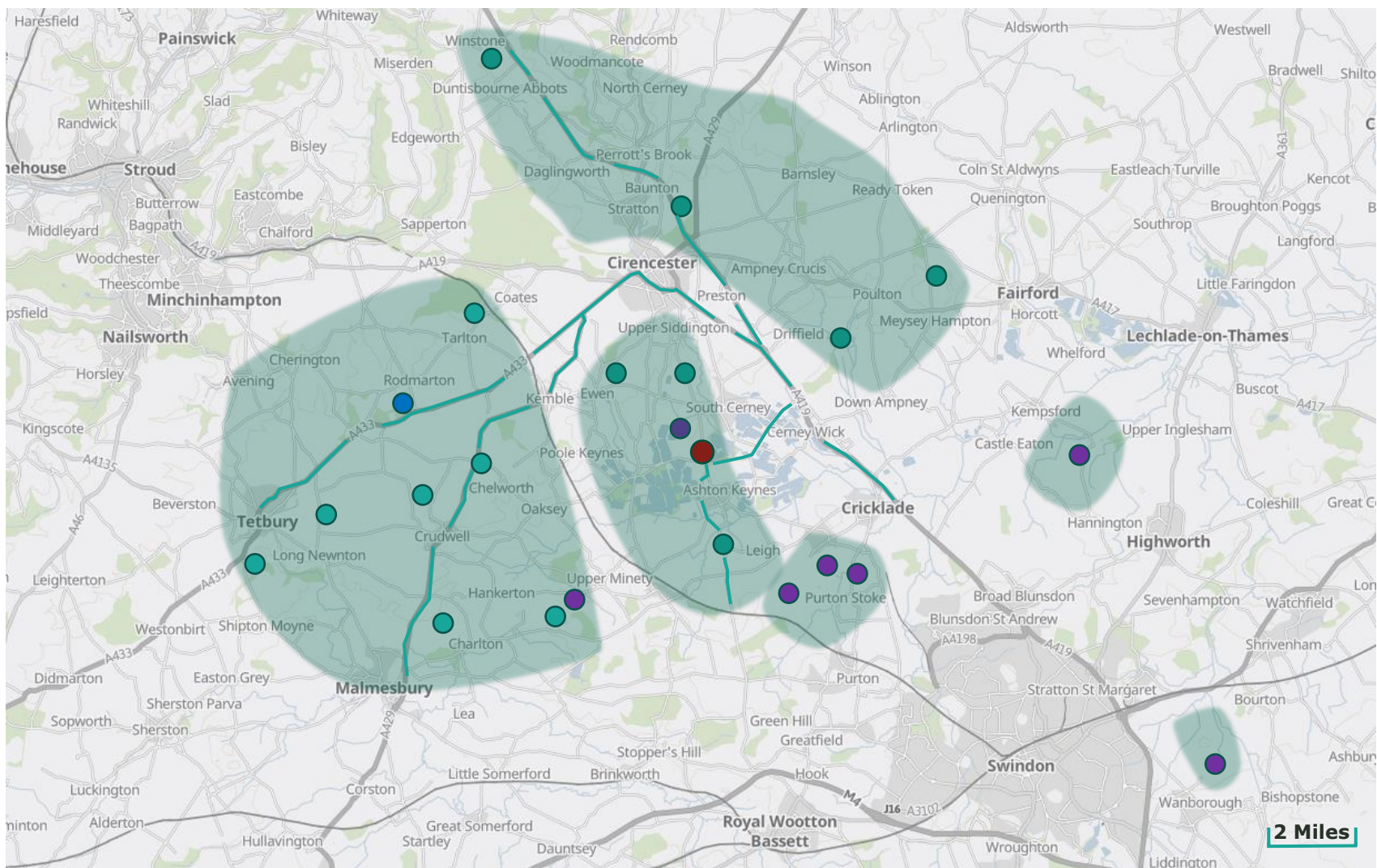
Drawing Title
Site Layout Plan.

Status	Planning		
Scale	As Noted @ A1	Date	Oct' '22
Drawn By	J. Collins	Checked	JHC
Approved	JHC		
Dwg. No.	29419/P/101	Rev	G

Appendix 03

Feedstock Catchment Plan

Distribution of Interested Feedstock Counterparties



- Primary feedstock routes
- Proposed site
- Interested arable feedstock counterparties
- Interested waste feedstock counterparties
- Interested arable and waste feedstock counterparties
- Area indicative of feedstock catchment

Context



- The above map shows a plot of interested feedstock counterparties and is accurate as of the 28th of June 2023
- The feedstock counterparties plotted have all expressed their intention to supply feedstock, however, they are yet to be subject to commercial contract
- This is not intended as an exhaustive list, but an indication of our likely catchment area
- Due to the nature of farming in the area the feedstock may originate from fields surrounding our site's general location rather than the exact point sources plotted on the map
- It is Acorn Bioenergy's intention to procure feedstocks from the immediate surrounding area, maximizing the use of off-peak traffic hours for transport

Feedstock	Mass Required(T/yr)	Methane Production (M3/day)	Total Expected Digestate (t/yr)
Rye Silage	15,000	4,646	Digestate Fibre: 63,882 Digestate Liquid: 56,784
Maize Silage	12,000	3,776	
Grass Silage	14,000	3,970	
Straw	20,000	13,076	
Slurry	5,000	263	
Farm Yard Manure	10,000	1,359	
Poultry Litter	15,000	4,603	
Total	91,000	31,693	118,300