



Ayan Chakravartty
Aval Consulting Group Limited
Newhaven Enterprise Centre
Denton Island
Newhaven
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4th October 2021

Dear Ayan Chakravartty;

Re: Natural England Response to Air Quality Assessment for GCB Cocoa UK Ltd.

Background

Natural England initially responded on the 2nd March 2021 to the planning application DC/21/00754 requesting assessment of air quality impacts with particular regard to Glemsford Pits SSSI.

A detailed Air Quality Assessment has been undertaken by AVAL Consulting Group Ltd. dated 4th October 2021 (Aval Consulting Group, 2021). It is understood that during the assessment, Natural England supplied a critical load value for Glemsford Pits of 15 kg/ha/year, based on the critical load value for rich fen habitats from APIS. A critical load value of 15-20kg/ha/year was used for Kentwell Woods SSSI, based on values from APIS.

Natural England are understood to have given further response:

"One large issue remaining is that the assessment of nitrogen deposition is still incomplete. At screening, nitrogen deposition should have been assessed against the 1% threshold. It would have then been screened into detailed assessment as 6.3Kg N/ha/yr is 42% of the lower Critical load. At detailed assessment, this value should then be considered further in light of site-specific evidence. There is no detail on how the nitrogen deposition has been modelled. A 42% contribution with no analysis of the effect this will have is not acceptable – they need to evidence that this will not harm the site. They should consider the greater impact of water quality, the sensitivity of the feature, the wind direction, assumptions made in modelling etc. Then all of this should also be completed for Kentwell Woods with the appropriate critical load. There has currently been no assessment of nitrogen deposition for Kentwell Woods SSSI despite the SSSI being screened into the assessment."

This letter considers the figures supplied by the Air Quality Assessment for additional Nitrogen deposition on the two SSSIs in the context of the current estimated Nitrogen deposition on these habitats, the critical loads and ecological context.

Expected Nitrogen Deposition from Proposal in Context of Existing Deposition and Critical Loads

The Air Quality Assessment gives a figure for expected Nitrogen Deposition on Glemsford Pits SSSI from the proposal alone to be 6.3 kg/ha/year (Aval Consulting Group, 2021). The existing Nitrogen Deposition on Glemsford Pits SSSI, based on the figure for fens, is 18.06 kg/ha/year. This is already over the critical load of 15 kg/ha/year for rich fens, and would give a total deposition with the proposed development therefore of 6.3+18.06 of 24.36 kg/ha/year.



The Air Quality Assessment gives a figure for expected Nitrogen Deposition on Kentwell Woods SSSI from the proposal alone to be 3.1 kg/ha/year (Aval Consulting Group, 2021). The existing Nitrogen Deposition on Glemsford Pits SSSI, based on the figure for broad leaved woodland, is 31.64 kg/ha/year. This is already over the critical load of 15-20 kg/ha/year for broad leaved woodland, and would give a total deposition with the proposed development therefore of 3.1+31.64 of 34.74 kg/ha/year.

Expected Nitrogen Deposition in Ecological Context & Expected Impact

Note: Contains data supplied by Natural Environment Research Council.

Although the Nitrogen Deposition would exceed the critical load for fen habitat at Glemsford Pits SSSI, this does not take into account the context of overall Nitrogen acquired from other sources, in particular water, which particular habitats and features are most relevant for the designation, nor current condition. Given that the site is designated for is Odonata assemblage, which breeds in the River Stour and former gravel pits on site, the most relevant habitat would be the aquatic habitat. The surrounding herbaceous, scrub and wooded habitats would provide resting and foraging for adult Odonata, which would also forage and rest in much further afield habitats. Data from CEH shows that the particular stretch of the River Stour (Wixoe to Lamarsh) that includes the site has the vast majority of its Nitrogen derived from sources other than direct deposition – in fact just 0.01% of the cumulative Nitrogen load from direct deposition (Zhang et al., 2014). Therefore, even a 10 fold increase in the Nitrogen load from direct deposition would fail to account for even 1% of the Nitrogen in the River Stour passing through the site.

If we were to presume that the water in the gravel pits and wetland habitats on site acquired its Nitrogen only through groundwater and direct deposition, then presuming they are acquired in the same ratio as the adjacent River Stour, the percentage of Nitrogen in the gravel pits and wetland habitats originating from direct deposition would be 0.12%. Even a five-fold increase in direct deposition of Nitrogen would therefore fail to account for even 1% of the Nitrogen in the water bodies.

Both the River Stour and other waterbodies on site are recognised as being nutrient enriched by Natural England in their condition assessment for the site (Natural England, 2010/2012), and APIS (2016) recognises that “in most lowland rivers and burns, nitrogen inputs from catchment land-use, not deposition from the atmosphere, are likely to be much more significant (Strong et al. 1997, Smith & Stewart 1989, Foy et al. 1982)” and with regard to eutrophic standing waters “deposition of ammonia, nitrate and other forms of nitrogen from the atmosphere is unlikely to be the largest source of this nutrient to eutrophic standing waters (Gibson et al. 1992, Gibson et al. 1995, Jordan 1997) and, therefore, in general, Nitrogen deposition is unlikely to be very harmful to eutrophic standing waters, even when close to sources”.

It is therefore considered that the increase in Nitrogen deposition from the proposed development would be negligible in comparison to the existing nitrogen levels from groundwater and other sources, and unlikely to have any discernible impact on Glemsford Pits SSSI.

Although the initial response from Natural England indicated that Glemsford Pits should be the primary consideration for air quality impacts, the increased Nitrogen deposition on Kentwell Woods SSSI is also considered. It is estimated between 93 and 97% of the UK’s woodland exceed the Nitrogen critical load (Forest Research, 2021). It is again likely that groundwater



rather than direct deposition would be the main source of Nitrogen for Kentwell Woods SSSI, with the Nitrogen largely originating from the intensive agriculture typical of the surrounding countryside. Natural England's condition assessment for Kentwell Woods SSSI finds adverse effects from deer and woodland management, but does not mention any observable adverse effects from Nitrogen. In the context of woodlands, as Forest Research states: "it is likely that management practices will have more impact on the vegetation than pollution inputs" (Forest Research, 2021). It is therefore considered highly unlikely that the increased Nitrogen deposition expected from the proposed development would have any discernible impact on Kentwell Woods SSSI.

Conclusion

Overall, it was considered that the increased Nitrogen deposition from the proposed development on the nearest two biological SSSIs, although exceeding critical loads, would not be likely to have any discernible impact on the interest features of the SSSIs.

Yours sincerely,

Richard J.N.Sands MA MSc CEnv MCIEEM

Adonis Ecology Ltd.

References

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