

Transport Statement

Job No. 27249

**Deal Farm AD Plant
Kenninghall Road
Bressingham
DISS
IP22 2HG**

Client: Deal Farm Biogas Ltd.

June 2022

REPORT CONTROLSHEET

Client: Deal Farm Biogas Limited

Job No.: 27249

Project Name: Deal Farm AD Plant
Kenninghall Road
Bressingham
DISS
IP22 2HG

Issue		
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CONDITIONS OF INVESTIGATION & REPORTING

This report and its findings should be considered in relation to the terms of the brief and objectives agreed between Plandescil Ltd and the Client.

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1.0 INTRODUCTION

Plandescil Ltd. have been instructed by Deal Farm Biogas Ltd. (hereinafter referred to as the Applicant) to prepare a Transport Statement to accompany the planning application for a proposed Anaerobic Digestion (AD) Plant at Bressingham. This Transport Statement should be read in conjunction with the drawings and other documentation accompanying this application. Please refer to the Design and Access Statement for further information on the proposal.

2.0 BACKGROUND

The site gained planning permission previously in 2015 and was being constructed during the calendar year of 2021, until construction was paused. This report has been prepared to assess the transportation impacts of the application for an Anaerobic Digestion Plant (part retrospective), including 2 no. separate digestate storage lagoons at Deal Farm, Kenninghall Road, Bressingham, Norfolk.

The impact of the construction element of the works has not been included as part of this Transport Statement due to the majority of the works being having been completed and, as such, the approved Construction Transport Management Plan ("CTMP") should be adhered to for the remaining works, a copy of which is included in **Appendix A**.

The Landowner (RG Aves or Des Aves) is a large, mixed-use farming operation, consisting of:

- The Oaks (on Kenninghall Road – 350m from the AD site) – comprising a farmhouse (Farmer's residence) large chicken unit, grain stores, straw stores and various farm building;
- Deal Farm (on Kenninghall Road – adjacent to the site) – comprising of a large pig fattening unit producing up to 6,000 tonnes of liquid and solid pig manures and used bedding; straw storage; maize field clamps; muck pads; and beet pads;
- 335 hectares of arable land (owned by the Farm);
- 101 hectares of arable land (3rd party land – farmed and cropped);
- Straw Contracting (harvesting, baling and onward sale) – own straw (800 tonnes per annum); straw harvested and sold/ swapped for muck (3,720 tonnes per annum); and
- Various other farming activities and interests

Images 2.1 and 2.2 illustrate some of the farming operations located in and around the farmyards at Deal Farm and The Oaks on Kenninghall Road, as well as selected other livestock farming operations.



Image 2.1 of Landowner's operational land surrounding the site



Image 2.2 of existing access and farming operations at Deal Farm specifically.

The majority of the movements noted in below Section 4.0 are already in existence in one form or other. Whilst it is not necessary to consider every detail of this in order to assess the acceptability of the current proposals given the conclusions reached in this report, the relevant loadings are noted and there is a large amount of double handling, which is further explained in the section.

The concerns raised during the previous application regarding an increase in movements has been raised by unfortunate speculation by third-parties external to the information previously submitted by the Applicant and the actual data obtained. The transport figures are derived from the Landowner's own yields, crops, field locations and records of the figures noted within the Transport Statement. These figures are correct and have been checked against the yields by the Applicant, who is significantly well versed in these types of installations across the UK.

The Anaerobic Digestion (AD) Plant will offer a cumulative reduction in movements from that of the figures gained from the 5-year comparison; this is mainly due to the multiple double handling and movement of material around the landholding to offsite storage and then to another location – this element would be immediately eliminated once the AD Plant is operational. The daily movements associated with the current farming operations on the public highway would no longer be in existence as the material leaving the farm – destined for muck heaps and off-site silage clamps – would now be entering the AD Plant via the Applicant's land as opposed to being moved via the highway.

The level of detail provided within this application is significantly greater than that approved in the 2015 application owing to increased level of interest and to provide both the local planning authority and highways authority even greater comfort concerning the robustness of the assumptions made, which has resulted in greater clarity and reliability in comparison to those original numbers provide with the 2015 application.

For the avoidance of doubt, differences between the "baseline" farming numbers in this TS and that submitted in 2015 are as a result of the 2015 report utilising 2014 figure;; whereas this study compares movements against detailed movements averaged over the last 5 years of full date (2015-2020). The 2015 TS and this one should not therefore be compared and ultimately this TS should be considered an up to date and therefore robust position.

The figures proposed for this application represent a significant reduction on the current transport operating on or around the local area generated by this Landowner. The comparison is only between current movements specifically associated with the materials to be processed in the AD plant.

3.0 THE SITE AND ACCESS

The site is located to the north of the existing Deal Farm cluster of buildings off Kenninghall Road, Bressingham, IP22 2HG as shown on the Site Location Plan. It is within an agricultural area of the county and country, where agricultural vehicles are frequent, and farms are well established.

The site is located in a rural setting, roughly 2km from the nearest villages of Bressingham, Shelfanger and Fersfield (see Image 3.1).

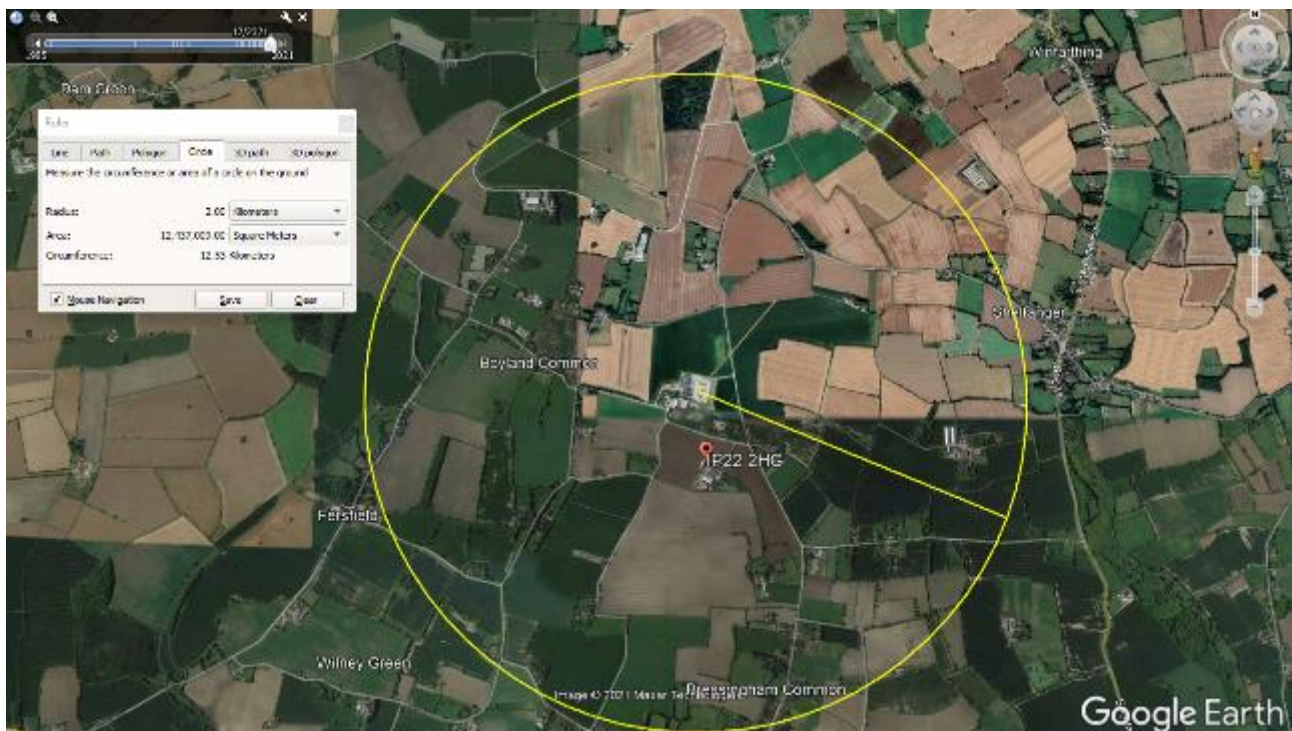


Image 3.1 showing the site within a 2km radius

Currently, the cluster of buildings at Deal Farm have multiple access points to the two houses, piggery, straw stacks, maize field clamps and field access in general.

Access to the proposed AD Plant will be via two main access points: This represents a reduction from three in response to representations made by Norfolk County Council to the previously withdrawn S73A application, and therefore the access on Kenninghall Road is not included and so the scheme now reflects the accesses approved in 2015.

- Access (1) is the dedicated access granted permission by SNDC as part of the 2015 planning permission which joins onto Common Road; and
- Access (2) is an internal access between the back of the piggery unit and the AD plant and is to be used for transferring straw and muck from Deal Farm to the AD Plant via internal movement only.



Image 3.2 showing the 2 access points to Deal Farm AD Plant & existing farm access

Historically, the farm has grown cereals (mainly wheat) and sugar beet, which has been stored at The Oaks and Deal Farm (pads and stores), see figures 2.1 and 2.2, before bulking and transfer for onward delivery to the following:

- Wheat – delivered to grain mills via A1066 to Kenninghall and Burston
- Sugar Beet – delivered to Bury St Edmunds or Wissington through Bressingham via A1066



Image 3.3 showing stacked HGVs on Lady's Lane near Deal Farm in December 2021. These vehicles are transporting harvested sugar beet to Bury St Edmunds – going out through Bressingham to the A1066.

Beet harvest carries on throughout the winter and there is a long history of beet farming and transport of this material on Bressingham and South Norfolk roads.

The site benefits from well-established links to the A1066 and the B1077 which has had the necessary upgrades to cater for developments and larger vehicles.

It is anticipated that vehicles will mainly be accessing and egressing site from the local villages surrounding the site from the landholding owned by RG Aves.

4.0 CURRENT TRAFFIC MOVEMENTS

Deal Farm forms part of the extensive farming operations of RG Aves and Partners. Deal Farm and The Oaks were combined in the 1950s and have been farmed by the Aves family for the past 70 years. The farm is mixed-use, meaning that a range of arable and livestock farming occurs. Currently, the main farming operations are chicken and pig farming (at The Oaks and Deal Farm respectively); and wheat, maize and sugar beet growing (over 455 hectares/ 1,125 acres). In the past the farm has also had both beef and dairy herds and there is currently a small sheep herd and cattle herd.

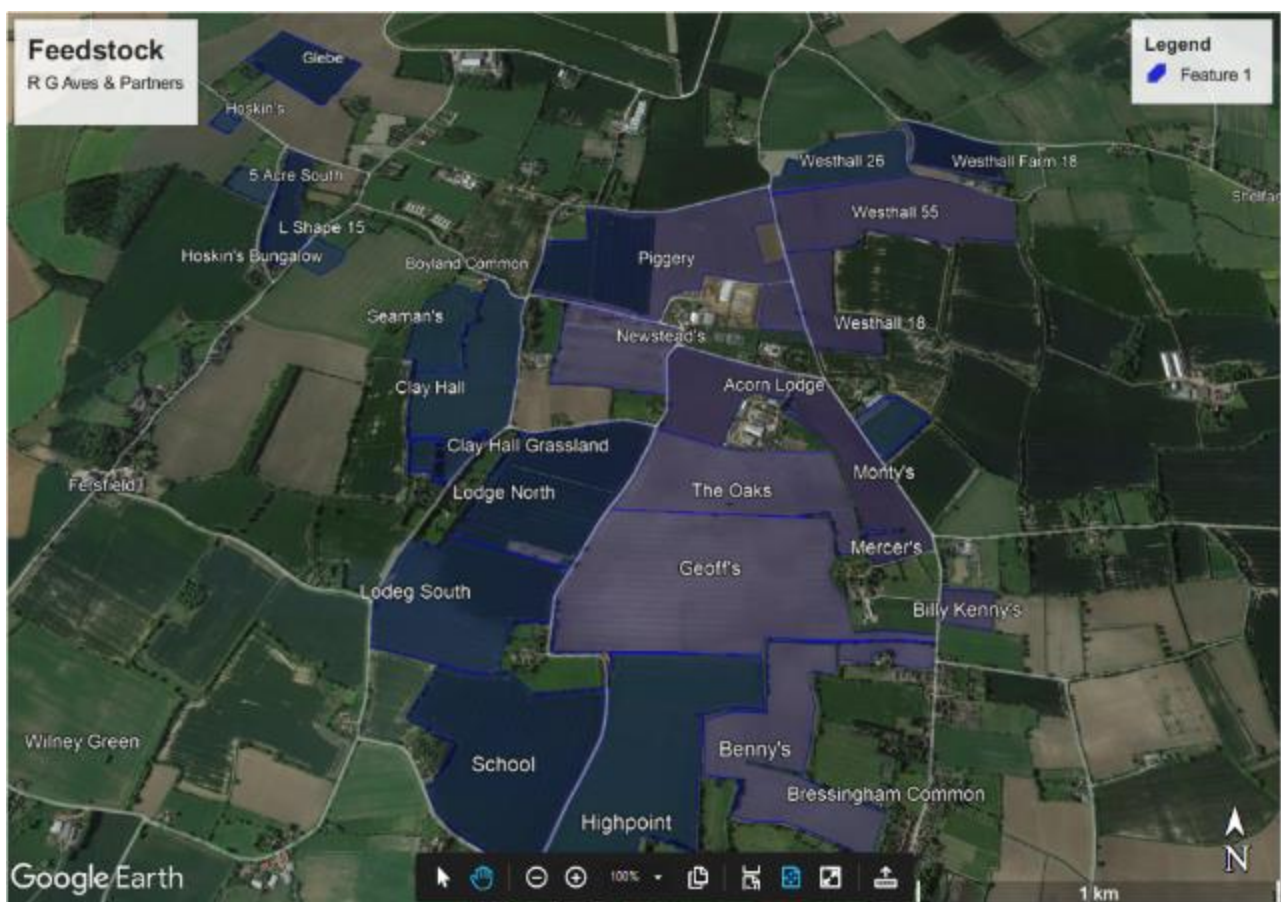


Image 4.1 shows the current land holding of RG Aves and Partners – Red Arrow denotes the AD Plant (note the land sits within the 2km radius and does not go beyond the nearest three villages).

Based on an average of the past 5 (2015-2020) years the farm has operated on the following basis:

	Area (ha)	Yield (t)	Transport Movements from Field ¹
Wheat	100.0	980	1,528
Sugar Beet	58.0	4,605	
Maize	191.2	7,000	
Grass	50.0	2,250	
Wholecrop cereals	45.0	2,025	
Hay Paddocks	11.1	110	
Straw (wheat)	100.0 ²	800	
Straw (bought in)	n/a	3,720	
	455	21,490	1,528

Table 4.1 Vehicle movements associated with harvesting crops and delivering to clamps, stores, pads at Deal Farm/ The Oaks – generally by tractor/ trailer

	Transport Movements
176 tonnes of artificial Nitrogen fertiliser (delivery and application)	23
30 tonnes of artificial Potassium fertiliser (delivery and application)	19
Crop Protection (sprays)	37
	79

Table 4.2 Vehicle movements associated with fertiliser receipt and delivery; and application of weed/ pest control/ other.

	Tonnage	Transport Movements from store to market
Wheat	980	761
Sugar Beet	4,605	
Maize	7,000	
Grass	2,250	
Wholecrop cereals	2,025	
Hay Paddocks	0	
Straw	0	
	16,860	761

Table 4.3 Vehicle movements associated with the double handling of crops from stores/ clamps/ etc to final destination (e.g. grain mills, etc) – generally by HGV bulker

¹ A transport movement is considered to be one arrival and one departure (i.e. in and out)

² Same area as Wheat – 100 ha

	Animal Shed to Muck Pad (tonnes)	Muck Pad to Field ³ (tonnes)	Transport Movements
Poultry	500	375	1,773
Pig manure	5500	5500	
Imported manures	600	450	
Washings (own & 3 rd party)		10,000 m ³	
	6,600	14,700	1,773

Table 4.4 Vehicle Movements associated with the removal of manure from livestock farms and then double handling from muck pad to field.

The above breakdown relates only to materials and operations of relevance to the AD Plant proposed at Deal Farm.

Based on the above (average data from the past 5-years) the total 2-way vehicle movements associated with crop, manure and by-products management at Deal Farm are **4,141 per annum**.

5.0 PROJECTED TRAFFIC MOVEMENTS

The approval of the AD Plant at Deal Farm will have a direct impact on the types and proportions of crops grown.

As a direct result, the amount of beet will be substantially reduced, with more focus on grass and whole-crop rye. It is estimated that the plant will process the following feedstock - 'waste' and 'non-waste' - annually, although it is important to note that inherent flexibility (+/- 20%) is required in order to reflect variations in availability, and the significant impact of weather on crop yields:

Non-Waste (56%)

Maize Silage	3,500 tonnes
Grass Silage	5,000 tonnes
Straw	6,450 tonnes
NON-WASTE TOTAL:	14,950 TONNES

Farm Waste (44%) – estimates based on local availability

Chicken Manure	500 tonnes
Pig manure	5,500 tonnes ⁴
Cattle/Duck Manure	3,000 tonnes
WASTE TOTAL:	9,000 TONNES

³ Assumes roughly 25% is spread directly to field from muck pad.

⁴ We have reduced the amount from the average 6,000 tonnes produced on the 2015-2020 period in order to ensure the reduction in vehicle movement from processing this material onsite is not overstated.

The table below quantifies the maximum vehicle movements anticipated annually. Please note that one movement has been counted as a single vehicle entering and exiting site.

	Vehicle Movements	Notes
Maize	250	The farmer currently grows and clamps roughly 7,000 tonnes of maize in field clamps on land at Deal Farm. This material is then collected and transported out of area to 3 rd party AD livestock facilities. 250 equates to the vehicle movements associated with maize delivered to the Clamps on the AD site.
Grass	357	The AD plant will require an increase in the quantity of grass grown and stored at Deal Farm. However, this will replace some areas currently used to grow beet.
Straw	289	Estimated 3,700 tonnes of straw is stored at Deal Farm and then traded out for imported "muck" for use as fertiliser. The remainder is used on farm. The plant will require an increase in straw delivered to the site. However, this still results in a net reduction in movements as the straw is treated on site instead of being double-handled to market off site (power stations and muck for straw swaps).
Chicken Manure	31	All the chicken manure is produced at The Oaks on Kenninghall Road within 500m of the AD plant.
Pig Manure	0	Manure delivered via Access (3) internal movement
Cattle/Duck Manure	167	The farm currently imports 600 tonnes of manure from surrounding livestock farms.
	1,361	

Table 5.1 Vehicle movements associated with the delivery of feedstock to the plant

Given that between 10 – 20% of the feed to the plant is converted to gas within the process, the total digestate from the plant is expected to be 23950 tonnes which is expected to be split 50:50 between solid and liquid fraction. The solids will be split between being spread directly to the fields adjacent (or via internal road) and taken by road to other fields. The liquid will be pumped to covered lagoons, where it will either be (1) applied directly to land via umbilical and applicator; (2) pumped via lay-flat to neighbouring farms; or (3) collected by tanker from one of the off-take points.

	Vehicle Movements	Notes
Solid Digestate	0	Spread directly to field from site (either adjacent fields or internal road)
Solid Digestate	267	Movements associated with dedicated solid digestate collections (ie empty trailer arrives and leaves full)
Solid Digestate	0	Taken as back-loads from muck/ crop deliveries (ie full trailer arrives and leaves full) – vehicle movement is therefore accounted for in 5.1 above.
Liquid Digestate	0	From AD site – as all liquids are pumped to lagoons
Liquid Digestate	0	Pumped directly onto fields by umbilical / applicator from lagoons or dedicated offtake points.
Liquid Digestate	0	Pumped from lagoon to 3 rd parties via tractor/pump and lay-flat
Liquid Digestate	94	Tanker from one of the remote offtake points.
	360	

Table 5.2 Vehicle movements associated with the management of solid and liquid digestate

	Transport Movements
Up to 4,835 tonnes of liquid CO ₂ by tanker	161
NOTE: there is 60m ³ of storage proposed on site to enable collection weekdays only.	
	161

The following payloads have been utilised:

Material	Tonnage	Vehicle
CO ₂	30t	HGV Tanker
Liquid Digestate	22t average load	Tractor Tanker
Solid Digestate	18t average load	Tractor Trailer
Maize	14t	Tractor Trailer
Grass	14t	Tractor Trailer
Poultry (The Oaks)	16t	Tractor Trailer
Poultry (3rd Party)	18t	Tractor Trailer
Cattle Manure	18t	Tractor Trailer
Straw	28t	HGV Trailer

6.0 SUMMARY OF TRANSPORT IMPACT

Following the 2015 application, it should be noted that the farm now produces a greater tonnage of material on site than it did during that application, this is an important point to note before assessing the applications in parallel.

The transport impact can be summarised as follows on a material basis

Materials	Current	With AD	Impact between current use and the AD facility
CO ₂	0	161	Increase in vehicle movements (+161)
Liquid Digestate	0	94	Increase in vehicle movements (+94)
Solid Digestate	0	267	Increase in vehicle movements (+267)
Maize	500	250	Reduction in vehicle movements (-250) Reason: one delivery to AD plant instead of two handling movements (one delivery to clamp and then collection and delivery to offsite maize user) The Assessment applies only to the 3,500 tonnes used by the plant and not a net reduction against the total maize handled through Deal Farm.
Grass	161	357	Increase in vehicle movements (+196) Reason: reflects the additional grass tonnage from 2,250 currently to 5,000 processed by the AD plant.
Poultry (The Oaks)	31	31	No change
Pig Manure	781	0	Reduction in vehicle movements (-781) Reason: All current double movements from pig sheds to field heaps and from field heaps to field spreading are avoided. All equivalent movements associated with the digestate produced from processing this material are included in above.
Poultry & Cattle Manure (3 rd party)	33	167	Increase in vehicle movements (+133) Reason: increase in deliveries from 600 tonnes per annum currently to 3,000 tonnes from local farms.
Straw	523	289	Decrease in vehicle movements (-235) Reason: Despite the increase in tonnage from 4,520 to 6,450 tonnes per annum, by processing the straw onsite rather than storing onsite and then further vehicle movements to transport it to market (power stations, much for straw swaps etc) the net effect is to reduce the overall vehicle movements.
Chemical Fertiliser	42	21	Reduction in vehicle movements (-21) Reason: Assumes that half of fertiliser imports are avoided and replaced by digestate accounted for above.

Total	2072 ⁵	1636 ⁶	REDUCTION IN VEHICLE MOVEMENTS (-435 per annum)
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Table 6.1 - Analysis of the net impact on vehicle movements as a result of operating the AD plant.

The total figure should also be considered against the removal of trips out through the villages to end markets. This is achieved by processing materials already delivered to Deal Farm on site rather than the current practice of storing for onward transfer; and by reducing the need for imported chemical fertilisers.

To make efficient use of all vehicles delivering to the site on a regular basis, it is intended that as far as practicable the vehicles making deliveries will be loaded with a 'return load' of solid digestate before leaving the site. This way the amount of empty vehicle movements will be minimised.

The use of energy crops grown close to the AD Plant (within the 5km radius approved in the 2015 permission) means that significant regional and national vehicle mileage will be avoided. Indeed, instead of moving these crops outside of the area for processing on routes that pass through the villages of Bressingham, Fersfield and Shelfhanger to reach the processing sites at Wissington, Bury St Edmunds, Kenninghall and Burston – the materials will be grown, processed and returned to the land within the same area.

Significant transport movement savings are made by processing the 5,500 tonnes of pig manure from Deal Farm onsite – rather than the current operation of double handling the manure from piggery to muck pad and muck pad to field. It is estimated that this double handling alone requires some 781 transport movements per annum that treating onsite in the AD Plant will avoid. Likewise, further transport movements will be avoided by moving from sugar beet production to grass and maize. Where fields have been historically used to grow 80 tonnes per hectare of sugar beet for delivery to Bury St. Edmunds, Cantley or Wissington – the tonnage yields from these crops are lower (but with higher gas productivity) and require considerably less management (fertiliser and protection/ other sprays).

Based on the above analysis –

- AD Plant transport movements will be equivalent to:
 - 1,361 feedstock/ digestate movements at the Deal Farm AD Plant – split between the Kenninghall Rd and Common Rd accesses
 - 94 movements (57 ea) between the digestate offtake points
 - 161 movements associated with the collection of liquid CO₂
- This is in the context of
 - 2,072 transport movements directly associated with Deal Farm/ The Oaks
 As per Table 6.1 – the overall net change is – 435 movements per year.

In order to allay previously raised concerns over the facility being for "local" farming use, the Applicant proposes that conditions are placed on the feedstock, limiting materials to the following:

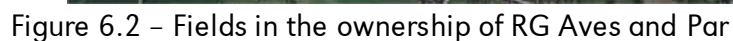
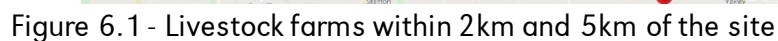
⁵ Rounded to single nearest movement

⁶ Rounded to single nearest movement

1. Purpose grown crop feed limited to crops grown on land within a 5km radius of the site;

A further condition can be applied to require the Applicant to keep and provide records to demonstrate all the above. By doing so, the AD Plant can be conditioned to provide a local amenity for farmers. These conditions have been imposed on other AD plants locally.

The map extract below shows the landholdings and locations of the proposed feedstock sources, this includes 3rd party growers RG Aves has agreements with.



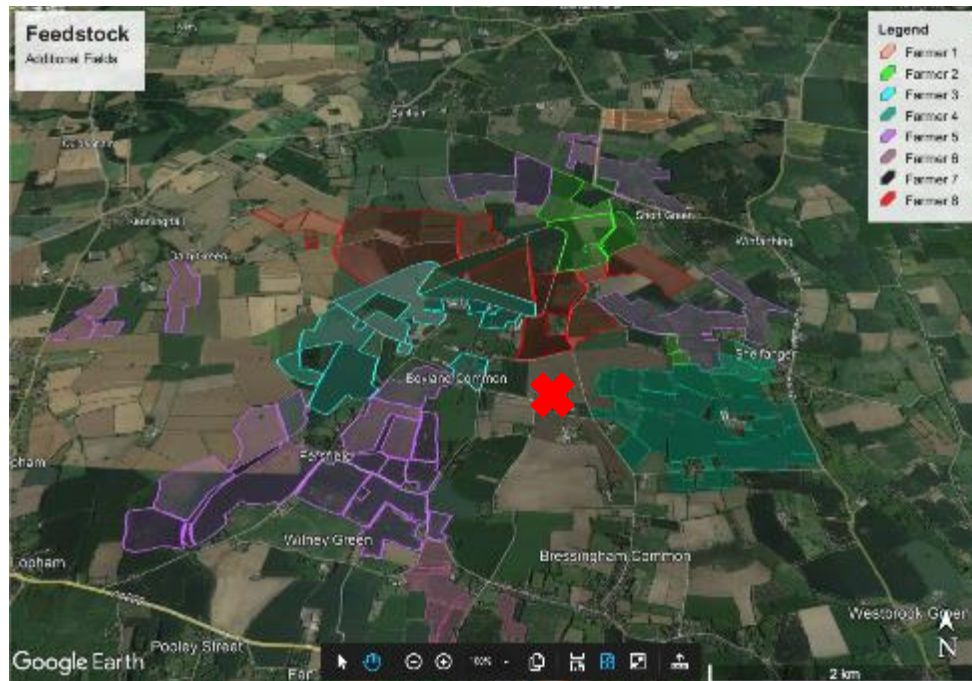


Figure 6.3 - shows the farms which the Applicant already has agreements in place with.

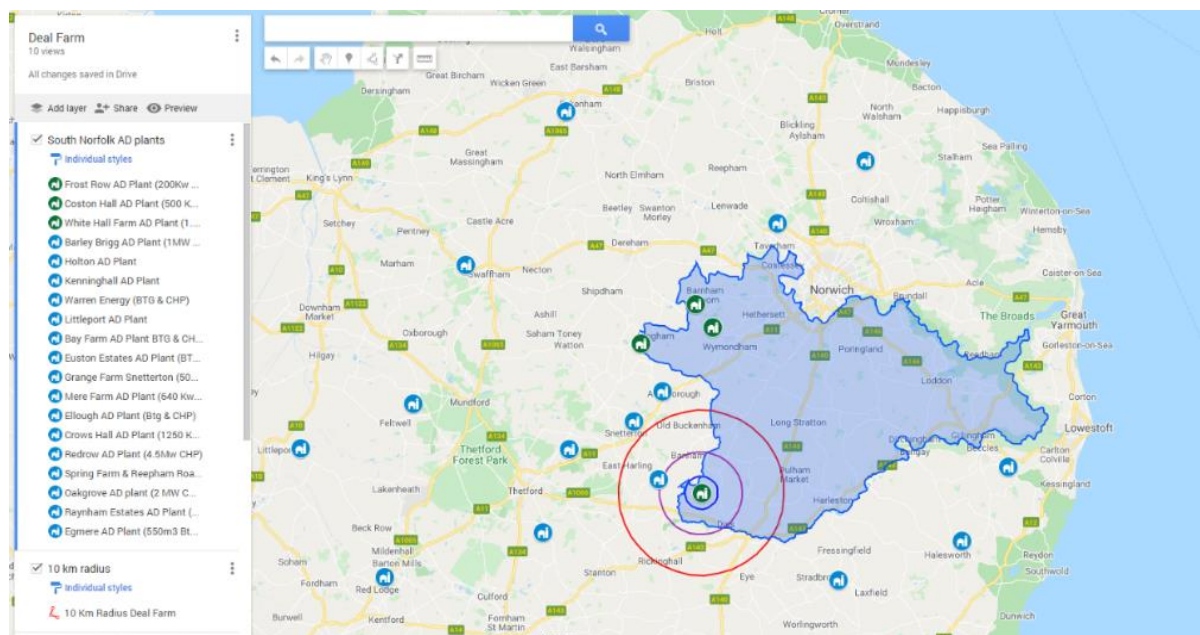


Figure 6.4 – shows the existing AD plants within South Norfolk and surrounding area.

The maps show the landholdings available to the Applicant, but also other local farmers are sub-contracted by RG Aves for additional feedstocks. This will then allow for seasonal rotation with the fields and the material would then still be generated within the 5km radius, whilst offering generation and farming diversification to other local farmers and landowners.

7.0 HIGHWAY ENHANCEMENTS

It is not anticipated any enhancements to the surrounding highway network will be required due to the standard of the existing infrastructure that links the site to the A1066 and B1077; and the low numbers of additional movements created (<1 per day).

The traffic movements detailed above will have a low impact on the surrounding highway network and are of the type of vehicles similar to those associated with the existing agricultural facilities within the local area.

The applicant proposes to implement a Transport Management Plan – to monitor the impact of transport on the local area – making it easy for local residents to report any issues and respond to them when they arise.

The Plan will also agree approved routes for vehicles, and speed limits in sensitive areas.

The following four maps show typical routes in and out of site; there are 3 main distribution routes in and out of the site and they are the only routes out beyond the site for further distribution points, most of the routes in the area already have weight limits imposed on them.

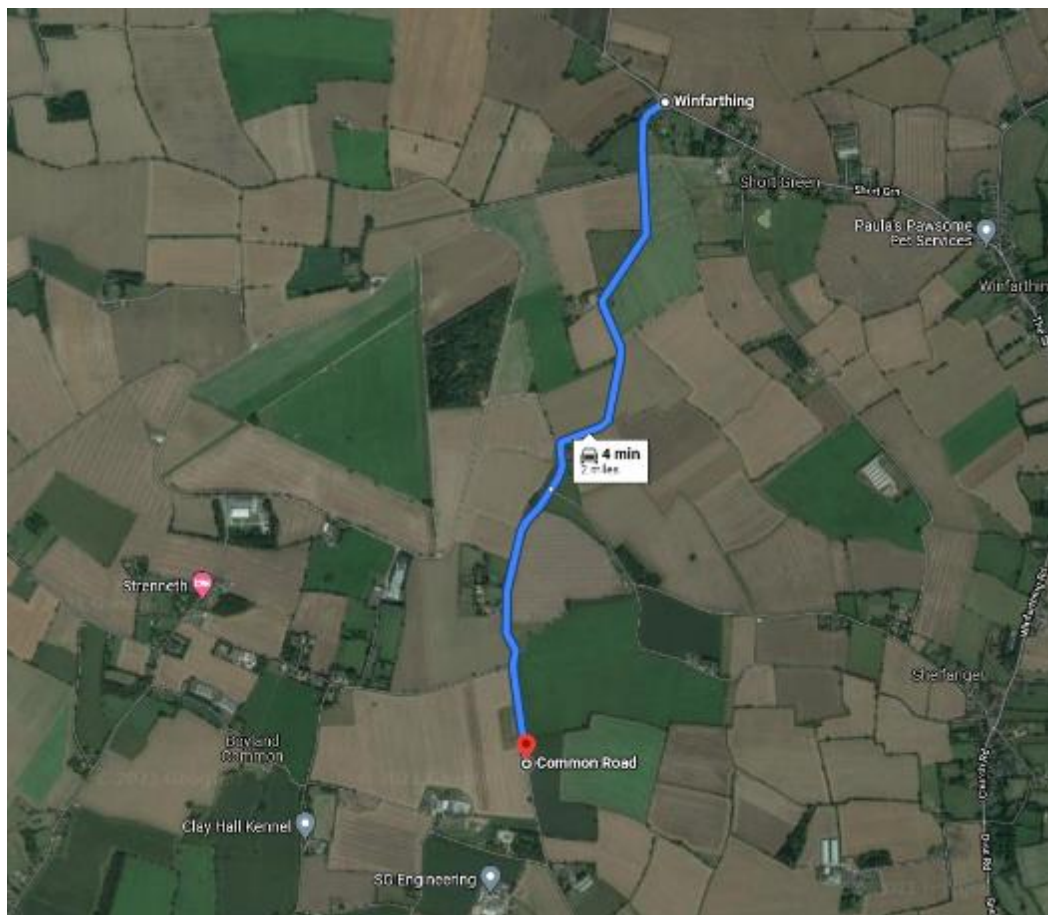


Image 5.1 distribution route 1

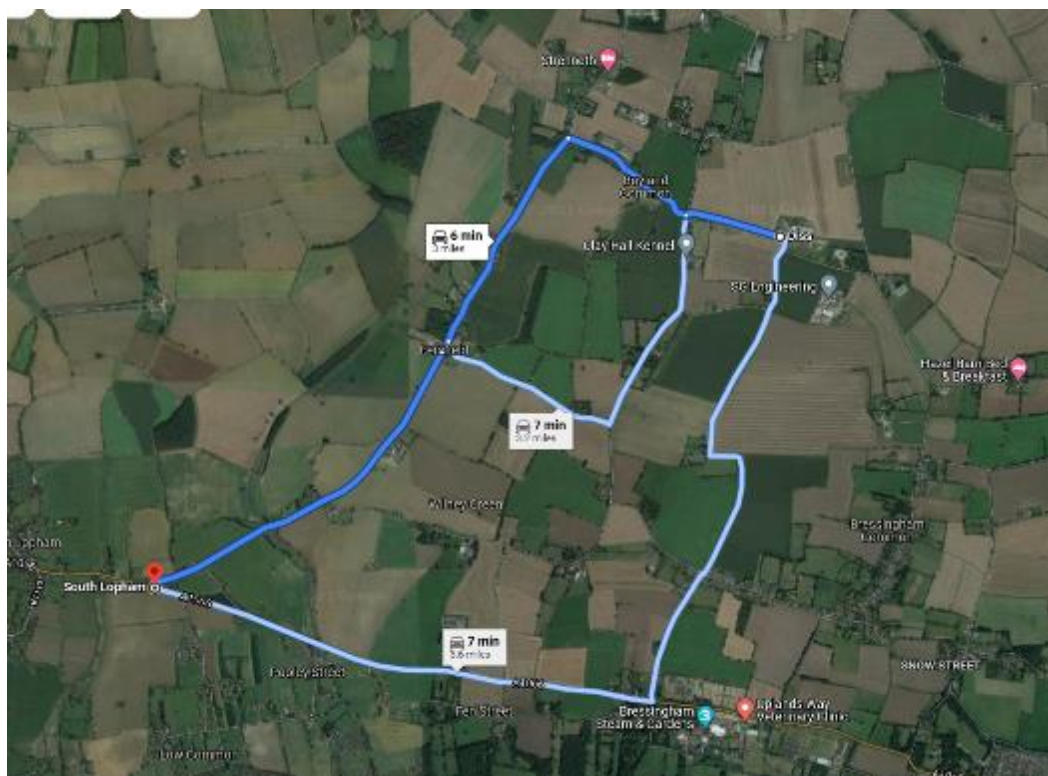


Image 5.2 distribution route 2

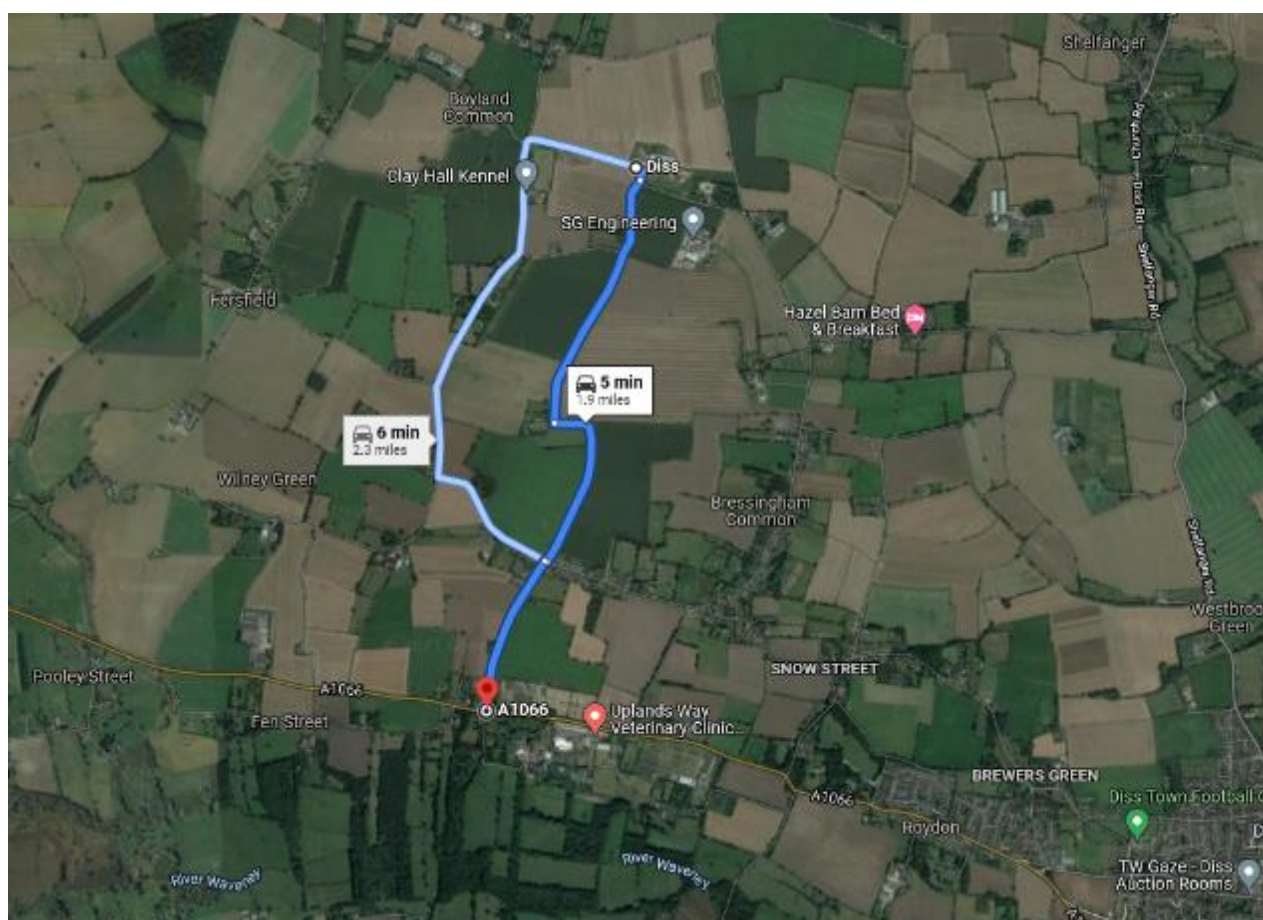


Image 5.3 distribution route 3

We have undertaken a detailed assessment of the routes proposed to be utilised, which is included as an Appendix. Photographic evidence and measurements have been undertaken. Some of the routes into site do have informal passing bays which could be formalised within the highway boundary to enable vehicles to pass. Some routes have no passing bays but do have space within the verges to offer passing bays. The Applicant would be happy to liaise with the Highway Authority to agree the correct location for passing bays along these routes. The reason we have no passing bays detailed or proposed at present is due to the current timescale of 3-4 months to receive the highways boundary plan; however, this could be conditioned, or if the boundary could be provided sooner, we can offer to detail locations for passing bays. Given that the routes are in use at the moment and that passing bays have been formed in some locations already along the routes, these do not seem to be unreasonable routes to follow.

If a particular route was unfavourable by the Highway Authority, the Applicant would be happy to install suitable signage stating “No link or through route to AD Plant” – or similar – which again could be conditioned or part of a Section 278 Agreement.

It is felt that passing bays would be best formalised via signage and widening of the road to achieve a minimum of 5.50m width. The passing bays should be located where existing pull-ins have been formed as this shows regularly used locations. Additional passing bays should be located within the highway boundary as agreed with the Highway Authority.

8.0 CONCLUSIONS

Having analysed RG Aves vehicle movements over the last 5 years the average number of movements associated with the crop and waste that would be processed by the AD plant is 2072 movements per annum.

The projected vehicle movements when the AD plant is operational is 1636 movements per annum. The reduction in vehicle movements is associated with the:

- Avoidance of double handling when transporting crops & straw off the farm
- Avoidance of stacking pig manure offsite
- Transferring liquid digestate via pipeline to lagoons
- Avoidance of the use of chemical fertilisers

This will result in a more balanced and predictable set of transport movements. While the Transport Management Plan will lead to greater control over vehicle timings, routes and speeds – something that is not as restrictive under the current operation. In addition, given that a large proportion of existing movements of slurries and manures are not monitored on the local road network, the proposal adds a safety factor to the roads as the larger HGVs where they are used are better regulated than farm vehicles.

In addition to the 2015 scheme, the Applicant is proposing to add in CO₂ recovery, further enhancing the environmental credibility for the proposal with the reduction in the carbon footprint of the vehicle journeys and double handling. The CO₂ recovery would be the equivalent of removing approximately 13,800,000 car road miles from UK roads each year.

The council has the right to restrict certain routes and roads from being part of the proposal and they may wish to condition this.

Given the above and the restriction this application would impose it is felt that this application gives the highway authority greater control and knowledge for the current processes occurring on the farm and surroundings, it also gives greater ability to control and manage the routing and harvest operations, to which there is currently no control and no management plan in place.

APPENDIX A



**CONSTRUCTION TRAFFIC
MANAGEMENT PLAN**

FOR

**PROPOSED ANEROBIC DIGESTION
PLANT**

AT

**Deal Farm
Kenninghall Road
Bressingham
Norfolk
IP22 2HG**

FOR

DEAL FARM BIOGAS LTD

Project Ref: P99814

Issue: 03

Date: SEPTEMBER 2018

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A handwritten signature in black ink, appearing to read 'J. H. Collins', with a dotted line underneath it.

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1.0 INTRODUCTION

GGP Consult has been appointed by Deal Farm Biogas Ltd to prepare this Construction Traffic Management Plan (CTMP) in relation to the construction of a farm anaerobic digestion facility at Deal Farm, Kenninghall Road, Bressingham, Norfolk, IP22 2HG.

1.1 Purpose

This CTMP document has been created with the purpose of demonstrating how the principal contractors, and any additional permanent contractors, propose to control the impact their construction vehicles have on the local road network throughout the development of this facility.

Condition 6 attached the Appeal Decision (Appeal Ref: 2015/0595) is as follows:

“Prior to the commencement of any works a Construction Traffic Management Plan and Access Route which shall incorporate adequate provision for addressing any abnormal wear and tear to the highway shall be submitted to and approved in writing with the Local Planning Authority in consultation with Norfolk County Council Highway Authority together with proposals to control and manage construction traffic using the ‘Construction Traffic Access Route’ and to ensure no other local roads are used by construction traffic”

The details included in this CTMP and further non-traffic related construction issues are to be agreed upon between Norfolk County Council and the principal contractor as reserved matters once full details of the contractor are made known.

1.2 Scope

This CTMP applies only to the construction phases of the proposed development, this includes construction activities and incorporating enabling works. The aim is to maximise the safety of the residents, contractors and all highway users. Consideration has been given to minimise the impact of the local highway network.

An important part of this CTMP is the acknowledgement that cooperation with the Norfolk County Council (being the local highway authority), public services and the police will be necessary to ensure the construction programme avoids any existing work within proximity of the site.

Public transport, while unlikely to be affected, will be informed of the proposal and of any temporary traffic management requirements of the public transport routes.

The applicant recognises that all the traffic movements undertaken within the construction period are of concern to the local highway authority. As such, this CTMP has been developed to:

- a) Avoid traffic sensitive areas (e.g. hospitals & schools), as feasibly possible;
- b) Minimise highway congestion, particularly in the village of Bressingham;
- c) Keep clear access to the highway for other highway users;
- d) Strive to keep highways clear of any debris;
- e) Safely resolve any interaction with the public;
- f) Create a most practical and efficient route to the construction site.

2.0 DESCRIPTION OF THE EXISTING SITE

The proposed site is located on Kenninghall Road, within the village of Bressingham, in the county of Norfolk. Access to the site can be obtained from two possible locations; Common Road & a Farm Access Road, both these can be found adjacent to Kenninghall Road.

The site is in a rural area to the north east of the village. The local proximity has very little residential properties, consisting of mostly farm land. All the surrounding roads are single track with no lighting of footpaths present.

It's located approximately 4.4 km north of the A1066, being roughly a 6-minute drive. It lies approximately 38.6 km south west of Norwich, being an approximate 44-minute drive. Its located north east of the market town Diss, which provides access to most of the main roads in the surrounding area.

The location of the site can be seen below:



2.1 Local Highway Network

Kenninghall Road -

This is a single track road and is bound between a field and hedges. It provides access to two residential properties. Due to the lack of room and residents living down this street this section of road is to be avoided.

It connects both the access points to the site, Common Road found to its east and the farm access road to its west.

Common Road –

This road is a single track road approximately 3 meters wide and leads into a populated area of the village 1.5-miles south of the site. The road is primarily bound either side by banks and is joined to a significant amount of residential properties.

No street lights or foot paths are found on this street and speed limits fluctuate. When approaching from the south they are frequent sharp turns with limited lines of site.

A1066 –

This is the main road connecting the village to the local town of Diss to the east, and to the west connecting to several other main roads.

It's a single carriageway bearing most of the heavy traffic coming in and out the area. Its subject to the national speed limit for single carriageways of 60mph.

3.0 CONSTRUCTION PERIOD AND STRATEGY

3.1 Duration

The information supplied by the contractor indicates the build programme will take 30 weeks to complete.

Through the duration of the building programme construction will only take place Monday – Saturday, within the hours of 07:30 and 18:00.

3.2 Construction Compounds

The proposed development will take place at the back of the farm, north of the existing developments.

3.4 Access Arrangements

Construction traffic will have access to the site from the new access road to be constructed as part of the project of Common Road to the East.

For the initial site setup it is proposed to use an existing farm track west of the farm. This will be used to bring the contractor mobilizing equipment and constructor's company.

After this period all construction traffic will enter the site from the new access road to the east.

3.5 Phasing Schedule

Phase 1 – Contractor setup

Phase 2 – Construction of new access road

Phase 3 – Plant construction

3.6 Parking

Dedicated areas will be provided on site for staff to park, this area can accommodate all the staff expected to be on site at one time. This will in no way affect the flow of traffic next to the site.

3.7 Required Facilities

All the necessary facilities for the staff will be provided by the principle contractor and will be locate within the grounds of the site.

4.0 CONSTRUCTION PHASE TRIP GENERATION

4.1 Construction Traffic

The preceding section of the report will specify the impact the construction traffic will have and what measures can be taken to reduce it.

4.2 Construction Staff Traffic

Shifts are from 07:30 to 18:00 which means trips inbound to the site will be between 07:00 – 07:30, avoiding the peak traffic time of 08:00 – 08:30. This will mean a departure time of around 18:00 – 18:30, avoiding the peak time of 17:00 – 18:00.

With this being a rural area with little residential property within the surrounding area, traffic is minimal even during peak times.

Therefore, impact to the local traffic network will be minimal.

4.3 Abnormal Loads

All construction vehicles classifying as abnormal loads will be required to travel through routes providing maximum clear lines of site, minimal corners and low rates of traffic.

5.0 ROUTING OF CONSTRUCTION VEHICLES

5.1 Overview

The construction vehicles should take the most efficient and shortest route to the site. The following details the most appropriate route vehicles should take to the site.



5.2 Route Description

From the West – Thetford (Red)

This provides the best HGV route from Thetford, traveling via South Lopham and Fersfield.

Vehicles should follow Castle Street to the A1066.

At the roundabout, take the second exit onto the A1066. Proceed down the A1066 for approximately 17.7km.

Turn left onto Fersfield Road. Continue onto Lopham Road, then onto The Street.

After 1.2km turn right onto Wood Lane, continue down here for 0.8km. This road restricts vehicles, see below section.

Take a left onto Algar Road followed by an immediate right turning off Stone Lane.



Stone Lane restrictions are detailed in the below section.

The Farm Access Road will be on your left. It is proposed to use this farm access to avoid vehicles traveling along Kenninghall Road.

The farm access track is shown by the red line below.



From the North West – Snetterton (Blue)

This is intended for construction traffic traveling from Snetterton, traveling via South Lopham and Fersfield.

Travel south-west down the A11 for approximately 7.6 miles. At the roundabout, take the first exit onto the A1075.

Continue down the A1075 until you come to roundabout, take the second exit and continue until you approach another roundabout.

Take the first exit onto the A1066.

Now follow the 'Red' route.

From the South – Diss (Green)

Head onto the B1077 and proceed for approximately 8km until you get to Dog Lane.

Take the left turn onto Dog Lane and proceed 3.6km, proceeding onto Common Road.

The main access road via Common Road will be on your right.

6.0 CONSTRUCTION TRAFFIC ROUTING

6.1 Restrictions

When approaching from any direction from the west of the site, its recommended you turn up Fersfield from the A1066, as a result a sharp turn must be made from The Street onto Wood Lane.

This tight corner will prove a struggle for extra-long artic low loaders. An alternatively you could continue into Diss and proceed with the route detailed in 'Option 2 - via Shelfanger & Short Green'.

Stone Lane has restrictions in place which prohibit heavy goods vehicles from travelling up the street. However, the 'Red' route detailed above has the construction traffic traveling straight across it, not down it.

This crossing is between the end of Algar Road and the beginning of Stone Lane. Most of the turn will be made on Algar Road, little (if any) contact will be made on Stone Lane.

Arrival and departure can be made from any of the listed routes.

The route from Diss has minimal tight corners and clear lines of sight at any point. Room is also available on the side of the road if pulling over is necessary. This makes it the most appropriate route for construction traffic.

All vehicles will follow traffic signs and directions given by any representatives from the Norfolk County Council.

Schedules will be made with deliveries to prevent the possibility of multiple vehicles arriving at any given time.

6.2 Reporting Non-Compliance and Remedial Actions

Any concerns from stakeholders and residents shall be addressed with a cooperative and pleasant attitude by the principal contractor. Construction traffic taking unauthorised routes, actively operating outside designated times or working in an unsafely or unprofessional manner are encouraged to be reported to the principal contractor.

Constant failure to meet the required standards will be met with disciplinary action, in line with the principal contractors disciplinary and grievance policy.

Enquiries, undertaken by the principal contractor, shall be made into the relevant company or individuals who are responsible for such misconducts.

7.0 CONSTRUCTION VEHICLES HAZARD PREVENTION

7.1 Prevention of Debris

The applicant will ensure that the contractor will take suitable precautions to ensure all construction deliveries are secure and pose no risk of falling out during transit.

Any debris that is left will be cleared by the end of the working day and storage appropriate and safety

7.2 Prevention of Mud

The contractor should ensure all vehicles leaving the site do not deposit mud onto the highway once leaving the site.

To prevent this happening the wheels will be cleared of access mud before departure from the site.

Any mud that manages to get onto the highway will be cleared by the end of the working day.

The following wheel wash facility shall be installed and remain for the duration of the works.

DriveOn V-Tech – Effective waterless wheel cleaning.

This is a waterless and powerless system providing great environmental & economic benefits while still providing an effective wheel clean.

Cleaning starts as the vehicle enters the on-ramp and drives over the V-Bars. These are raised from between 15mm and 40mm and are spaced at regular intervals so that they flex the tyre treads open and closed, loosening and removing the contaminants.

The vibrations caused by the vehicle travelling over the bars ensure that even debris caught underneath the chassis and side of the vehicle is dislodged, dropping into the void below the unit. The vehicle then simply exits the site.

The system is carbon zero in operation, has no moving parts and requires no water or power to work, guaranteeing that it performs 100% of the time as it cannot break down or freeze up. In addition to the significant cost savings that the system offers, it also delivers proven environmental benefits.

7.3 Prevention of Impact on Highway Users

The following measure will be adopted to ensure the construction activity does not impact other highway users.

- a) When construction is underway, measures will be taken to ensure activity is not detrimental to the safety of other highway users.
- b) All local highways will be made clear of obstructions
- c) All the necessary licences will be obtained for any scaffolding or additional structures being built
- d) Signs will be used on any additional structures and equipment.
- e) Secure fencing will be erected where construction is close to the highway.

7.4 Vehicle Call-Up Procedure

The following measure will be adopted to ensure the vehicle call-ups don't impact other highway users and residents.

- a) Relevant instructions and route information will be forwarded to the appropriate contractors and suppliers.
- b) All vehicles should book the time they intend to arrive at the site. This is implemented to prevent multiple vehicles arriving to the site at the same time, reducing the impact to the local highway network.
- c) Stationary vehicles should not be left on roads.
- d) Vehicle engines are too turned off when not in use.

8.0 MONITORING AND REVIEW

8.1 The Need of Monitoring

The CTMP is an ever changing process which will change in time to improve its effectiveness. This is done through constant monitoring and review of its effectiveness at a current point.

8.2 Monitoring and Review

The CTMP is a changing document and needs to be updated with new and relevant information as required.

This requirement will be carried by the monitoring exercise. The monitoring will be used to understand the needs of the staff and construction activities so measures can be taken to meet these needs.

This document will be updated once construction has commenced. This includes a provision for monitoring and review and should cover waste management, workforce and construction deliveries.

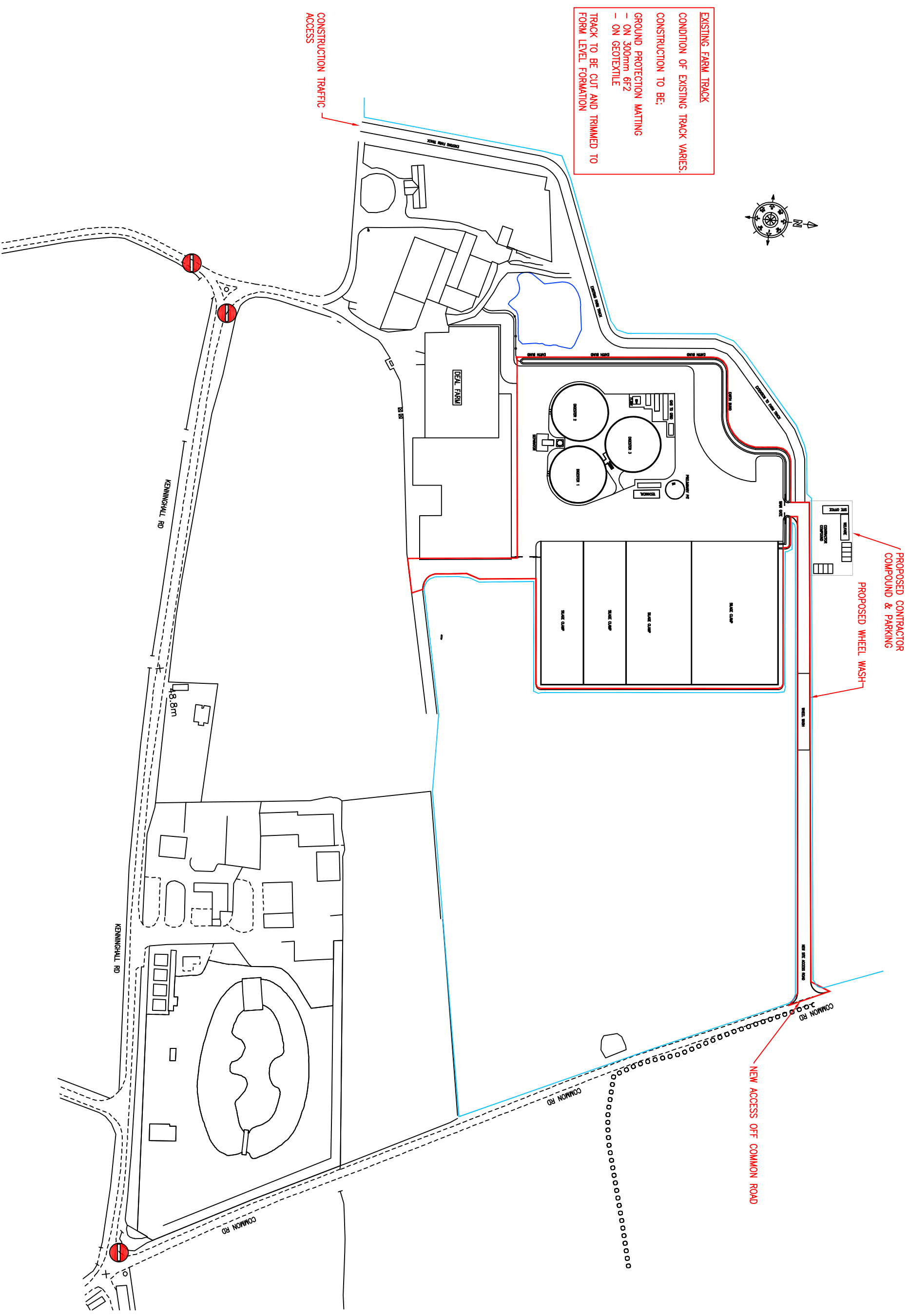
Report Written by:-

A handwritten signature in black ink, appearing to read 'J. H. Collins', written in a cursive style.

J. H. Collins BSc. (Hons), MCIWEM
Senior Civil Engineer
Drainage & Infrastructure

APPENDIX I

Site Compound



- NOTES:-
- NO CONSTRUCTION TRAFFIC PERMITTED
 - PROPOSED PLANNING BOUNDARY
 - LAND OWNERSHIP BOUNDARY

C	18/10/18	ISSUED FOR PLANNING	JAC	JAC	JAC
B	10/10/18	ISSUED FOR PLANNING	JAC	JAC	JAC
A	25/09/18	ISSUED FOR PLANNING	JAC	JAC	JAC
Rev	Date	Description	DN	CH	

UVDB
REGISTERED
CONSULTING ENGINEERS
PROJECT MANAGEMENT
2 Hollam Road
Priory Park East
HULL HU4 7DY
United Kingdom
Telephone 144 0182 627933
Fax 144 0182 641736
Email info@ccpconsult.co.uk

Client
DEAL FARM BIOGAS LTD
Job Title
DEAL FARM AD PLANT
NORFOLK
Drawing Title
CONSTRUCTION TRAFFIC
MANAGEMENT PLAN
SITE PLAN

Scale	1:1000	A1	Date	SEPT 2018
Drawn By	gpc	Checked	Approved	
Proj No.	P99814 / T01	Rev	C	

NOT FOR CONSTRUCTION

APPENDIX II

Wheel Washing Facility

Effective Waterless Wheel Cleaning System

Saves time and money and delivers environmental benefits



- No operator costs. No power required. No water provision or disposal.
- Keeps mud dust and contaminants off the roads.
- Reduces the need for road sweepers.
- Suitable for construction, landfills or quarries.
- No breakdowns or freezing in winter.
- Significant, proven environmental benefits.
- Available for hire or purchase.

The DriveOn V-Tech Dry Wheel Cleaning System is a highly cost effective mobile wheel cleaning system designed to remove mud and debris from vehicle tyres and chassis.

Cleaning starts as the vehicle enters the on-ramp and drives over the V-Bars. These are raised from between 15mm and 40mm and are spaced at regular intervals so that they flex the tyre treads open and closed, loosening and removing the contaminants. The vibrations caused by the vehicle travelling over the bars ensure that even debris caught underneath the chassis and side of the vehicle is dislodged, dropping into the void below the unit. The vehicle then simply exits the site.

The system is carbon zero in operation, has no moving parts and requires no water or power to work, guaranteeing that it performs 100% of the time as it cannot break down or freeze up. In addition to the significant cost savings that the system offers, it also delivers proven environmental benefits.

The DriveOn V-Tech system is installed and ready to use within 90 minutes and, because of the modular nature of the unit, it can be relocated to another site or location quickly and easily. Needing no operator or engineer it is simply positioned by the site exit.

Telephone: 0800 130 3437
Email: info@DriveOnVTech.com
www.DriveOnVTech.com

Eco House, 9 Hayes Drive, Northwich, Cheshire CW8 4JX

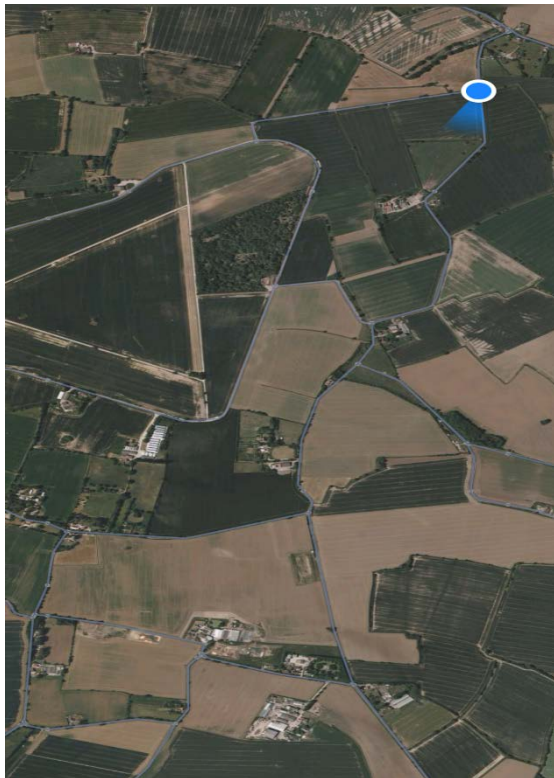


APPENDIX B

Distribution Route 1 – Winfarthing to Deal Farm

Position 1.1

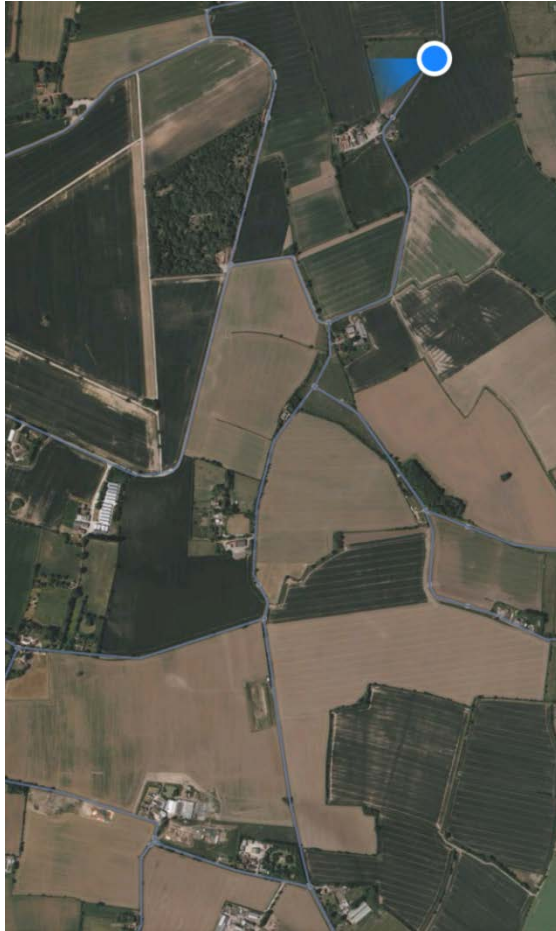
- Double road
- Hedge and ditch either side
- Approximately 4.50metres wide



Distribution Route 1 – Winfarthing to Deal Farm

Position 1.2

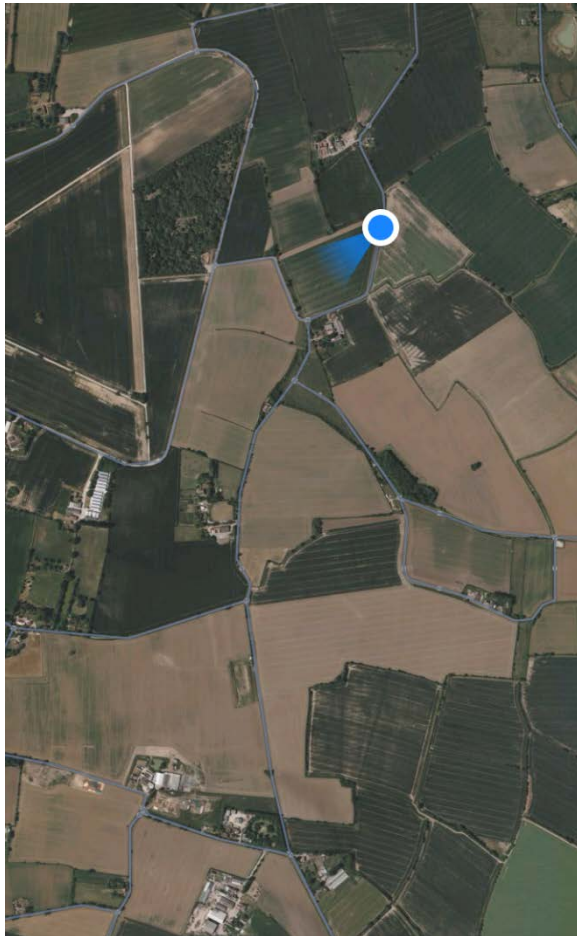
- Ditches and hedges on either side
- Slight pull-in on corner (car parked)



Distribution Route 1 – Winfarthing to Deal Farm

Position 1.3

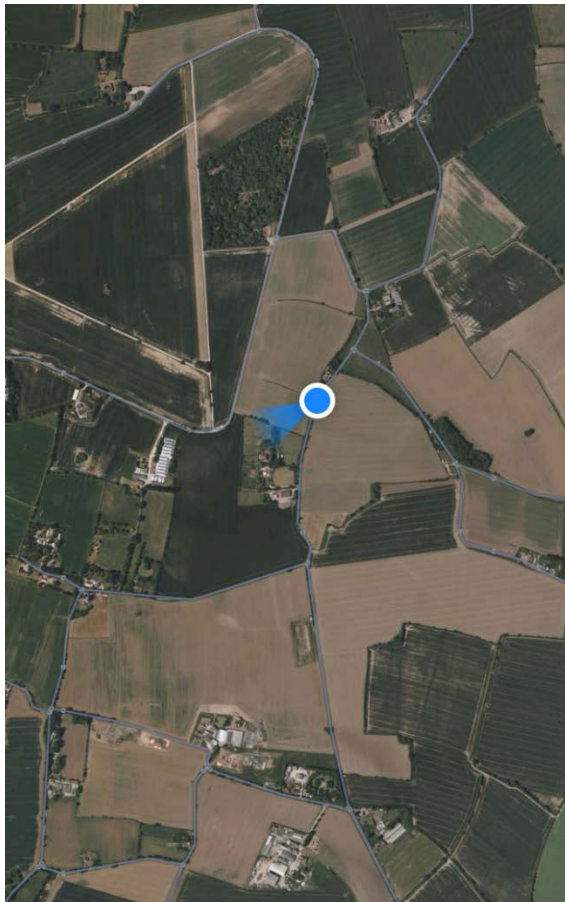
- Ditch on one side & telegraph pole
- Road approx. 4.00m wide
- Worn pull-in



Distribution Route 1 – Winfarthing to Deal Farm

Position 1.4

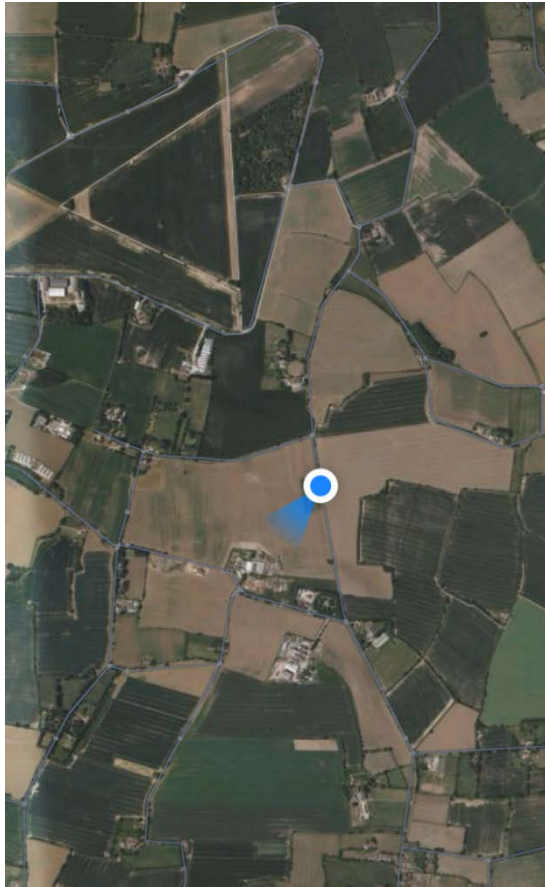
- Slightly worn pull-in
- Sporadic ditches
- Road approx. 4.00m wide
- Telegraph poles



Distribution Route 1 – Winfarthing to Deal Farm

Position 1.5

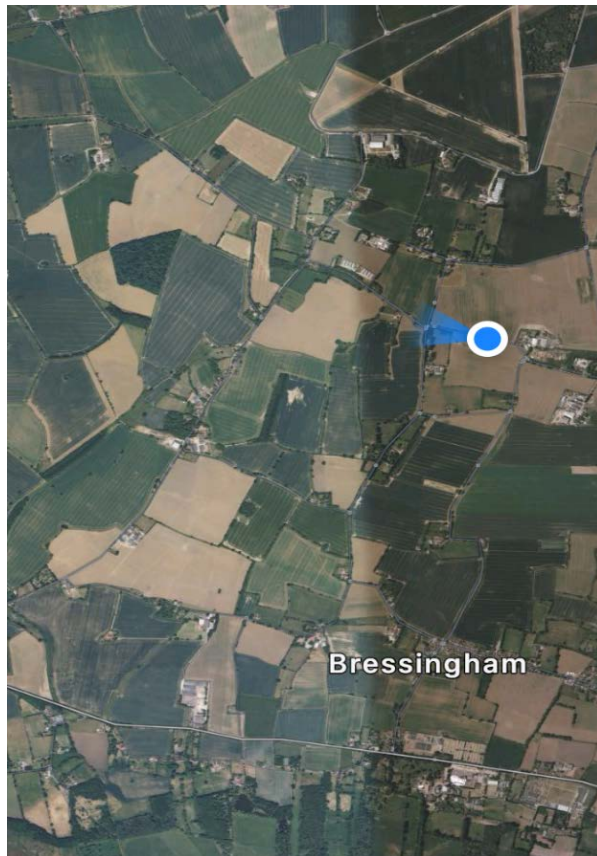
- No ditches
- Small, worn pull-ins
- Road approx. 3.80m wide
- Telegraph poles



Distribution Route 2 – Deal Farm to South Lopham

Position 2.1

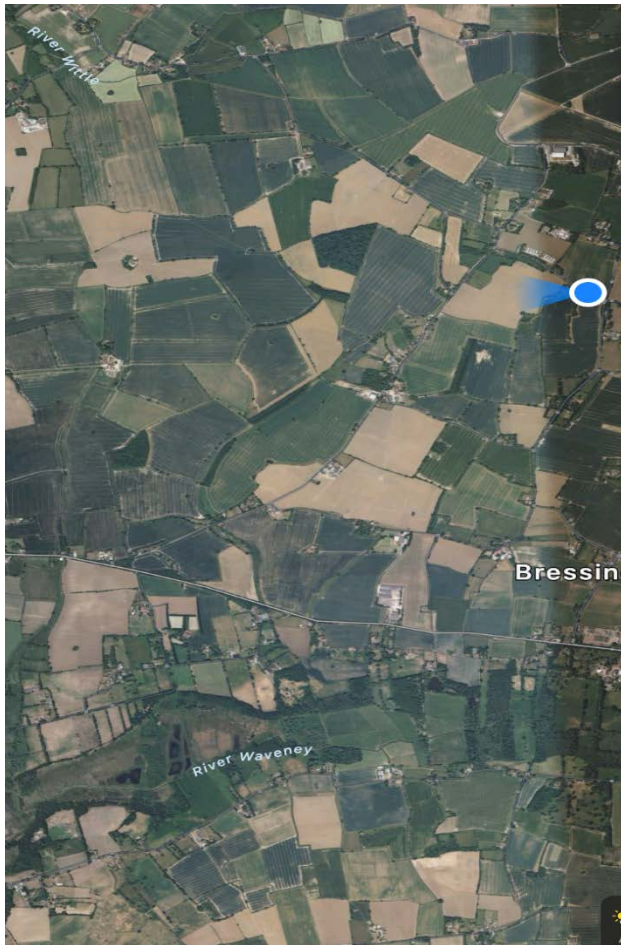
- Single track
- No pull-ins or ditches
- Road approx. 3.00m wide



Distribution Route 2 – Deal Farm to South Lopham

Position 2.2

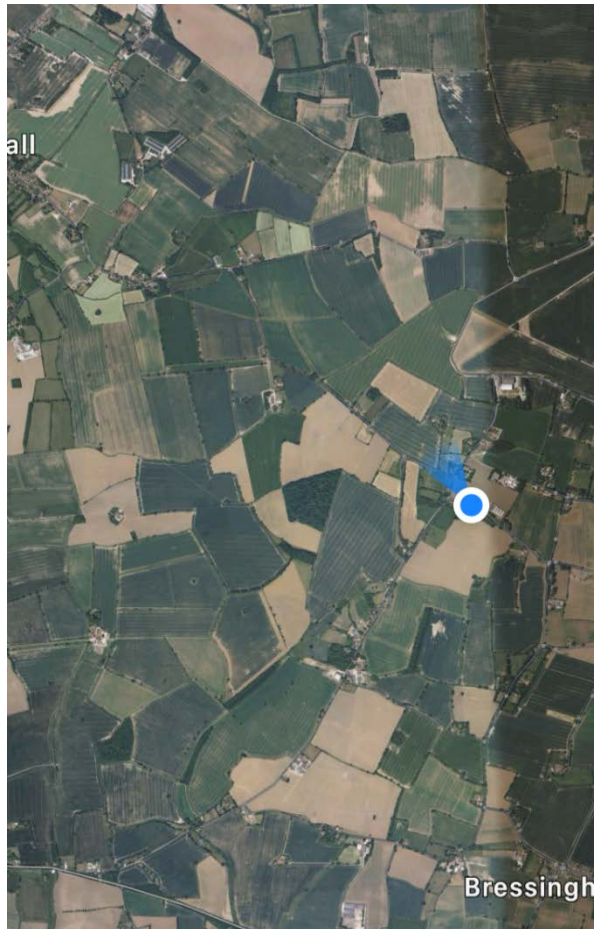
- Single track
- Existing pull-in
- No ditches
- Road approx. 4.50m wide



Distribution Route 2 – Deal Farm to South Lopham

Position 2.3

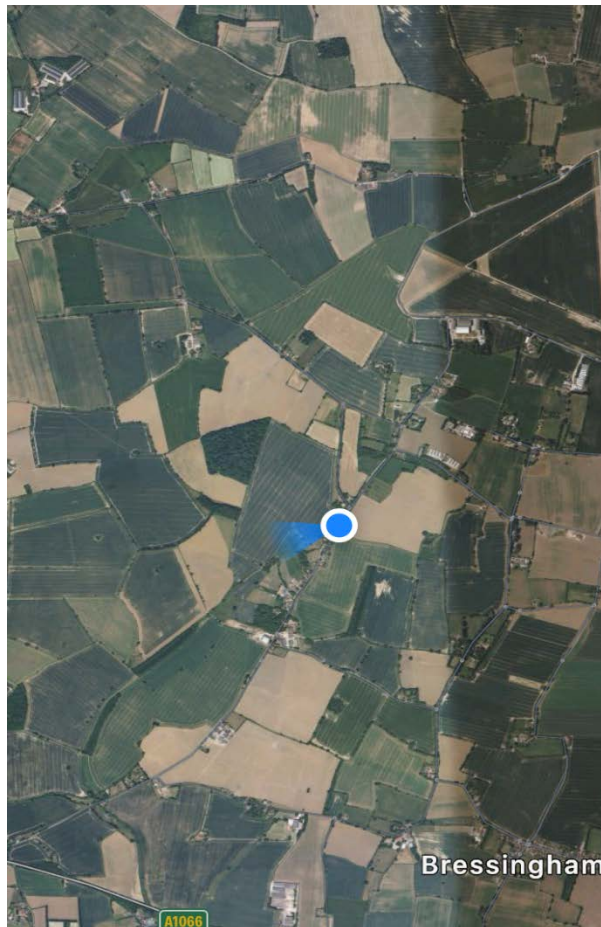
- Single track
- Wide verge
- No ditches
- Road approx. 4.30m wide



Distribution Route 2 – Deal Farm to South Lopham

Position 2.4

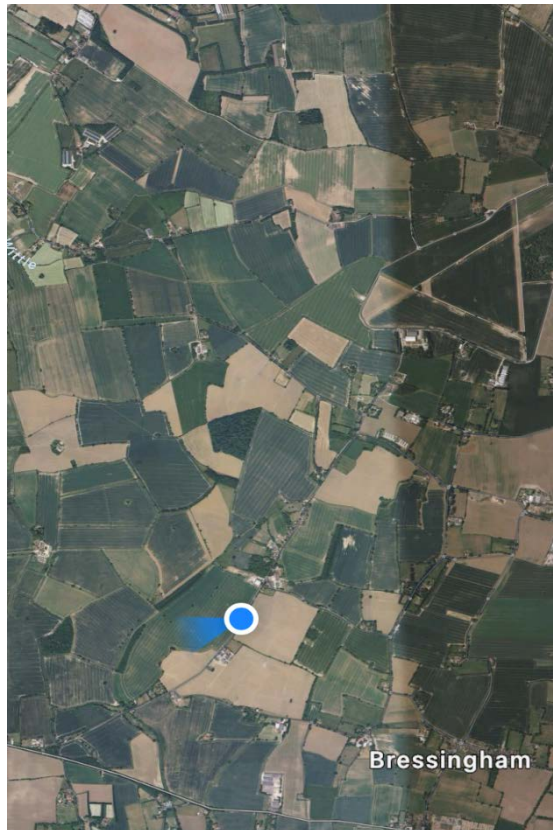
- Double road
- Ditches along most of road
- Worn passing points
- Road approx. 5.30m wide



Distribution Route 2 – Deal Farm to South Lopham

Position 2.5

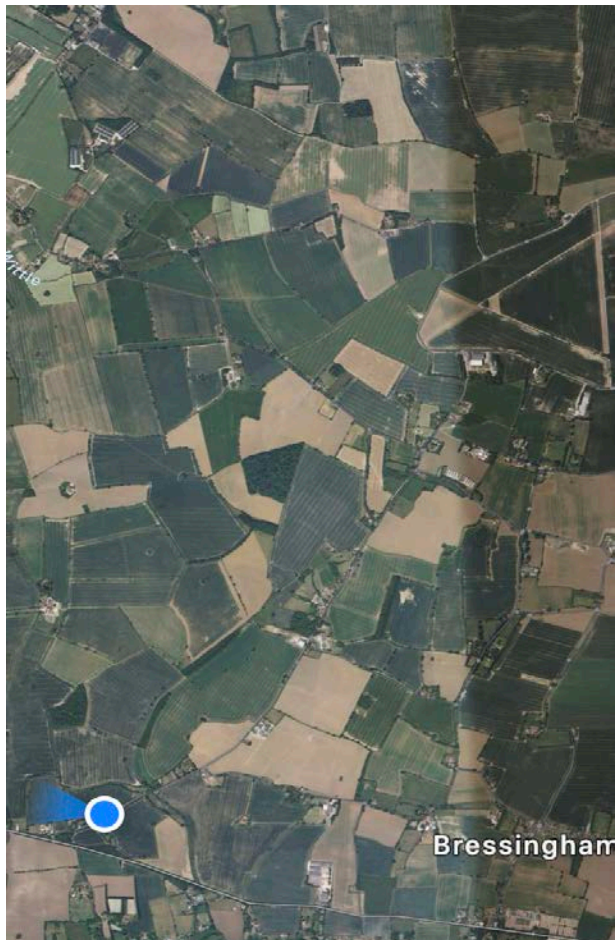
- 'No AD Plant' signs
- Double road
- Sporadic ditches
- Road approx. 5.60m wide



Distribution Route 2 – Deal Farm to South Lopham

Position 2.6

- Double road
- One sided ditch
- Worn passing points
- Road approx. 5.00m wide



Distribution Route 3 – A1066 to Deal Farm

Position 3.1

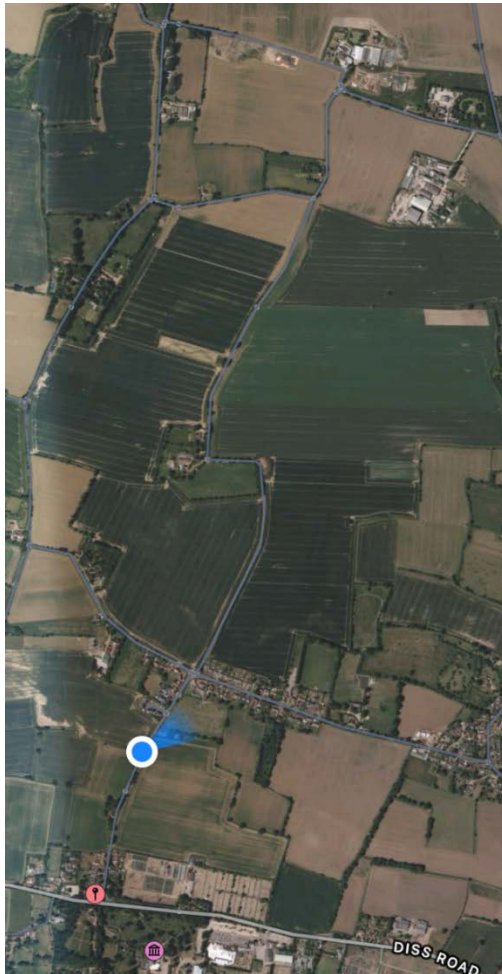
- Residential area
- Ditches & hedges after private drives
- Road approx. 4.20m wide
- 1No. passing place



Distribution Route 3 – A1066 to Deal Farm

Position 3.2

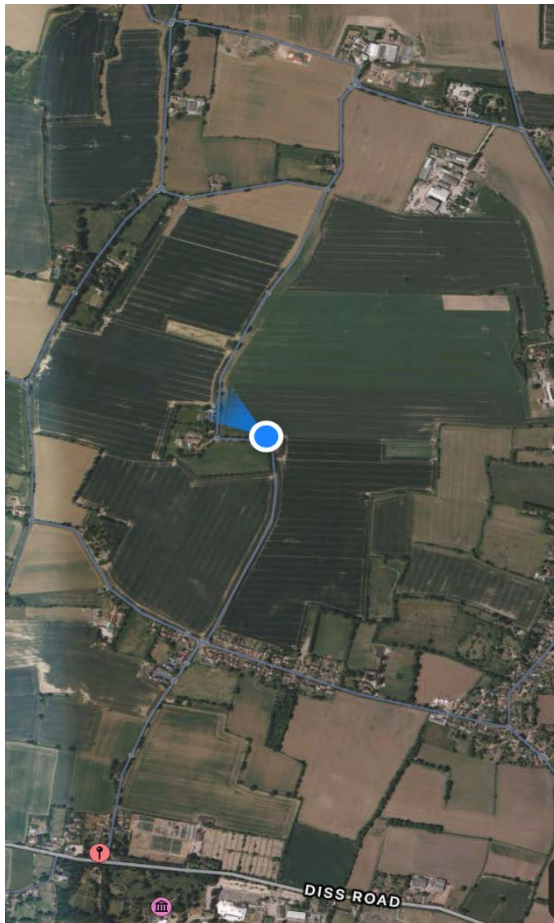
- Entering another residential area
- School in area. Parking on road
- Kerb – verge approx. 5.40m wide



Distribution Route 3 – A1066 to Deal Farm

Position 3.3

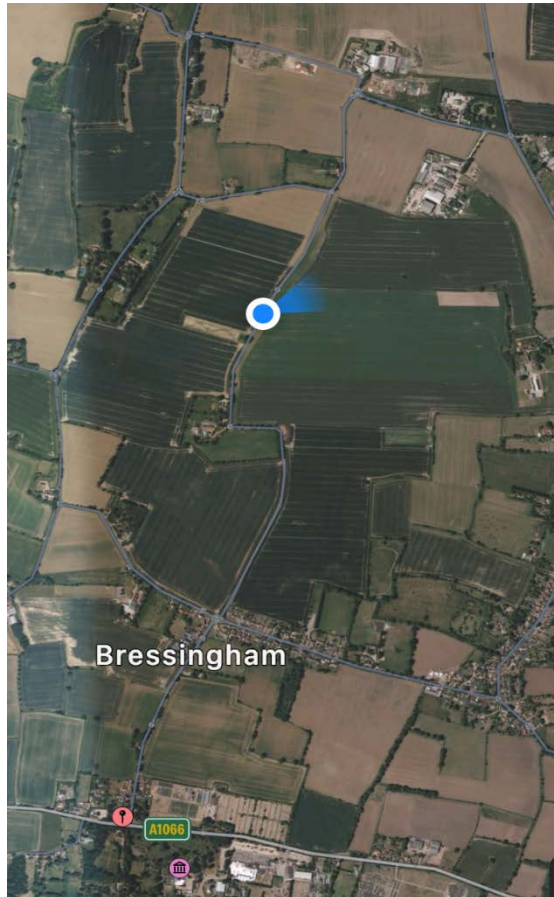
- Single track from X-roads
- No ditches
- Road approx. 3.50m wide



Distribution Route 3 – A1066 to Deal Farm

Position 3.4

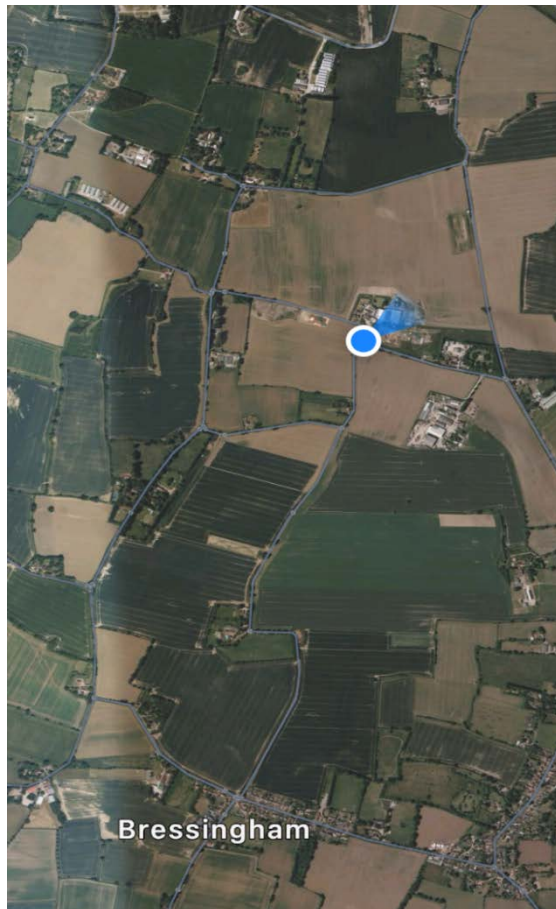
- No passing places.
- Single track.
- Road approx. 2.70m wide.



Distribution Route 3 – A1066 to Deal Farm

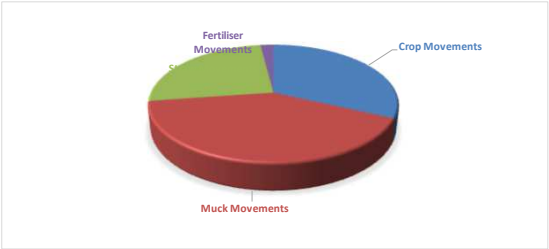
Position 3.5

- No passing places
- Single track
- Road approx. 2.70m wide
- Ditch near junction

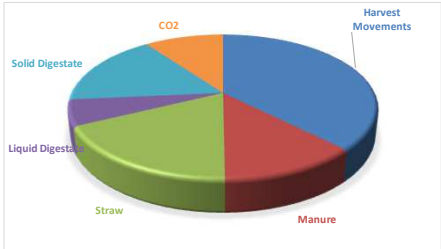


APPENDIX C

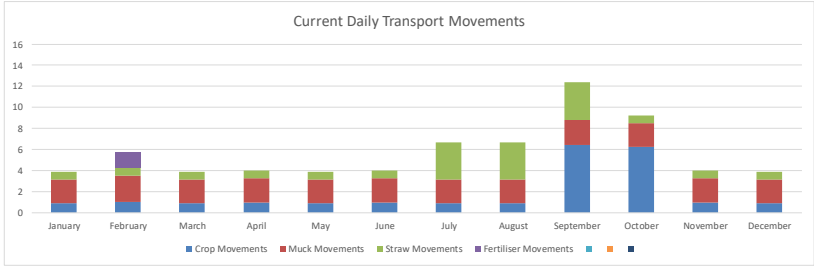
Current Movements by Purpose	
Crop Movements	661
Muck Movements	846
Straw Movements	523
Fertiliser Movements	42
Total	2072



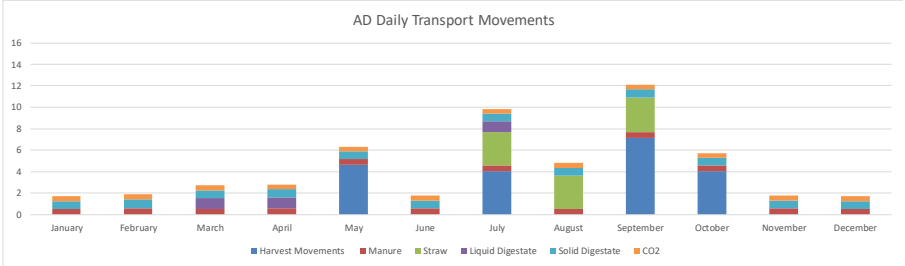
AD Movements by Purpose	
Harvest Movements	607
Manure	198
Straw	289
Liquid Digestate	94
Solid Digestate	267
CO2	161
Total	1615



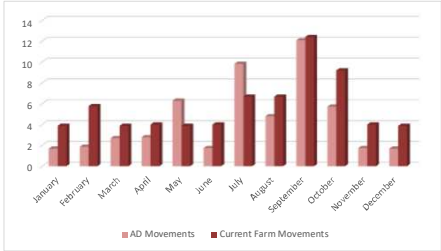
Current Daily Average Per Month	January	February	March	April	May	June	July	August	September	October	November	December
Crop Movements	1	1	1	1	1	1	1	1	6	6	1	1
Muck Movements	2	3	2	2	2	2	2	2	2	2	2	2
Straw Movements	1	1	1	1	1	1	4	4	4	1	1	1
Fertiliser Movements	0	1	0	0	0	0	0	0	0	0	0	0
	4	6	4	4	4	4	7	7	12	9	4	4



AD Movements by Purpose	January	February	March	April	May	June	July	August	September	October	November	December
Harvest Movements	0	0	0	0	5	0	4	0	7	4	0	0
Manure	1	1	1	1	1	1	1	1	1	1	1	1
Straw	0	0	0	0	0	0	3	3	3	0	0	0
Liquid Digestate	0	0	1	1	0	0	1	0	0	0	0	0
Solid Digestate	1	1	1	1	1	1	1	1	1	1	1	1
CO2	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
	2	2	3	3	6	2	10	5	12	6	2	2



Comparison of Daily Transport Movements (Monthly)													Net
	January	February	March	April	May	June	July	August	September	October	November	December	
Current Farm Movements Associated with AD	4	6	4	4	4	4	7	7	12	9	4	4	
Future Movements Associated with AD	2	2	3	3	6	2	10	5	12	6	2	2	
Difference	-2	-4	-1	-1	2	-2	3	-2	0	-3	-2	-2	-15



Material				Commentary							Notes on Movements
	Deliveries to AD (tonnes)	Removed from AD Plant & Lagoons	Current Farm Tonnage		Current Movements Associated with Material	AD Vehicle Movements	Net change in movements	Ave Payload (tonnes) per movement (AD plant)	Vehicle Movements per day (AD Plant)	Net change in vehicle movements per day (AD Plant)	
Maize	3,500	0	6,753	The farmer currently grows and clamps roughly 7,000 tonnes of maize in field clamps on the land at Deal Farm. This material is then collected and transported out of area to 3rd party AD and livestock facilities.	500	250	-250	14	0.7	-0.7	Current movements (500) associated with delivery to clamps and then export to other facilities. AD movements (-250) reflect that the material is used on site. The movements associated with the digestate from the processing of maize is accounted for below.
Grass	5,000	0	2,250	The AD plant will require an increase in the quantity of grass grown and stored at Deal Farm.	161	357	196	14	1.0	0.5	We have taken the conservative assumption that all the increase in greass will result in an increase in vehicle movements. In reality, some or all of the grass will result in a decrease in the land and tonnage of beet grown.
Chicken Manure	500	0	500	All the chicken manure is produced at The Oaks on Kenninghall Road within 500m of the AD plant.	31	31	0	16	0.1	0.0	There will be no change in movements. No more or less material will be produced and moved on the public highway on Kenninghall Road
Pig Manure	5,500	0	5,500	All manures currently produced on site are transported to field muck heaps. All material will now go straight to the AD plant and not onto the public highway	781	0	-781	n/a	0.0	-2.1	All double movements will be avoided by processing the manures internally without accessing the public highway. The product from digesting manure is accounted for in digestate movements below.
Cattle/ Duck Manure on straw	3,000	0	600	The farm currently imports 600 tonnes of manures from surrounding livestock farms	33	167	133	18	0.5	0.4	
Straw	6,450	0	4,520	Estimated 3,700 tonnes of straw is stored at Deal Farm and then traded out for imported "muck" for use as fertiliser. Remainder is used on farm.	523	289	-235	22	0.8	-0.6	Despite an increase in tonnage the AD plant avoids the double handling of straw swapped for muck imports. The movements associated with digestate produced from straw are shown below. We have reduced the payload to 22 tonnes to provide a conservative movement estimate.
Solid Digestate - direct to land	0	4,800	0	Solid digestate taken out by dedicated load to RG Aves land	0	267	267	18	0.7	0.7	Increase in vehicle movements from dedicated collections of solid digestate/ delivery to land for spreading
Solid Digestate - back haul	0	5,539	0	Solid digestate "back-hauled" using empty trailer after feedstock delivery.	0	0	0	n/a	0.0	0.0	Assumed no positive or negative impact as loads will be taken away in the same vehicles feedstock is delivered in.
Liquid Digestate - applied direct to land by pump and umbilical	0	8,248	0	Liquid digestate either pumped directly to field or from lagoon - 80% of liquid fraction	0	0	0	n/a	0.0	0.0	No impact on vehicle movements as liquid is pumped to lagoons and/ or directly spread to fields
Liquid Digestate - tankered from offtake points	0	2,062	0	Liquid digestate removed by trailer/ tanker from site or offtake points - 20% of liquid fraction	0	94	94	22	0.3	0.3	Increase in vehicle movements from dedicated collection of liquid digestate by tractor/ tanker either from site or offtake points
Fertiliser Imports	0	0	42	Current deliveries of chemical fertiliser	42	21	-21	0	0.1	-0.1	Use of digestate will reduce/ remove the need for fertilisers. However, as a conservative estimate we have assumed only a 50% reduction
CO2 removal	0	4835	0	Reduction in CO2 product from reduced feedstock input. Reduction is not pro rata owing to increase in residence time resulting in an increase in gas per tonne processed.	0	161	161	30	0.4	0.4	Increase in vehicle movements from tankering of liquefied CO2. Increase is less owing to smaller volume of CO2 from smaller amount of feedstock
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	23,950	25,483		TOTALS	2,072	1,636	-435		4.5	-1.2	By avoiding considerable double handling of manures, straw and crops that are stored at Deal Farm for onward transfer - the project will result in a reduction of transport impact from the operations of the farm.

Notes: As a result of the above - muck heaps will no longer be required as the material will be stored and processed on the AD site

As a result of the above - there will be a reduction in the use of field clamps and run off from the storage of such crops as they can be stored in the clamps on the AD plant

civil engineering and building



- Industrial, Commercial, Agricultural and Domestic building design
- Foundation Design and ground improvements
- Highway Engineering including PDS/Civil 3D
- Retaining walls
- Sheet Piling
- Infrastructure planning and design
- Design of sustainable drainage system (SUDS)
- Soakaway design
- Architectural design of industrial buildings
- Planning and building regulation applications
- 3D conceptual models
- Renewable Energy Civil Engineering design and project management
- Anaerobic Digestion and Waste to Energy Project design and detail

environmental engineering



- Contaminated Land investigations (intrusive & non-intrusive)
- Land remediation verification
- Environmental impact assessments (EIA)
- Flood Risk Assessments
- Water supply, treatment, storage and distribution
- Foul and surface water & effluent/leachate drainage design
- Drainage network modelling
- 1D & 2D flood modelling
- Hydraulic river modelling
- Flood Alleviation
- Breach & overtopping analysis
- Reservoir flood inundation modelling
- Consent to discharge applications
- Landscaping design
- Tree surveys
- Environmental Permits

structural engineering



- Structural calculations for Commercial, Agricultural and Domestic building design
- Structural design using steel, stainless & carbon steel, concrete, timber, alloys and masonry
- Maritime and Hydraulic structures
- Structural surveys and structural suitability surveys
- Structural failure studies
- Subsidence claims
- Temporary works design
- 3D Finite Element Analysis
- Structural monitoring
- Structural enhancement/remedial work
- Historic building advice
- 3D Revit & Level 2 BIM structural design & modelling

surveying land and buildings



- Geomatic / topographical site surveys
- Building, Road, and Earthworks Setting out
- Engineering Setting out
- Establish precise site survey control
- 3D digital terrain modelling
- Volumetric analysis
- Site area computations
- Flood risk surveys using GPS active network
- Measured building floor plans and elevation surveys
- Land transfer plans to Land Registry requirements
- Drainage network surveys
- Assistance/Expert witness in land boundary disputes
- Deterioration monitoring
- Preparation of asset plans
- As built record surveys

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