



PLANNING UPDATE STATEMENT

AMMONIA

DEVELOPMENT: PLANNING APPLICATION FOR THE HOUSING OF 32,000
FREE RANGE HENS – Free Range Poultry Extension

LOCATION: Cwm Farm
Aberhafesp
Newtown
Powys
SY16 3JD

CLIENT: M & JE Jones, DCE and MN Davies

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INTRODUCTION

The purpose of this report is to provide an update in relation to the ammonia impacts from the proposed extension to the site at Cwm Farm, Aberhafesp, outlining technologies to be employed within the unit to allow the housing of a further 32,000 birds.

Mitigation planting and stock exclusion from adjoining woodlands is further proposed.

This document is to be read in conjunction with plans;

GEL/J&D/IPPC/FWSE

GEL/J&D/IPPC/EP

GEL/J&D/IPPC/BPSE

GEL/J&D/IPPC/TP

PROTECTED SITES

The protected site of great relevance to the proposals at Cwm Farm is the Great Wood, Gregynog SSSI as a result of its quality of designation and further investigative works undertaken by NRW in the latter parts of 2017 into the current quality and condition of the woodland.

The designation of the site is below;

GREAT WOOD, GREGYNOG

This site is of special interest for its wood-pasture/parkland habitat and associated epiphytic lichens and specialist invertebrates associated with ancient trees. Grazed woodlands with a rich lichen flora were once common in central Britain, but now as a result of clearance for agriculture, unsympathetic silviculture and atmospheric pollution, the diversity and richness of lichens has been much reduced. The pasture woodlands of Gregynog remain as one of finest examples in Wales still retaining a rich and diverse lichen flora and invertebrate fauna. The site is situated approximately 5km north of Newtown, Powys, and forms part of a wider 300ha estate, consisting of formal gardens, native woodland, forestry and pasture. The site occupies sloping hillside either side of Gregynog Hall between approximately 180m and 250m above sea-level. It lies on Silurian shales and has a brown-earth – gleyed, clay soil with poor drainage on the lower slopes.

The habitat at Gregynog consists of patches of mature oak *Quercus* spp. woodland of varying size, including the Great Wood to the north of Gregynog Hall, and areas of more open parkland habitat comprising mainly of agriculturally un-improved pasture and bracken, with scattered trees and shrubs. The woodland areas have a mature ‘high forest’ character, with sunny glades, a sparse shrub layer and a ground flora that is largely dominated by grasses and bracken. Veteran trees are common throughout the site.

Lichen communities associated with gnarled old dry bark, are represented particularly well at Gregynog; principally the *Calicium hyperelli* alliance and its association, the *Lecanactidetum premneae*. Amongst these dry-bark communities are typical species such as *Cresponea premnea*, *Lecanographa lyncea*, *Schismatomma niveum*, *Schismatomma cretaceum*, *Lecanactis* spp., *Calicium* spp. and *Chaenotheca* spp. This distinctive association appears to have become the post-climax community of very ancient trees with dry and brittle bark surfaces that have lost their water-holding capacity.

The ancient trees of Gregynog, chiefly oak and ash *Fraxinus excelsior*, also support a number of nationally rare and scarce species including *Calicium adspersum*, *Lecanographa amylycea*, *Lecanora quercicola* and *Lecanora sublivescens*. Furthermore, a number of the species at Gregynog have been identified as species for which the United Kingdom has an international responsibility for their conservation.

In places, the site also supports ancient woodland lichens of the alliance *Lobarion pulmonariae*, with species including *Lobaria pulmonaria*, *Lobaria virens*, *Sticta limbata*, *Thelotrema lepadinum*, *Dimerella lutea*, *Pachyphiale carneola* and *Phyllopsora rosei*. Many of these species are good indicators of a long continuity of woodland cover, and represent the climax community of hardwood trees.

The site also supports a wide range of invertebrates, particularly those associated with dead and dying wood. This saproxylic community of beetles and flies includes the impressive cranefly *Ctenophora pectinicornis*, the larvae of which live in decaying wood of large fallen tree trunks and rotting wood on live trees, the melandryid beetle *Abdera flexuosa* associated with hard bracket fungus on trees in old woodland and the dermestid beetle *Ctesias serra* which feeds on the dry remains of insects caught in spider webs under very dry bark. The hoverfly *Xylota florum* is known from the site, associated with decaying wood and sap as larvae, whilst several local longhorn beetles occur here, including speckled longhorn beetle *Pachytodes cerambyciformis*, tanbark borer *Phymatodes testaceus*, and greater thorn-tipped longhorn beetle *Pogonocherus hispidus*.

Whilst the ancient trees and continuum of deadwood are crucial during the larval stages of many of these invertebrates, the flowering shrubs of wood-pasture at Gregynog, such as hawthorn *Crataegus monogyna*, are vital nectar sources during their adult life-stage.

The site also supports foraging lesser horseshoe bats *Rhinolophus hipposideros* and a good variety of woodland birds including breeding redstart *Phoenicurus phoenicurus*, pied flycatcher *Ficedula hypoleuca*, and wood warbler *Phylloscopus sibilatrix*. Great crested newts *Triturus cristatus* have been recorded in ephemeral pools created after windblown trees are uprooted, and using piles of deadwood as hibernacula.

Remarks

This site includes the former Great Wood, Gregynog SSSI, which was first notified in 1978, and subsequently re-notified in 1983.

The lichens *Calicium adspersum*, *Lecanographa amylycea*, *Lecanora quercicola* and *L. sublivescens* are listed on Section 42 of the NERC Act 2006 (Wales) and are UK Biodiversity Action Plan priority species.

Consideration is also given to the Ancient Woodland surrounding Cwm Farm.

AMMONIA MODELLING RESULTS

The ammonia modelling results for Cwm Farm after detailed modelling are appended below;

Table 6a. Predicted maximum annual mean ammonia concentrations and nitrogen deposition at the discrete receptors within the high resolution domain

Receptor number	X(m)	Y(m)	Site Parameters			Maximum annual ammonia concentration		Maximum annual nitrogen deposition rate	
			Deposition Velocity	Critical Level (µg/m³)	Critical Load (kg/ha)	Process Contribution (µg/m³)	%age of Critical Level	Process Contribution (kg/ha)	%age of Critical Load
1	305782	295432	0.030	1.0	10.0	4.460	446.0	34.75	347.5
2	305800	295349	0.030	1.0	10.0	6.405	640.5	49.90	499.0
3	305772	295537	0.030	1.0	10.0	2.829	282.9	22.04	220.4
4	305800	295645	0.030	1.0	10.0	0.869	86.9	6.77	67.7
7	305486	295798	0.030	1.0	10.0	3.106	310.6	24.20	242.0
11	305385	295498	0.030	1.0	10.0	0.911	91.1	7.10	71.0
12	305907	295588	0.030	1.0	10.0	0.571	57.1	4.44	44.4

Table 6b. Predicted maximum annual mean ammonia concentrations and nitrogen deposition at the discrete receptors within the low resolution domain

Receptor number	X(m)	Y(m)	Site Parameters			Maximum annual ammonia concentration		Maximum annual nitrogen deposition rate	
			Deposition Velocity	Critical Level (µg/m³)	Critical Load (kg/ha)	PC (µg/m³)	%age of Critical Level	PC Existing (kg/ha)	%age of Critical Load
41	307749	297340	0.030	1.0	5.0	0.027	2.7	0.21	4.2
42	308530	297030	0.030	1.0	5.0	0.028	2.8	0.22	4.4
43	308430	297856	0.030	1.0	5.0	0.019	1.9	0.15	3.0
44	309128	297612	0.030	1.0	5.0	0.020	2.0	0.16	3.1
45	306795	291029	0.030	1.0	10.0	0.006	0.6	0.04	0.4
46	306622	290672	0.030	3.0	10.0	0.004	0.1	0.03	0.3
47	301184	296875	0.030	1.0	5.0	0.002	0.2	0.01	0.2

PROPOSAL

The existing and proposed poultry units on farm would utilise Big Dutchman Technology. The company have innovative and modern technologies available at additional cost to reduce the impact of ammonia from the units operating.

The proposal is to install the Magix X-L System to clean the air within the poultry unit. Submitted in support of the proposal is the manufacturers specification for the system together with the data testing to support the detailed ammonia reductions.

The proposal is to have ammonia filters one side of the proposed poultry house that would be 20 m by 6m to allow for the air cleaning.

The submitted Magixx-L (layer) certificate reduces 70% Ammonia and 70% Dust. This is now officially certified by an independent institute (Ingenieurbüro Eckhoff). At the moment it is only available in German language but a request has been made for the document to be translated.

The above certificate confirms that the following reductions have been achieved:

Ammonia:

Summer measurement average: 74%
Winter measurement average: 83%

Dust
Summer measurement average: 90%
Winter measurement average: 80%

Due to that we can confirm for the German authorities critical value of >70% reduction.

CWM FARM

In utilising the above technology and applying to the proposals at Cwm Farm the final ammonia details would be;

Gregynog Great Wood Point 41

2.7 -70% = 0.81%

Gregynog Great Wood Point 42

2.8-70% = 0.84%

The use of the Dutchman technology would also have a positive impact of the adjoining Ancient Woodlands as shown below;

Receptor	Calculation	Resulting New Ammonia Level
1	446 – 70%	133.8%
2	640.5 - 70%	192.18%
3	282.9 - 70%	84.87%
7	310.6 – 70%	93.18%

The resulting ammonia levels for two of the four Ancient Woodland Receptors are thereafter within the critical threshold of 100%. There is still an excess on two woodlands as shown above, however the applicant has put forward betterment proposals to address these issues;

- 1) Stock Excluding existing woodlands on farm, including areas of Ancient Woodland as shown on the submitted plans.
- 2) Planting of two areas of woodland within 2017 as shown on the submitted plans
- 3) Proposal to further plant a large area of woodland on farm as per the submitted plans

For reference please see plans;

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CONCLUSION

It is considered that through the use of technology, conservation and enhancement of existing Ancient Woodlands and planting of new woodlands on farm that the proposal at Cwm Farm is acceptable.

An IPPC permit has been granted in draft for Cwm Farm and the final permit is shortly to be released.