



BROACHDALE BIRDS LTD

STAXTON FARM

AMMONIA EMISSIONS: IMPACT ASSESSMENT

May 2024

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Isopleth Ltd.

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1.0 INTRODUCTION

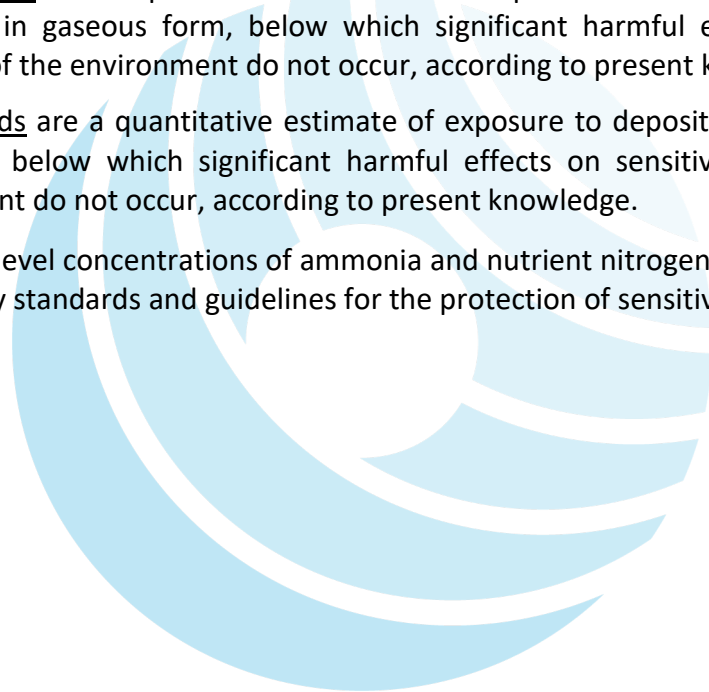
Isopleth Ltd has been instructed by Broachdale Birds Limited on behalf of Staxton Hens to carry out a detailed assessment of ammonia impacts associated with an extension to an existing 32,000 bird free range poultry (layer) unit at an existing site at Staxton Farm, Staxton, Scarborough, North Yorkshire YO12 4TD.

This proposal represents a 32,000 bird extension to the existing 32,000 bird free range egg unit which became operational in 2008. The ammonia emissions from the existing unit now form part of the background ammonia concentrations in the area, having been fully operational before 1st January 2021.

An assessment of ammonia impacts against critical levels and critical loads for nutrient nitrogen has therefore been completed:

- Critical levels are a quantitative estimate of exposure to one or more airborne pollutants in gaseous form, below which significant harmful effects on sensitive elements of the environment do not occur, according to present knowledge.
- Critical loads are a quantitative estimate of exposure to deposition of one or more pollutants, below which significant harmful effects on sensitive elements of the environment do not occur, according to present knowledge.

Predicted ground level concentrations of ammonia and nutrient nitrogen are compared with relevant air quality standards and guidelines for the protection of sensitive habitats.



2.0 APPROACH

2.1 EA Pre-Application Screening

Pre-application Report number: EPR/KP3721SL/P001 has been issued by the Environment Agency which provides the results of an ‘initial ammonia screening assessment’ for the proposal which identified that a detailed modelling assessment is required.

Notably this initial ammonia screening assessment uses input data which in some cases appears to conflict with information provided by the applicant in relation to the development proposals and also values shown on the APIS database. This is discussed further in this report, where relevant.

2.2 General Approach

Predicted ground level concentrations of ammonia and nutrient nitrogen deposition are compared with relevant air quality standards and guidelines for the protection of sensitive habitats.

2.2.1 Screening Distance

The EA initial ammonia screening assessment has considered any Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites within 5km, any Sites of Special Scientific Interest (SSSIs) within 5km and also any National Nature Reserves (NNRs), Local Nature Reserves (LNRs), ancient woodlands and Local Wildlife Sites (LWSs) within 2km of the farm.

These screening distances are appropriate for this development which comprises 32,000 free range layers as an extension to the existing 32,000 bird unit.

2.2.2 Emission factors

The EA initial ammonia screening assessment has listed ‘animal numbers and types’ with an emission factor for each, as related to ‘Layers – free-range’.

Table 2-1
Emission Factors and Bird Numbers

Housing system	Number of animal places	Ammonia emission factor (kg NH ³ /animal place/year)
Aviary system: Side ventilation, natural or combination ventilation.	51,200 (80% of total)	0.08
Ranging birds: Natural ventilation	12,800 (20% of total)	0.225

Notably this lists the total number of birds for the enlarged farm, including those which have been housed since 2008. As such, the emissions from the existing farm would now be part of the baseline ammonia levels.

Emission factors for bird ranging have also been applied which assume 20% of nitrogen is deposited on the range. Isopleth Ltd is not in agreement with these factors which are not based on any robust scientific evidence (which indicates that a ranging proportion of 10% or less is likely) however they have been applied in order to overcome any objections regarding the assessment method. This is discussed further in Section 4.3.

2.3 Critical Levels

Critical levels for the protection of vegetation and ecosystems are specified within relevant European air quality directives and corresponding UK air quality regulations.

Table 2-2
Ammonia Critical Level

Concentration ($\mu\text{g}/\text{m}^3$)	Habitat and Averaging Period
1	Annual mean. Sensitive lichen communities & bryophytes and ecosystems where lichens & bryophytes are an important part of the ecosystem's integrity
3	For all higher plants (all other ecosystems)

It is important to note that, as the lower critical level applies only where lichens and bryophytes they form a key part of the ecosystem integrity, it should not be applied at all sites, or even sites where lichens or bryophytes are present.

2.4 Critical Loads

Critical loads are set for the deposition of various substances to sensitive ecosystems. Predicted contributions to nitrogen deposition have been calculated and compared with the relevant critical load range for the habitat types associated with each designated site as derived from the UK Air Pollution Information System (APIS) website¹. The contribution to critical loads for Nitrogen deposition are recorded as KgN/ha/yr.

Deposition rates were calculated using dispersion modelling results processed by following empirical methods recommended by the Environment Agency in AQTAG and summarised below.

Firstly, calculate dry deposition flux using the following equation:

$$\text{Dry deposition flux } (\mu\text{g}/\text{m}^2/\text{s}) = \text{ground level concentration } (\mu\text{g}/\text{m}^3) \times \text{deposition velocity } (\text{m}/\text{s})$$

The applied deposition velocity for ammonia is 0.020 for grassland and 0.030 for woodland. This may be adapted based on the overall concentration of ammonia as a process contribution however this value is appropriate for concentrations below 10 $\mu\text{g}/\text{m}^3$.

The units are then converted from $\mu\text{g}/\text{m}^2/\text{s}$ to units of kg/ha/year by multiplying the dry deposition flux by a standard conversion factor for ammonia of 259.7.

¹ www.apis.ac.uk

Wet deposition occurs via the incorporation of the pollutant into water droplets which are then removed in rain or snow and is not considered significant over short distances compared with dry deposition and therefore for the purposes of this assessment, wet deposition has not been considered.



3.0 SITE SETTING AND OPERATIONS

3.1 Site Setting

The location of the site can be seen in Appendix A.

3.2 Ecological Receptors

Sites of European interest include Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar Sites. Sites of Special Scientific Interest (SSSIs) are of national importance.

The following ecological sites of interest have been identified by the EA in the initial screening assessment as requiring further study. A Site of Importance for Nature Conservation (SINC) is equivalent to a Local Wildlife Site.

Table 3-1
Assessed Ecological Sites

Designation	Site
SSSI	Fordon Chalk Grasslands SSSI - Staxton Wold (006)
SSSI	Fordon Chalk Grasslands SSSI - Harper (005)
SSSI	Fordon Chalk Grasslands SSSI - Heath (004)
SINC	Staxton Hill Chalk Pit & Road Verge
SINC	Wold Lane Grasslands

As such there are no SACs, SPAs or RAMSAR sites within the screening distance. Neither the North Yorkshire Council Heritage Services or APIS have site specific information relating to the SINC's above in terms of sensitivity to ammonia or nitrogen.

However, given that the habitat types, geology and setting are similar to the Fordon Chalk Grasslands SSSI it can be reasonably assumed that the APIS limits for ammonia and nutrient N are also appropriate for the two SINC's:

- Calcareous Grassland – Lowland; and
- Semi-dry Perennial calcareous grassland (basic meadow steppe).

3.3 Existing Background

The existing APIS background for these sites is as follows:

- Ammonia: 2.1 $\mu\text{g}/\text{m}^3$
- Nutrient N: 20.1 kgN/Ha/yr (grassland)

It can be seen that existing levels of ammonia are below the upper critical level of 3 $\mu\text{g}/\text{m}^3$, however above the lower critical level of 1 $\mu\text{g}/\text{m}^3$. Levels of nutrient N deposition are above the upper critical load for grassland (20 kgN/Ha/yr).

4.0 ASSESSMENT

Modelling has been completed in line with the requirements of *Guidance on modelling the concentration and deposition of ammonia emitted from intensive farming. Air Quality Modelling and Assessment Unit, 22 November 2010, v3*. The BREEZE AERMOD model has been used.

The model inputs are described below as they relate to the sources, pathway and receptors associated with the existing and proposed developments.

4.1 Assessment Scenarios

Two assessment scenarios present the results associated with the farm comprised of:

- 32,000 birds in 1 free range houses (existing); and
- A further 32,000 birds in the extended free range house (proposed).

This approach is necessary as it must be recognised that the existing buildings are part of the APIS background and the process Contribution therefore only relates to the new birds within the expanded house otherwise the contribution from the existing birds would be double counted when calculating the Predicted Environmental Concentration.

4.2 Model inputs: Layout

The stack layout has been simplified for purposes of the assessment, with modelling inputs for the existing and proposed layouts are as shown in Table 4-1 below:

Table 4-1
Stack Locations

Stack ID	House	Location (OS Xm)	Location (OS Ym)	Basal Height (mAoD)
ES1	Existing Stack 1	500744	478001	127
ES2	Existing Stack 2	500768	478015	127
ES3	Existing Stack 3	500792	478028	127
PS1	Proposed Stack 1	500822	478048	127

The temperature of the flows from the fan units has been assumed at 20°C. The velocity of releases from the fans is assumed as 6m/s. The stack height has been taken as 6.0m for all stacks.

Information relating to the topography of the area surrounding the site has been used to assess the impact of terrain features on the dispersion of emissions from the site. Topographical data has been obtained in digital (.ntf) format and incorporated into the assessment.

The movement of air over and around buildings and other structures generates areas of flow re-circulation that can lead to increased ground level concentrations of pollutants close to the source. Building effects are taken into account through the AERMOD BPIP module for the building heights of 5.5m.

4.3 Model inputs: Emissions

The birds will also use the range. In accordance with the requirements of the Environment Agency, 80% of the ammonia emissions have been assumed to be emitted from the house and a standard emissions factor of 0.0225kg/bird/year has been applied for the ranging areas which is the equivalent of 0.045kg/bird/year for 20% of the flock:

- kg Nitrogen (N) per bird place per year (from Inventory of Ammonia Emissions from UK Agriculture 2015): 0.75
- deposited outdoors: 20%
- kg N per bird place per year (outdoors): $20\% * 0.75 = 0.15$
- assumed to be as readily converted to ammoniacal N: 70%
- kg outdoor ammoniacal N (NH₃): $70\% * 0.15 * 1.22 = 0.1277$
- ammonia emission factor for the proportion of excreta that is dropped outdoors: 35%
- kg NH₃ per bird place per year (outdoors): $35\% * 0.1277 = 0.045$

Note that the figure of 20% outdoor ranging is a figure agreed between regulators through consensus. However, it is acknowledged by regulators such as the Environment Agency that this has not been scientifically derived. Isopleth considers that, based on scientific evidence, the actual figure is more likely to be around 8-10% droppings deposited on the range.

The emissions from the stacks are therefore as follows:

**Table 4-2
Emissions**

ID	number of birds	type	emission rate (kg NH ₃ /pl/yr)	total emission (kg/yr)	Total emission (g/s)
Existing	32000	Layers	0.08	2048	0.0649
Proposed	32000	Layers	0.08	1024	0.0649

The ranging areas have been modelled as follows.

**Table 4-3
Ranging Areas (m²)**

ID	Source	Length (m)	Width (m)	Area (m ²)
ERN	Existing Range North	25	85	2125
ERS	Existing Range South	25	85	2125
PRN	Proposed Range North	25	36	900
PRS	Proposed Range South	25	36	900

It should be noted that the range areas do not represent the total extent of the available range, however in reality the majority of birds range in close proximity to the house.

The emissions for the range are as follows:

**Table 4-4
Ranging Area Emissions**

ID	Existing	Proposed
Total bird numbers	32000	32000
Ranging bird numbers	6400	6400
Emissions: free range ranging area (kg NH ₃ /animal place/year)	0.225	0.225
ranging emission: (kg/yr)	1440	1440
ranging area (m ²)	4250	1800
specific emission rate (kg/m ² /year)	0.339	0.800
ranging specific emission rate: (mg/m ² /s)	0.01074	0.02537
Combined areas: ranging specific emission rate: (mg/m ² /s)	0.01509	

There has been some confusion between the applicant and the EA in relation to manure. For clarity, no manure is stored on site and all manure is exported. The applicant would run the muck belts each week and take 30 tonnes of manure out of the sheds for immediate export.

4.4 Meteorological Data

In accordance with current guidance, 5 years of meteorological data has been used (2019 – 2023). The site at Bridlington is the closest representative site with a >90% complete data set.

4.5 Model Receptors

Modelling was carried out with discrete receptors representing the ecological sites of interest. The MAGIC Maps searches are included as Appendix B.

**Table 4-5
Receptor Locations**

Receptor	Site	OS Coordinate Xm	OS Coordinate Ym	Height (m AoD)
ECO1	Fordon Chalk Grasslands SSSI - Staxton Wold (006)	502411	477188	144.5
ECO2	Fordon Chalk Grasslands SSSI - Harper (005)	502772	476820	139.0
ECO3	Fordon Chalk Grasslands SSSI - Heath (004)	503341	476510	101.5
ECO4	Staxton Hill Chalk Pit & Road Verge	501080	478243	119.6
ECO5	Wold Lane Grasslands	501550	478523	73.8

There are no APIS critical load values or Natural England citations for local sites (e.g. SINC) Therefore, nutrient nitrogen results are based on the lower critical load for grasslands and are consistent with the APIS values for the Fordon Chalk Grasslands SSSI.



5.0 RESULTS

The results of the modelling assessment are shown below. The predictions for Process Contribution are shown and the requirement for assessment against existing backgrounds and consideration of potential in-combination effects is discussed in section 6.0.

5.1 Existing Site

5.1.1 Critical Level

The dispersion modelling process contribution results are shown in the table below. Results have been compared against:

- the EA limit used for screening (the lower NH₃ critical level of 1µg/m³ where lichens and bryophytes form a key part of the ecosystem integrity); and
- the APIS limits for the same sites (the NH₃ critical level of 3µg/m³ where there is no evidence that lichens and bryophytes form a key part of the ecosystem integrity).

The results are as follows.

Table 5-1
PC Results: Lower Critical Level

Site	Conc (µg/m ³)	Critical Level	% of C.L.
D1	0.041	1	4.1%
D2	0.026	1	2.6%
D3	0.017	1	1.7%
D4	0.635	1	63.5%
D5	0.128	1	12.8%

The existing farm results in impacts at greater than 1% at each of these grassland sites. Impacts are above 1% of the lower critical level, however below 50% of the critical level at the SSSI and 100% of the critical level (the Environment Agency limit for local sites) at all receptors.

Table 5-2
PC Results: Upper Critical Level

Site	Conc (µg/m ³)	Critical Level	% of C.L.
D1	0.041	3	1.4%
D2	0.026	3	0.9%
D3	0.017	3	0.6%
D4	0.635	3	21.2%
D5	0.128	3	4.3%

The existing farm results in impacts at greater than 1% at each of these grassland sites. Impacts are above 1% of the critical level, however below 50% of the critical level at the SSSI

however below 100% of the critical level (the Environment Agency limit for local sites) at all receptors. There is no evidence that lichens and bryophytes form a key part of the ecosystem integrity for the Fordon Chalk Grasslands SSSI and the citation is included with this report.

These process contributions will form part of the existing baseline, having been in place since 2008.

5.1.2 Nutrient Nitrogen Critical Load

The nutrient nitrogen critical load results are shown in table 5-3 below.

Table 5-3
PC Results: N Deposition

Site	N Dep (kg/ha/yr)	Lower Critical Load (kg/ha/yr)	% of Lower Critical Load
D1	0.21	10	2.1%
D2	0.13	10	1.3%
D3	0.09	10	0.9%
D4	3.30	10	33.0%
D5	0.66	10	6.6%

The existing farm results in impacts at greater than 1% at each of these grassland sites, however below 50% of the critical load at the SSSI. Impacts are below 100% of the critical load (the Environment Agency limit for local sites) at all sites.

5.2 Proposed Site

The results below relate to the entire site, including the existing building and extension. As such they relate to a site with 64,000 birds.

5.2.1 Critical Level

The dispersion modelling process contribution results are shown in the table below. Results have been compared against lower and upper critical levels, as for the existing scenario.

Table 5-4
PC Results: Lower Critical Level

Site	Conc ($\mu\text{g}/\text{m}^3$)	Critical Level	% of C.L.
D1	0.081	1	8.1%
D2	0.051	1	5.1%
D3	0.033	1	3.3%
D4	1.397	1	139.7%
D5	0.263	1	26.3%

The existing and proposed farm (64,000 birds) results in impacts at greater than 1% at each of these grassland sites. Impacts are above 1% of the lower critical level, however below 50% of the critical level at the SSSI. The impacts are above 100% of the critical level (the

Environment Agency limit for local sites) at the Staxton Hill Chalk Pit & Road Verge SINC when the lower critical level is applied.

Table 5-5
PC Results: Upper Critical Level

Site	Conc ($\mu\text{g}/\text{m}^3$)	Critical Level	% of C.L.
D1	0.081	3	2.7%
D2	0.051	3	1.7%
D3	0.033	3	1.1%
D4	1.397	3	46.6%
D5	0.263	3	8.8%

The existing and proposed farm (64,000 birds) results in impacts at greater than 1% at each of these grassland sites. Impacts are above 1% of the lower critical level, however below 50% of the critical level at the SSSI and below 100% of the critical level (the Environment Agency limit for local sites) at all receptors.

There is no evidence that lichens and bryophytes form a key part of the ecosystem integrity for the Fordon Chalk Grasslands SSSI and the citation is included with this report.

These process contributions from the existing site will form part of the existing baseline, having been in place since 2008.

5.2.2 Nutrient Nitrogen Critical Load

The nutrient nitrogen critical load results for the existing and proposed farm are shown in table 5-6 below.

Table 5-6
PC Results: N Deposition

Site	N Dep (kg/ha/yr)	Lower Critical Load (kg/ha/yr)	% of Lower Critical Load
D1	0.42	10	4.2%
D2	0.27	10	2.7%
D3	0.17	10	1.7%
D4	7.26	10	72.6%
D5	1.37	10	13.7%

The proposed farm (64,000 birds) results in impacts at greater than 1% each of these grassland sites. Impacts are below 50% of the critical load at the SSSI and 100% of the critical load, the Environment Agency limit for local sites.

5.3 Increase (Process Contribution)

The results below present the difference between:

- The proposed 64,000 bird site; and
- The existing 32,000 bird site (operational since 2008).

These results therefore represent the Process Contribution resulting from the proposed site extension.

5.3.1 Critical Level

The dispersion modelling process contribution results are shown in the table below. Results have been compared against lower and upper critical levels, as for the existing scenario.

Table 5-7
PC Results: Lower Critical Level

Site	Conc ($\mu\text{g}/\text{m}^3$)	Critical Level	% of C.L.
D1	0.040	1	4.0%
D2	0.025	1	2.5%
D3	0.017	1	1.7%
D4	0.762	1	76.2%
D5	0.135	1	13.5%

The additional (process contribution) impacts are greater than 1% at each of these grassland sites. Impacts are above 1% of the lower critical level, however below 50% of the critical level at the SSSI and 100% of the critical level (the Environment Agency limit for local sites) at all receptors.

Table 5-8
PC Results: Upper Critical Level

Site	Conc ($\mu\text{g}/\text{m}^3$)	Critical Level	% of C.L.
D1	0.040	3	1.3%
D2	0.025	3	0.8%
D3	0.017	3	0.6%
D4	0.762	3	25.4%
D5	0.135	3	4.5%

The additional (process contribution) impacts are greater than 1% at each of these grassland sites. Impacts are above 1% of the lower critical level, however below 50% of the critical level at the SSSI and 100% of the critical level (the Environment Agency limit for local sites) at all receptors.

There is no evidence that lichens and bryophytes form a key part of the ecosystem integrity for the Fordon Chalk Grasslands SSSI and the citation is included with this report.

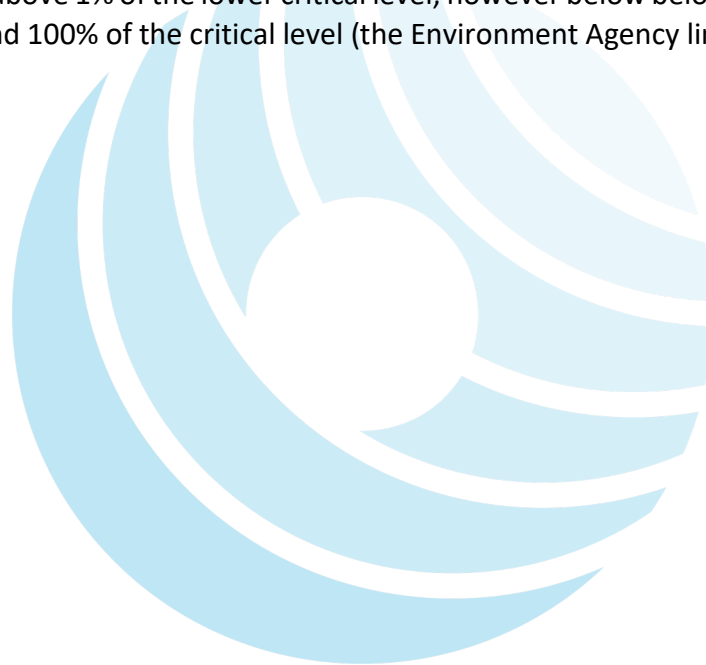
5.3.2 Nutrient Nitrogen Critical Load

The nutrient nitrogen critical load results are shown in table 5-9 below.

Table 5-9
PC Results: N Deposition

Site	N Dep (kg/ha/yr)	Lower Critical Load (kg/ha/yr)	% of Lower Critical Load
D1	0.21	10	2.1%
D2	0.13	10	1.3%
D3	0.09	10	0.9%
D4	3.96	10	39.6%
D5	0.70	10	7.0%

The additional (process contribution) impacts are greater than 1% at each of these grassland sites. Impacts are above 1% of the lower critical level, however below 50% of the critical level at the SSSI and 100% of the critical level (the Environment Agency limit for local sites) at all receptors.



6.0 IN-COMBINATION

Consultees require an in-combination assessment of impacts with:

- Applications that are submitted but not yet determined;
- Livestock units that have permits but are not yet (fully) operating
- Livestock units that started operating after the most recent update of background levels.

The existing farm building was built before the APIS background data of 31st Dec 2020 and is therefore not an in-combination source. A search of Permitted sites and planning applications has been undertaken and those with the potential to increase levels of ammonia and nutrient nitrogen are detailed below.

It must be noted that the requirement for in-combination assessment relates to the habitats Regulations and therefore Natura 2000 sites (European and SSSI) only.

6.1 ZE23/00524/MFUL

This application is for:

Erection of poultry building accommodating 32,000 birds with associated control room, feed bins, heat exchanger, hardstandings and underground dirty water tank

Staxton Wold Farm lies approximately 400m to the south east of the proposed site.

Under the proposal, a new poultry house would be built on an arable field to the north of the existing farm buildings at Staxton Wold Farm. This new poultry house would provide accommodation for up to 32,000 pullet chickens, which would be reared for approximately 16 weeks before being transferred to egg laying units elsewhere.

The application was supported by detailed ammonia modelling:

A Report on the Modelling of the Dispersion and Deposition of Ammonia from the Proposed Pullet Chicken Rearing House at Staxton Wold Farm, near Staxton in North Yorkshire. AS Modelling & Data Ltd. 22nd June 2023.

Although the site is within 2km of Staxton Hill Chalk Pit & Road Verge SINC and Wold Lane Grasslands SINC, the report stated that:

AS Modelling & Data Ltd. has not been able to identify any non-statutory wildlife sites within 2 km (the normal screening distance for a non-statutory site) of Staxton Wold Farm.

The results of the assessment show that the maximum impacts from the new building are predicted to be:

- Ammonia: 0.0124µg/m³ (1.24% of lower critical level, 0.41% of upper);
- Nutrient N: 0.064kgN/Ha/year (0.64% of the critical load).

6.2 19/01189/FUL

This application is for:

Siting of 6no. shipping containers comprising 3no. pairs of containers each consisting of a container housing a biomass boiler system and a container housing wood pellets fuel for the heating of the existing 5no. poultry houses (retrospective application). Lodge Farm Leppington Lane Leppington Malton North Yorkshire YO60 7LR.

Lodge Farm lies approximately 28km to the south west of Staxton Hens and there is no potential for in-combination effects.

6.3 19/00459/MFUL

This application is for:

Erection of a replacement broiler rearing unit with linked control room, 3no. feed bins, 1no. feed blending room and associated hardstanding. Moor Farm Long Hill Helperthorpe Malton YO17 8RU.

Moor Farm lies approximately 8.2km to the south west of Staxton Hens. The application was supported with an 'assessment of ammonia impacts'. This assessment confirmed that there would be no material change to ammonia and nutrient N impacts when the existing and proposed broiler units were compared. This conclusion was accepted by consultees at that time.

For this reason the ammonia emissions were unchanged from those already in the baseline ammonia / nutrient N data set and there is no potential for in-combination effects with the Staxton Hens development.

6.4 20/00128/MFUL

This application is for:

Erection of a 32,000 bird free range egg laying unit with 2no. feed bins adjacent to the existing 32,000 bird free range egg laying unit. Land Off Butterwick Road Butterwick Malton North Yorkshire.

Butterwick lies approximately 23km to the west of Staxton Hens and there is no potential for in-combination effects.

6.5 ZE24/00100/MFUL

This application is for:

Erection of a livestock building for pig finishing with associated feed bins, hardstandings and extension of a drainage attenuation pond. Poplars Farm Malton Road West Knapton Malton North Yorkshire YO17 6RL.

Poplars Farm lies approximately 13km to the west of Staxton Hens and there is no potential for in-combination effects.

6.6 ZE23/06088/MFUL

This application is for:

Erection of 2no. linked livestock buildings for rearing of up to 4,000 weaner piglets and attached covered manure store with associated 8no. feed bins and hardstandings following demolition of existing pig breeding unit. Highfield Farm Thrussendale To Acklam Wold Acklam Malton North Yorkshire YO17 9LW.

Highfield Farm lies approximately 26km to the south west of Staxton Hens and there is no potential for in-combination effects.

6.7 22/01280/FUL

This application is for:

Erection of a replacement pig finishing unit (Building 8) following demolition of existing pig finishing building. Willerby Wold Pig Farm Windle Beck To Old Malton Road Staxton Scarborough North Yorkshire YO12 4SN

[Note: There were also a number of other parallel applications relating to individual pig houses at the same site: 22/01277/FUL, 22/01278/FUL, 22/01279/FUL and 22/01280/FUL]

Willerby Wold Pig Farm lies approximately 800m to the north west of the proposed site.

Of key importance for emissions for air is that the applications were for erection of replacement pig finishing units following demolition of existing pig finishing buildings. The proposed building were to be sited on the footprint of the existing livestock buildings (to be removed). The replacement buildings were is like for like and would accommodate the same number of pigs as existing. For this reason the ammonia emissions were unchanged from those already in the baseline ammonia / nutrient N data set and there is no potential for in-combination effects with the Staxton Hens development.

6.8 22/01070/MFUL

This application is for:

Erection of 2no. agricultural buildings for the rearing of up to 2,000 pigs (1,000 per building) with associated 2no. feed silos, area of concrete hardstanding and section of new farm track. Normanby Manor Whitecarr Lane To Wandale Lane Riseborough Pickering North Yorkshire YO18 8LU.

Normanby Manor lies approximately 26km to the west of Staxton Hens and there is no potential for in-combination effects.

6.9 22/00726/FUL

This application is for:

*Erection of an agricultural building to house pigs. Coulton House Farm Coulton Lane
Coulton Helmsley YO62 4NE.*

Coulton House Farm lies approximately 37km to the west of Staxton Hens and there is no potential for in-combination effects.



7.0 CONCLUSIONS

Isopleth Ltd has been instructed by Broachdale Birds Limited on behalf of Staxton Hens to carry out a detailed assessment of ammonia impacts associated with an extension to an existing 32,000 bird free range poultry (layer) unit at an existing site at Staxton Farm, Staxton, Scarborough, North Yorkshire YO12 4TD.

This proposal represents a 32,000 bird extension to the existing 32,000 bird free range egg unit which became operational in 2008. The ammonia emissions from the existing unit now form part of the background ammonia concentrations in the area, having been fully operational before 1st January 2021.

The type, source and significance of potential impacts have been identified and detailed modelling undertaken in line with guidance from the Environment Agency and information taken from the EA initial screening assessment.

Predicted ground level concentrations of ammonia and nutrient nitrogen deposition are compared with relevant air quality standards and guidelines for the protection of sensitive habitats at 3 sites of ecological interest identified by the EA:

- Fordon Chalk Grasslands SSSI;
- Staxton Hill Chalk Pit & Road Verge SINC; and
- Wold Lane Grasslands SINC.

The site is not located within the 5km screening distance of any SACs, SPAs or Ramsar Sites and therefore no appropriate assessment is required by the competent authority in relation to European sites.

The additional (process contribution) impacts are greater than 1% at each of these grassland sites. Impacts are above 1% of the lower critical level, however below 50% of the critical level at the SSSI and 100% of the critical level (the Environment Agency limit for local sites) at all receptors.

Notice:

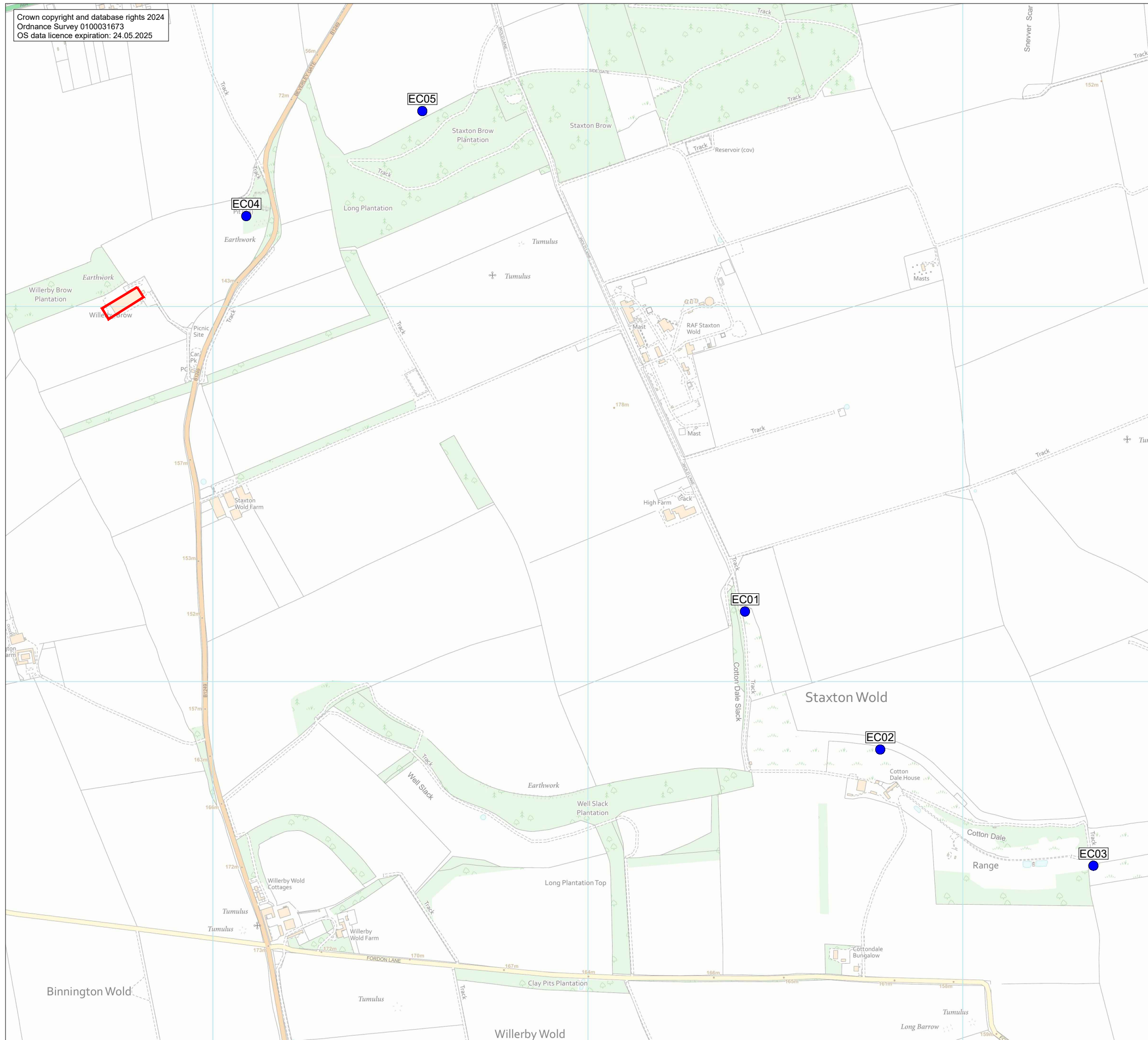
This report was produced by Isopleth Ltd to present the results of an ammonia impact assessment for a proposed development at Staxton Farm.

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APPENDIX A



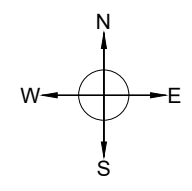
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NOTES

LEGEND

- SITE BOUNDARY
- ECOLOGICAL RECEPTOR LOCATION



Staxton Hens

SITE
**Staxton Hens, Staxton, Scarborough, North Yorkshire
 YO12 4TD**

PROJECT
Air Quality Assessment

DRAWING TITLE
Site Setting and Receptor Locations

DRAWING NUMBER AQ1	REVISION 0
SCALE 1:10000 @ A3	DATE 25.05.2024



Binnington Wold

Willerby Wold

Staxton Wold

EC03

EC02

EC01

EC04

EC05

APPENDIX B



County: Humberside/North Yorkshire **Name:** **Fordon Chalk Grasslands**
Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act, 1981.

Local Planning Authority: East Yorkshire Borough Council
Ryedale District Council

National Grid Reference: TA 024771, 029767, 031766, 040761, 047755, 051756, 052754

Area: 50.7 (ha) 125.3 (ac) (East Yorkshire)
5.4 (ha) 13.3 (ac) (Ryedale)
56.1 (ha) 138.6 (ac) (Total)

Ordnance Survey Sheet 1:50,000: 101 **1:10,000:** TA 07 NE, NW

First Notified: (East Dale): 1975 * **Date of Revision:** 1985/86

Other Information:

1. The south-eastern part of this site, formerly notified independently as East Dale SSSI, Forms a nationally important site listed in 'A Nature Conservation Review', edited by D. A. Ratcliffe (1977). Cambridge University Press.
2. Fordon Chalk Bank (East Dale) is managed as a nature reserve by the Yorkshire Wildlife Trust.

*Under Section 23 of the National Parks and Access to the Countryside Act, 1949.

Description:

Fordon Chalk Grasslands comprise one of the most varied grassland systems, in terms of their floristic richness, aspect and management regimes, remaining in the Wolds. The site comprises a disjunct series of grasslands in the dry valleys of Cotton Dale, North Dale and East Dale, centred on the village of Fordon. The grassland communities include heavily-grazed, short-turf areas dominated by sheep's' fescue *Festuca ovina* and red fescue *F. rubra*, mixed grasslands with fescues, sweet vernal-grass *Anthoxanthum odoratum*, hairy oat *Avenula pubescens*, quaking grass *Briza media* and crested hair-grass *Koeleria macrantha*, and areas of coarse grassland with upright brome *Bromus erectus* and cock's-foot *Dactylis glomerata*. Many areas are extremely diverse botanically, with an abundance of characteristic herbs such as clustered bell-flower *Campanula glomerata*, carline thistle *Carlina vulgaris*, woolly thistle *Cirsium eriophorum*, dropwort *Filipendula vulgaris*, rockrose *Helianthemum nummularium*, purging flax *Linum catharticum*, cowslip *Primula veris*, salad burnet *Sanguisorba minor*, devil's-bit scabious *Succisa pratensis* and thyme *Thymus praecox*. Additionally many less common species occur: pyramidal orchid *Anacamptis pyramidalis*, kidney vetch *Anthyllis vulneraria*, purple milk-vetch *Astragalus danicus*, frog orchid *Coeloglossum viride*, bloody crane's-bill *Geranium sanguineum*, felwort *Gentianella amarella* and saw-wort *Serratula tinctoria*.

The linear valley bottom grasslands in North Dale, whilst not presently of intrinsic nature conservation interest, are included for the proper safeguard of the adjacent herb-rich swards.

Gorse *Ulex europaeus* and hawthorn *Crataegus monogyna* scrub is present on many of the slopes, and in places forms dense stands.

The grasslands also have a rich invertebrate fauna with several locally distributed species. The butterflies include common blue, brown argus, meadow brown, ringlet, green-veined white, small skipper and dingy skipper.

The typical grassland/scrub bird-community includes breeding skylark, meadow pipit, yellowhammer, chaffinch, dunnoek and blackbird.



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