The Sizewell C Project (PINS ref: EN010012)

The Examining Authority's written questions and requests for information (ExQ1)

Deadline 2 submission by Dominic Woodfield (responding to ExQ1 ref Bio.1.33)

SUMMARY

- The Examination Panel is asked to note that I have now made six (6) written requests for the Applicant to provide a copy of its completed Biodiversity Net Gain (BNG) 2.0 metric – i.e. the Excel file replete with all its input data in order that the condition scores it has attributed to individual habitats and individual land parcels can be understood. The Applicant has consistently refused to respond positively to this request. This failure of due disclosure is a matter of concern and (amongst other things) falls significantly short of the best practice requirements for transparency in the use of the metric.

- The Applicant has made the suggestion in correspondence that I provide to the Examination with my Deadline 2 written representation that it is possible to reconstruct the metric calculations from the information they have supplied. This is incorrect and the consequence of being unable to do so is that significant errors are at risk of being masked.

- One thing that is clear is that the Applicant has not applied the Biodiversity Metric 2.0 to the fen meadow creation proposals it is offering in compensation for direct and permanent land-take impacts upon the Sizewell Marshes Site of Special Scientific Interest (SSSI). It relies upon the fact that the metric is not designed as a tool for the offsetting of impacts on ecological resources of such importance, but this overlooks that it is capable of being applied as a measure of the adequacy of such proposals.

- In short, if a compensation scheme fails the test of adequacy via application of the metric, it is inevitable that it would fail any more stringent test applied to higher value resources. Yet this is precisely what application of the Biodiversity Metric 2.0 to the Applicant's compensation proposals for loss of SSSI reveals. The quantum of fen meadow habitat creation proposed is indicated by the metric to be somewhere between 2 and 5 times short of what the metric would define as an appropriate level of compensation for the impacts on the Sizewell Marshes SSSI arising from the project.

- Putting aside that the continued refusal of the Applicant to disclose its full metric 2.0 calculations hinders an understanding of how it has arrived at the 19% net gain overall (cumulative) figure that it claims for the project, it is nonetheless possible to identify sufficient problems and errors with the Applicant's approach that call into serious question the veracity of such claims. These include artificial suppression of baseline condition of affected habitats and exaggerated assumptions about the likely success or timeframes of habitat creation or enhancement. Adjustment to a more robust approach would appear likely to negate the net gain figure even without factoring in the very substantial net loss arising from the SSSI impacts.

- As a consequence of all these factors there can be little doubt that the actual product of the project is significant biodiversity net loss, including of designated nationally important habitats and features – a matter that raises serious policy compliance problems in respect of National Policy Statements EN-1 and EN6. The Examining Authority is asked to direct the Applicant to

provide its full net gain calculations in order that these issues can be fully and properly scrutinised as part of the Examination and in order that it is in a sufficiently informed position to accurately apportion the right degree of weight to the ecological impacts of the project in its eventual decision.

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Application by NNB Generation Company (SZC) Limited for an Order Granting Development Consent for The Sizewell C Project (PINS ref: EN010012)

The Examining Authority's written questions and requests for information (ExQ1)

Deadline 2 submission by Dominic Woodfield (responding to ExQ1 ref Bio.1.33)

1. On 21 April 2021 the Examining Authority (ExA) issued a series of questions directed to the Applicant and other stakeholders (ExQ1). Answers to these were requested by Deadline 2: Wednesday 2nd June 2021.

2. Part 2 of ExQ1 contains the following question, referenced Bio.1.33:

   "*In his [RR-0314] Mr Woodfield raises concerns on ecological issues and biodiversity net gain alongside Friends of the Earth (Suffolk Coastal). Please will Mr Woodfield submit a written representation setting out his objections as fully as possible. If Mr Woodfield would prefer to rely on the submissions by Friends of the Earth (Suffolk Coastal) please say so in reply to this ExQ.*"

3. This document contains my response to this question. For the avoidance of doubt, it complements but also stands independent from the representations made on this subject by Friends of the Earth (Suffolk Coastal).

Structure of my response

4. My response is in three parts, as follows:

   i) In the first instance, I reiterate in short terms my ongoing concerns about transparency and procedural propriety in respect of the Applicant's continued refusal, in contravention of best practice guidance, to make available to the Examination a working copy of its completed version of the open-source biodiversity net gain (BNG) calculator, being the Excel spreadsheet from which the conclusions on BNG that it sets out in its report '*Appendix 14E Biodiversity Net Gain Report version 2.0* [REP1-004]' are derived.

ii) Secondly, I set out why the Applicant's proposals for compensation of impacts on Sizewell Marshes SSSI are exposed as grossly inadequate by applying a simple test of calibration using the 2.0 metric. This inadequacy is a red flag even before one gets onto the technical concerns about the practical achievability of the fen meadow habitat creation proposed, which I note remains subject to an ongoing absence of technical detail.

iii) Thirdly, notwithstanding the hindrances arising out of (i) above, I set out why the Applicant's claims of net gain in respect of biodiversity more generally (i.e. excluding the SSSI impacts) do not withstand closer scrutiny and offer reasons why the likely outcome of the project is in fact a clear and significant net loss of biodiversity.

Ongoing refusal by the Applicant to provide its worked BNG calculations

5. The Applicant claims that the project will, overall, deliver a net gain in biodiversity of 19% [e.g. REP1-004 para 10.1.2 p.96]. It has arrived at this figure by using the Biodiversity Metric 2.0, a system whereby numerical values are attributed to habitats based on their type and area (in hectares) and the application of a number of multipliers including 'distinctiveness', 'condition' and (in respect of future habitats to be created in mitigation or compensation for those lost to or damaged by development) multipliers that reflect difficulty of re-creation. The effect of these multipliers on different quality habitats can be pronounced. For example, loss of 1ha of intensively farmed cereal crops might result in the loss of as little as 2 habitat units (1ha x distinctiveness score (=2) x condition score (=1)), compared with the same area of blanket bog which, if in 'good' condition, would amount to 24 units due to its inherently higher distinctiveness scores. In this way, the habitat unit figure derived from the metric provides a measure of the compensatory provision required to achieve no net loss of biodiversity or indeed net gain. For example, in the example just given, the 2 habitat units required to be delivered to achieve 'no net loss' in respect of 1ha of cereal cropland could be achieved via creation of around 0.5ha of high distinctiveness habitat such as wet woodland. However, the metric also factors in matters such as difficulty risk and the time taken to achieve successful habitat creation and this can result in multipliers of less than 1 being applied to the scores for created (future) habitats. In respect of lowland fen (including fen meadow) for example, cumulative multipliers of around 0.3 are applied to account for time to achieve desired condition and the inherent difficulty in re-creating such high distinctiveness habitats. An important effect of such multipliers is that a larger area of compensatory habitat will generally be required than that which is lost – indeed this is a well-established ecological principle. An example, according to the metric, would be that 2ha of lowland calcareous grassland in 'good' condition would be required to be delivered to offset a loss of 1ha of 'other neutral grassland' in poor condition.

6. The Examination Panel will observe from the above how the attribution of scores for condition and other matters by the person or persons carrying out the BNG assessment can greatly influence the numerical outputs from use of the metric. Transparency in the use of BNG is therefore vitally important and best practice in BNG requires that in the interests of "*Communicating all net gain activities in a transparent and timely manner, sharing the learning with all stakeholders*"[1], worked calculations should be made available for independent scrutiny.

[1] Baker, J, Hoskin, R. & Butterworth, T (2019) Biodiversity net gain. Good practice principles for development CIRIA C776a https://cieem.net/wp-content/uploads/2019/02/C776a-Biodiversity-net-gain.-Good-practice-principles-for-development.-A-practical-guide-web.pdf

7. The Examination Panel is asked to note that I have been in correspondence with the Applicant since 21 July 2020 on this issue. In short, since that date I have now made six (6) written requests for the Applicant to provide a copy of its completed 2.0 metric Excel file – i.e. replete with all the input data in order that I can understand the condition scores it has attributed to individual habitats and individual land parcels. The Applicant has consistently refused to respond positively to this request.

8. I note that the Applicant has displayed screengrabs in its revised BNG assessment [REP1-004] (e.g., Image 4 on page 93) that confirm it has used the open-source metric 2.0 calculator tool[2] to arrive at the figures for net gain that it is asking the Examining Authority to accept. This confirms that the action of making its completed version of that Excel file available to the Examination and interested stakeholders such as myself would take no more time than it takes to attach the file to an e-mail.

9. I remain at a loss to understand why the Applicant is so reluctant to be transparent on this matter and I believe this should of itself be a matter of concern and interest to the Examining Authority. In correspondence that is already before the Examination, and which for the avoidance of doubt is attached at Appendix 1 to this written representation, I have explained that due to factors such as the Applicant's decision to combine area measurements from multiple locations in the project area into single aggregated inputs, it is not possible for myself or indeed the Examining Authority to properly understand from the submitted information how the Applicant has arrived at the conclusions it has on biodiversity net gain, still less subject those conclusions to appropriate scrutiny. In particular, it is not possible to independently review and check the accuracy of baseline habitat classifications and condition/distinctiveness attributions for individual land parcels affected by the scheme. The Applicant has suggested in that correspondence that it is possible to independently reconstruct a working version of the metric from the information it has provided to the Examination. Even if it were acceptable to require relevant stakeholders to enter in to such a deductive paper chase, that is in any event simply not the case. Such claims indicate either a lack of understanding of the BNG system by those making them, or a deliberate attempt at obfuscation. As the relevant correspondence between myself and the Applicant on this was copied to PINS and is appended for the avoidance of doubt, I will not labour the point further at this juncture, but to the extent that the rest of this written representation may generate more questions than it answers, the Examining Panel is asked to note that this is an unavoidable consequence of the Applicant's ongoing failure of disclosure on this point.

The adequacy of the SSSI compensation proposals when tested via the metric

10. The impacts upon Sizewell Marshes SSSI and the adequacy of the Applicant's proposals to compensate for these impacts are clearly a very important consideration in the determination of this DCO application. Other objectors and stakeholders are making detailed technical points on crucial matters such as a) whether the impacts on the SSSI have been adequately assessed in the first instance and b) the technical feasibility (or otherwise) of the compensation proposals. For the avoidance of doubt, I share such concerns, but I do not go into detail here. I merely wish to make an important high-level point about the simple quantitative adequacy of the Applicant's compensation offer.

11. The Applicant has chosen to exclude the impacts on the SSSI from its BNG calculations. Its reasoning[3] is that the metric is not designed to assess losses from highest value habitats or from statutory designated sites. This much

[2] As available at http://publications.naturalengland.org.uk/publication/5850908674228224
[3] e.g. see Section 7 of REP1-004 – p.90

is correct - indeed, it is worth reiterating why this is the case –because such impacts are normally regarded as "unacceptable" and likely to offend applicable policy and legislation[4].

12. However, with appropriate caveats, the 2.0 metric can (and does) provide a useful means of sense-checking the adequacy of compensation proposals, and specifically in this case the Applicant's compensation proposals relating to impacts on the SSSI. If nothing else, it provides a simple test of whether the compensation proposals are, at least quantitatively, on the right track. If the applicant's SSSI compensation scheme is revealed as insufficient to prevent net loss of biodiversity using the lower bar of the 2.0 metric, this must raise a red flag as to its adequacy more generally.

13. I have run the 2.0 metric using the information supplied by the Applicant[5] relating to direct land-take from the SSSI and its proposals for compensation for those impacts via creation of compensatory fen meadow habitat at Benhall, Halesworth and Pakenham.

14. I can confirm that this simple exercise of calibration reveals a significant problem with the Applicant's SSSI compensation offer.

15. Direct loss of SSSI habitat is indicated by the Applicant to amount to 0.46ha of fen meadow and 3.12ha of wet woodland (total=3.58ha). Inputting these data into the metric tool (using the 'lowland fen' category in the metric to apply to fen meadow) indicates that the loss of biodiversity units attendant with this impact is 67.20 units (far right hand column in Figure 1 below[6]):

Figure 1: impact of direct and permanent SSSI habitat measured in habitat units

A-1 Site Habitat baseline

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	Habitats and areas			Habitat distinctiveness		Habitat condition		Ecological connectivity		Strategic significance		Suggested action to address habitat losses	Ecological baseline
Ref	Broad Habitat	Habitat type	Area (hectares)	Distinctiveness	Score	Condition	Score	Ecological connectivity	Connectivity multiplier	Strategic significance	Strategic position multiplier		Total habitat units
4	Wetland	Wetland - Fens (upland and lowland)	0.46	V.High	8	Good	3	N/A	1	Area/compensation not in local strategy/ no local strategy	1	Bespoke compensation likely to be required	11.04
5	Woodland and forest	Woodland and forest - Wet woodland	3.12	High	6	Good	3	N/A	1	Area/compensation not in local strategy/ no local strategy	1	Same habitat required	56.16
		Total site area ha	3.58									Total Site baseline	67.20

16. This figure can be taken as the ***minimum*** target number of biodiversity units needing to be delivered through compensation measures in order for parity (i.e. no net loss of biodiversity from the SSSI impacts considered alone) to be achieved. It is necessarily a minimum because it takes no account of any uplift to account for temporal, spatial or difficulty risk, nor more general delivery risk, nor the fact that the metric is not designed to assess impacts on the highest quality designated sites. These are all factors that drive greater uplift of the compensation burden, but for the purposes of simplicity have been set aside in this exercise.

17. Currently, the Applicant proposes to create compensatory fen meadow habitat at three offsite locations; Benhall, Halesworth and Pakenham[7]. It accepts that not all parts of the land it has secured for this purpose at

[4] If it had been furnished with a copy of the completed Metric 2.0 Excel tool, the ExA would be able to see that losses of lowland fen/fen meadow throw up a red warning stating "any loss unacceptable" if an attempt to input these impacts into the metric tool is made.
[5] [AS-209] Sizewelll C Project 6.14 ES Addendum Chapter 2 Main Development Site Appendix 2.9.D FEN MEADOW STRATEGY January 2021. https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-003019-SZC_Bk6_6.14_ESAdd_V3_Ch2_Appx2.9.A_D_Ecology%20Part%202%20of%202.pdf
[6] Note that for reasons of consistency I have replicated the Applicant's approach to connectivity and strategic significance – which is to disregard these multipliers – in this example, but I draw attention to my comments about this approach later in this document.
[7] AS-209 Appendix 2.9.D Para 4.1.7 (p.7 internal, p.156 external)

these three sites are suitable for fen meadow habitat creation and has therefore identified the amount of fen meadow habitat likely to be achievable at each site to be 1.5ha at Benhall, 1.2ha at Halesworth and 4.9ha at Pakenham.

18. I have not yet had the opportunity to visit these sites but based on a review of the submitted material and discussions with those who have first-hand knowledge of them, I understand that they are essentially areas of marshy grassland, in some cases with a few of the more common fen meadow species present. On this basis I have entered their baseline condition and value in rows 1, 2 and 3 of the table below as 'floodplain wetland mosaic' in 'fairly poor' condition[8]. On this basis, the cumulative baseline value of these sites is measured by the 2.0 metric as 68.40 habitat units (far right column in Figure 2 below).

Figure 2: baseline value of land to be used for compensatory fen meadow creation, measured in habitat units

D-1 Off Site Habitat Baseline

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	Habitats and areas			Habitat distinctiveness	Habitat condition	Ecological connectivity	Strategic significance	Suggested action to address habitat losses	Ecological baseline
Baseline ref	Broad habitat	Habitat type	Area (hectares)	Distinctiveness	Condition	Ecological connectivity	Strategic significance		Total habitat units
1	Grassland	Grassland - Floodplain Wetland Mosaic (CFGM)	1.5	High	Fairly Poor	N/A	Area/compensation not in local strategy/ no local strategy	Same habitat required	13.50
2	Grassland	Grassland - Floodplain Wetland Mosaic (CFGM)	1.2	High	Fairly Poor	N/A	Area/compensation not in local strategy/ no local strategy	Same habitat required	10.80
3	Grassland	Grassland - Floodplain Wetland Mosaic (CFGM)	4.9	High	Fairly Poor	N/A	Area/compensation not in local strategy/ no local strategy	Same habitat required	44.10
4									
5									
6									
7									
8									
		Total site area ha	7.60					Total Site baseline	68.40

19. With these data inputs, the 2.0 metric calculates that the total biodiversity units potentially obtained from the conversion of 7.6ha of offsite floodplain wetland mosaic to lowland fen/fen meadow habitat is between 14.50 units and 21.16 units (Figure 3 below)[9].

20. Either figure is significantly short of the minimum target of 67.20 units required in order to achieve no net loss.

[8] This is an approach that is generous to the Applicant. To the extent that the baseline condition of these sites might be argued to be higher (e.g., 'moderate' condition), that will have the effect of reducing the habitat units that can be gained from enhancement, and push the Applicant's proposals further into net loss.
[9] The lower figure is illustrated at Figure 3. The metric indicates that a slightly higher total of 21.16 units could be achieved if all the compensation was delivered local to the impact site, but this is reduced to 14.50 units on the basis of applying an additional 'spatial risk multiplier' of 0.5 to the Pakenham site because it is both outside the same LPA area as the impact and not in an adjoining authority (see column 8 of the table at Figure 3). The other reason that this figure is lower than might be expected is that a 'difficulty of creation' multiplier of 0.33 is automatically applied by the metric to the creation of high distinctiveness lowland fen/fen meadow habitat.

Figure 3: habitat units achievable via successful fen meadow creation at Benhall, Halesworth and Pakenham

D-2 Off Site Habitat Creation

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Post development/ post intervention habitats									
Proposed habitat	Area ha	Distinctiveness	Condition	Ecological Ecological connectivity	Strategic significance Strategic significance	Temporal Time to target condition/years	Difficulty Difficulty of creation category	Spatial risk multiplier Spatial risk category	Habitat units delivered
Wetland - Fens (upland and lowland)	1.5	V.High	Good	N/A	Area/compensation not in local strategy/ no local strategy	30	High	Compensation inside LPA or NCA, or deemed to be sufficiently local, to site of biodiversity loss	4.08
Wetland - Fens (upland and lowland)	1.2	V.High	Good	N/A	Within area formally identified in local strategy	30	High	Compensation inside LPA or NCA, or deemed to be sufficiently local, to site of biodiversity loss	3.75
Wetland - Fens (upland and lowland)	4.9	V.High	Good	N/A	Area/compensation not in local strategy/ no local strategy	30	High	Compensation outside LPA or NCA of impact site and beyond neighbouring LPA or NCA	6.66
Totals	7.60								14.50

21. Use of the 2.0 metric as a simple sense-checking tool therefore indicates **a serious problem with the adequacy of the Applicant's SSSI compensation offer**. This is further illustrated at Figure 4 below which is a screengrab of the headline metric 2.0 outputs and which indicates (see pink coloured cells) that even after compensation, the impacts of the loss of 3.58ha of the Sizewell Marshes SSSI will result in a **massive net loss of -121.10 biodiversity units, translating to -180.21% net loss of biodiversity**[10]:

Figure 4: Headline results from application of metric 2.0 to the Applicant's SSSI compensation strategy

On-site baseline	*Habitat units*	67.20
	Hedgerow units	0.00
	River units	0.00
On-site post-intervention (including habitat retention, creation, enhancement & succession)	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Off-site baseline	*Habitat units*	68.40
	Hedgerow units	0.00
	River units	0.00
Off-site post-intervention (including habitat retention, creation, enhancement & succession)	*Habitat units*	14.50
	Hedgerow units	0.00
	River units	0.00
Total net unit change (including all on-site & off-site habitat retention/creation)	*Habitat units*	-121.10
	Hedgerow units	0.00
	River units	0.00
Total net % change (including all on-site & off-site habitat creation + retained habitats)	*Habitat units*	-180.21%
	Hedgerow units	0.00%
	River units	0.00%

[10] A slightly better but still significantly net negative result is obtained if the fen meadow creation is run through the metric as 'enhancement'. However, it is likely that interventions to create the hydrological conditions suitable for fen meadow creation will result in destruction of the existing habitats before creation of the new. In any event, even applying the 'enhancement' approach, the metric output result remains significant net loss (-66.49 units or -98.94%) and indicates that at least twice the amount of compensatory habitat currently proposed would need to be delivered to avoid net loss.

22. This significant negative result arises because the total habitat units the metric calculates from enhancement of existing marshy grassland habitats to more valuable fen meadow at Benhall, Halesworth and Pakenham is not sufficient to outweigh the units lost from removal of existing fen meadow and wet woodland habitats from the Sizewell Marshes SSSI.

23. In fact, the metric indicates that the Applicant's proposals for compensation for the loss of SSSI habitats are short of the appropriate compensatory quantum by a factor of between 2 and 5. In other words, somewhere between two and five times the amount of fen meadow habitat creation that is currently proposed would actually be needed to have any scope to compensate for the losses incurred.

24. This applies notwithstanding that in conducting the above exercise I have taken a generous approach to matters such as delivery risk, temporal lag and the inherent difficulties with trying to create complex hydrological systems, including (in this case) on sites believed to have a latent excess nutrient problem. It is also important to note that this figure is derived from consideration only of direct land-take from the SSSI. No account is taken in the above figures of likely indirect impacts on the remainder of the Sizewell Marshes SSSI from alteration of ground water levels or degradation of water quality, which remain matters of acute concern, nor of impacts from temporary land-take from the SSSI.

25. In summary, application of the biodiversity metric 2.0 indicates that the Applicant's proposals for fen meadow creation at Benhall, Halesworth and Pakenham would, even if successful, fall a long way short of sufficient to compensate for impacts to the Sizewell Marshes SSSI. Not only would this not prevent significant net loss of biodiversity, it would also offend the appropriate policy requirements in relation to statutory sites, as set out in National Policy Statements EN-1 and EN-6. The Applicant has elected not to apply the metric as a means of testing the adequacy of its SSSI compensation proposals. Its reasoning is that the 2.0 BNG metric is not designed for application to impacts on statutory sites and is therefore not relevant to non-SSSI impacts. While it is true that the metric is not intended to be misused to justify impacts on statutory sites or irreplaceable habitats, it nonetheless provides a perfectly logical calibration tool for checking whether compensation proposals are likely to be adequate or inadequate. If the applicant's SSSI compensation proposals fail to avert net loss when tested via the metric, they cannot conceivably be argued to be adequate when tested against any higher bar. The exercise of applying the metric reveals not only that the compensation proposals are seriously deficient and, by this measure, incapable of compensating for impacts on the statutory site, but that the magnitude of net loss arising from this shortfall is so significant that it completely negates the 19% net gain figure claimed by the Applicant for non-SSSI impacts (even before one analyses the veracity of that claim). This positions the overall performance of the project well into significant net loss of biodiversity.

The claim of net gain in respect of non-SSSI impacts

26. The exercise discussed above indicates that the net loss attributable to the impact on Sizewell Marshes SSSI, even assuming a successful outcome of the proposed compensation measures, would massively outweigh the 19% net gain that is claimed for cumulative non-SSSI impacts. In fact, it indicates that the cumulative figure for the project could be well in excess of -100% net loss even if the 19% net gain claim was not itself open to question.

27. There are serious questions over the veracity of the Applicant's net gain claims in any event. Whilst full particularisation of the deficiencies is obstructed due to the Applicant's continued refusal to be transparent about its metric inputs, I have attempted to outline what are probably the main areas of concern below.

A) Pre-development calculations

28. The land-use changes that provide greatest uplift in terms of metric scores include the conversion of former arable land to Dry Sandlings Grassland (DSG) and to a lesser extent woodland.

29. In determining the baseline value of many of these arable areas, the Applicant has by its own admission relied upon default assumptions because some of the land-use changes connected with the project are already underway.

30. There is nothing inherently wrong with this approach, but it must be noted that the Applicant's BNG assessment is heavily predicated on the affected arable habitats being assumed to be of the lowest possible values for distinctiveness and condition prior to interventions, and being attributed the lowest possible score accordingly.

31. This approach is not just unevidenced, but with particular reference to the locality, is not a robust assumption to make.

32. Amongst other things, this part of the Suffolk coast is something of a hotspot for scarce arable plants, in part due to the soil type. In the last review of Important Arable Plant Areas (IAPAs) by Plantlife, it scored highly[11]. The Applicant's own baseline studies for the ES indicated the presence of scarce arable plants such as corn spurrey in certain fields, and significant invertebrate interest associated with field margins[12]. Arable land in the locality of Sizewell is also used by scarce bird species including marsh harrier and stone curlew. Any of these factors would justify a higher weighting to be applied to the baseline condition of arable land lost to the project.

33. This is a matter of weight in interpreting the Applicant's metric outputs because if the baseline value of even a relatively small proportion of the arable land to be lost through conversion to other land uses is adjusted to a higher distinctiveness or condition score, this would have the effect of eliminating the claimed net gain at a stroke. This is an example of an issue that could be explored by the Examining Panel most effectively by the Applicant acceding to best practice standards and providing its full calculations.

B) Disregard of 'connectivity' and strategic significance' multipliers

34. The Applicant has changed its approach to the metric 2.0 parameters of 'connectivity' and 'strategic significance' with the effect of similarly suppressing the baseline habitat scores of affected areas.

35. On 'connectivity' the Applicant states at para 2.2.11 of REP1-004 (p.10) that "*in the Biodiversity Metric 2.0 - Beta Test: Summary Consultation Response (Natural England, 2020) the decision was taken to fix connectivity at Low (x1 multiplier) for all habitats until the metric is next reviewed. Therefore, the connectivity applied to all habitats identified on site was set at Low (1x multiplier)*." Whilst the uncertainty over this attribute in advance of the release of metric 3.0 is noted, I consider it a deficiency that the Applicant does not consider the matter further. This also seems to be a deviation from the approach it originally took in 2020 and as set out at APP-266 (see e.g. 2.2.3 of that document). There can be no doubt that in this situation, setting the connectivity multiplier to 1x (thus having no effect on outputs) carries the risk of artificially suppressing the value of what is a network of interconnected habitats within an AONB setting and with relevance to multiple national, international and county-level designations. If nothing else, the Examining Panel is invited to note that it is very likely that

[11] https://lantlife.love-wildflowers.org.uk/uploads/documents/England_threatened_arable_plants_intro_2015.pdf

[12] See for example APP-224, 14.8.5 "'..the field margins around the arable fields to the north-west of the conifer plantations, support an invertebrate assemblage of County importance, associated with unshaded early successional habitats".

considered application of these relevant parameters would deliver a significantly different result. As the release of Metric 3.0 is expected to be imminent, it must be in the interests of the Applicant to pre-empt the effect of these factors and yet it has instead elected to set them aside.

36. On 'strategic significance' much the same point applies. The development will take place in a setting defined by interconnected habitats with multiple designations. The strategic significance of these habitats in the baseline state is arguably 'High' but at least 'Medium'. The Applicant seeks to make much of the proximity of compensation areas to high value sites on the one hand (as a positive – see e.g. section 2.5 of REP1-004 related to spatial risk multipliers and their disapplication to the off-site compensation areas) but attempts to apply a different set of criteria when considering whether strategic significance multipliers should be applied.

C) Double counting

37. At section 2.6 of REP1-004 (p.17), the Applicant explains that in some instances, what it tries to define as "pseudo" double counting will have arisen where it has attempted to account for delivery of structurally complex habitat types via mitigation and compensation – the example cited being trees in grassland.

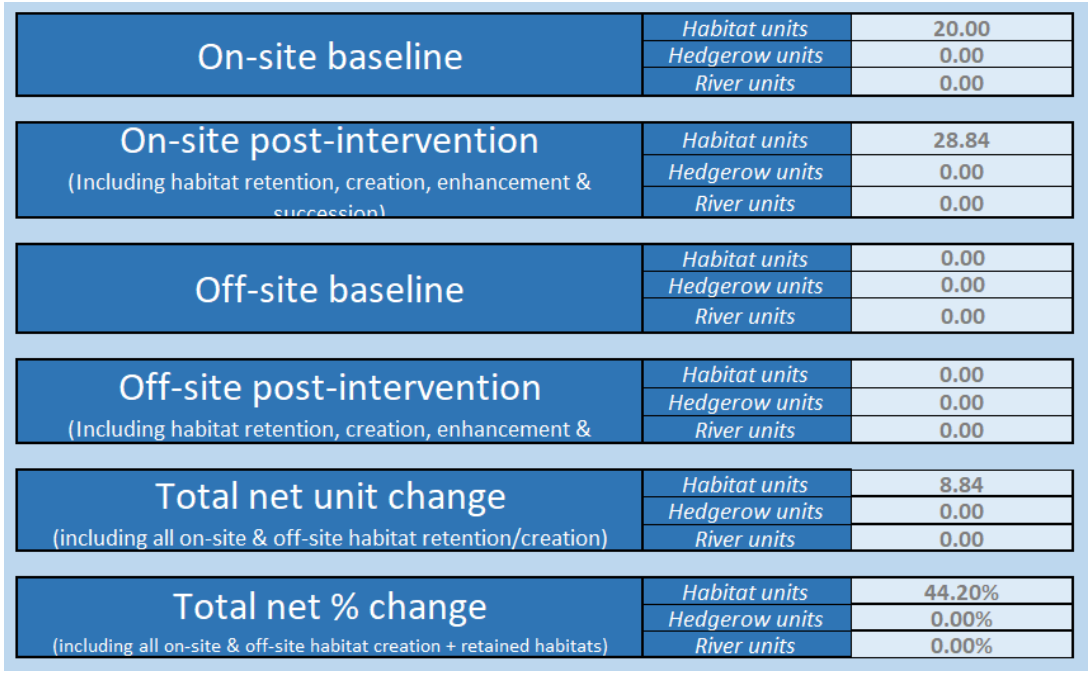
38. This approach is non-standard (it generates an error message in the 2.0 calculator) and will introduce gross error. This can best be explained by simple illustration. The screen grab at Figure 5 below shows how the 2.0 metric calculates a conversion of 10ha arable land (baseline value 20 units) to 10ha lowland dry acid grassland (value 27.2 units) as a net change of +7.2 habitat units, translating to a 35.99% net gain.

Figure 5: worked example of metric output without double counting

On-site baseline	*Habitat units*	20.00
	Hedgerow units	0.00
	River units	0.00
On-site post-intervention (Including habitat retention, creation, enhancement & succession)	*Habitat units*	27.20
	Hedgerow units	0.00
	River units	0.00
Off-site baseline	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Off-site post-intervention (Including habitat retention, creation, enhancement &	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Total net unit change (including all on-site & off-site habitat retention/creation)	*Habitat units*	7.20
	Hedgerow units	0.00
	River units	0.00
Total net % change (including all on-site & off-site habitat creation + retained habitats)	*Habitat units*	35.99%
	Hedgerow units	0.00%
	River units	0.00%

39. If one takes the Applicant's approach and seeks to account for the three-dimensional effect of additional tree planting by "pseudo" double counting, one can see from Figure 6 below how the effect on the metric outputs is pronounced and disproportionate. Here an extra 1ha of new planted trees (which may be no more than 'whips' in grow tubes) added to the input figures elevates the post-development outcome by +8.84 units, raising the net gain from +35.99% to +44.20%:

Figure 6: worked example of metric output showing effect of "pseudo" double counting

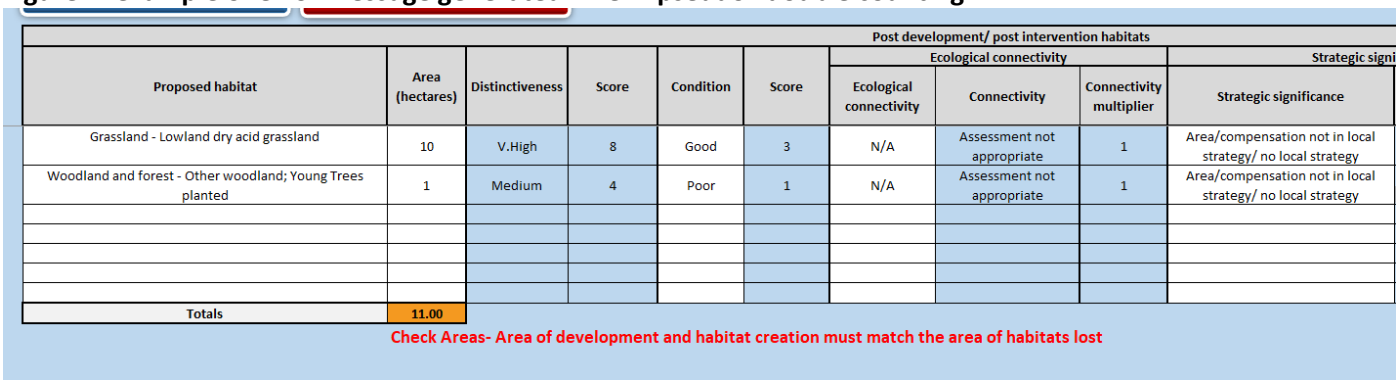


On-site baseline	*Habitat units*	20.00
	Hedgerow units	0.00
	River units	0.00
On-site post-intervention (Including habitat retention, creation, enhancement & succession)	*Habitat units*	28.84
	Hedgerow units	0.00
	River units	0.00
Off-site baseline	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Off-site post-intervention (Including habitat retention, creation, enhancement &	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Total net unit change (including all on-site & off-site habitat retention/creation)	*Habitat units*	8.84
	Hedgerow units	0.00
	River units	0.00
Total net % change (including all on-site & off-site habitat creation + retained habitats)	*Habitat units*	44.20%
	Hedgerow units	0.00%
	River units	0.00%

40. In the worked example shown at Figures 5 and 6 above, the simple addition of new planted whips in 'poor' condition into just 10% of the created grassland instantly and of itself elevates the % net gain by approaching a fifth or 20%. One does not need to be an ecologist to recognise that the presence of newly planted whips over 10% of a site is unlikely to have such a pronounced and instantaneous effect.

41. In any event, the metric tool militates against such double-counting by flagging an error message in red text when the area figures (in hectares) of the pre-development baseline and the post-development situation do not match. An example of this error message is indicated at Figure 7 below. The Applicant has evidently taken the decision to ignore or override this error message and has then dismissed the bias it has introduced into the metric outputs as "pseudo" double counting.

Figure 7: example of error message generated when "pseudo" double counting



						Post development/ post intervention habitats			
						Ecological connectivity			Strategic signi
Proposed habitat	Area (hectares)	Distinctiveness	Score	Condition	Score	Ecological connectivity	Connectivity	Connectivity multiplier	Strategic significance
Grassland - Lowland dry acid grassland	10	V.High	8	Good	3	N/A	Assessment not appropriate	1	Area/compensation not in local strategy/ no local strategy
Woodland and forest - Other woodland; Young Trees planted	1	Medium	4	Poor	1	N/A	Assessment not appropriate	1	Area/compensation not in local strategy/ no local strategy
Totals	11.00								

Check Areas- Area of development and habitat creation must match the area of habitats lost

42. Without sight of the Applicant's completed 2.0 metric spreadsheet, it is impossible to establish how much of the claimed 19% net gain is due to unjustified uplift in the value of created habitats through such double-counting.

D) Default to overly optimistic rather than precautionary assumptions

43. The Applicant recognises that "*The achievement of the predicted units scores is reliant upon achieving the target condition for created habitats*." (REP1-004 Executive Summary p.2).

44. In this context, it is of concern that the Applicant's claims of net gain seem to have been made in advance of resolution of significant matters that will dictate the eventual success of the mitigation and compensation proposals.

45. This applies to the fen meadow compensation scheme already discussed but it also applies in other areas. For example, on the Marsh Harrier Habitat Improvement Area (MHHIA), the Applicant states "*discussions are ongoing around the long-term management of this area to provide the greatest benefits. It is likely that this area* [which is to be converted from arable land] *will be managed to be of similar character to the DSG areas across the site. The DSG area is described as "a complex mosaic of dry summer parched grassland, scrub and scattered trees/woodland (particularly around the edges)" in the OLEMP*." Elsewhere the Applicant states "*proposals regarding the long-term management of the MHHIA have not been finalised*".

46. In advance of the conclusion of such discussions, assumptions about delivery risk and time to target condition must be treated conservatively and on a precautionary basis. I would also query whether 'dry summer parched grassland habitats with scrub and trees' will function as appropriate compensation for marsh harrier in any event, notwithstanding that there is a significant delivery risk associated with trying to create high quality habitats from arable land[13], especially if the Applicant has assumed correctly that such arable land is of low distinctiveness and poor condition – a baseline that is likely to mean high soil fertility. The Applicant appears to be trying to have its cake and eat it by assuming baselines are as low value as possible but then not translating the consequences of that assumption into matters such as delivery risk.

47. A major issue here is an absence of consideration of the non-ecology elements of delivery risk, on top of difficulty risk and temporal lag. The 2.0 metric does not explicitly build in such risk as that is a complex variable influenced by non-ecology considerations such as finance, planning enforcement, commitment and stakeholder pressure. However, it is a very important consideration for the ExA when considering the veracity of the BNG claims. Especially in the context that the Applicant has shown itself to be a good way short of exemplary in its conduct to date, by reference to the submissions by Mr Langton on the condition of the proposed reptile receptor sites and the widespread complaints about the conduct of the Applicant at the Coronation Wood site.

E) Inclusion of species mitigation areas

48. The Applicant's BNG report states: "*BNG as presented in the biodiversity metric guidance is a holistic landscape scale assessment of the overall long-term status of the site and the habitats within. As such, it is appropriate that where mitigation for species which results in a change of habitat (such as within the Studio Fields Complex) is assessed within the biodiversity metric*."

[13] I am aware that FOESC and others are providing illustrations of the types of problems that have already been encountered with the Applicant's habitat enhancements and how these have retarded successful establishment of target habitats and/or target condition on a number of compensation sites.

49. If mitigation and compensation areas for species are to be factored in this way, then it follows that habitats that support such species in the baseline state must be given a weighting to account for this. An example would be arable land that is already used for foraging by marsh harrier, or which supports scarce arable plants or invertebrate assemblages. However, this has not been done in the BNG assessment. The result is that the baseline value of habitats lost to development or converted to other habitats for mitigation and compensation reasons, is artificially suppressed while the assumed future value of habitats is attributed additional weighting by virtue of its proposed use as receptor sites for translocated protected species. Species are added as a weighting in one instance but ignored in the other.

Overall conclusions

50. The Examining Authority, like other stakeholders, is being asked to accept the Applicant's claims of BNG without the benefit of verification or testing via its own or others' independent scrutiny.

51. There continue to be serious areas of concern about many, indeed most, aspects of the Applicants BNG assessment, including *inter alia* the methodological approach that has been taken and the introduction of various sources of significant bias. This completely undermines the confidence that can be had in the Applicant's claimed results, both for the main site and for the ancillary projects. Due to the Applicant's refusal to adhere to best practice standards in transparency and disclosure, I have had to try and independently apply metric 2.0 to the Environmental Information submitted to the Examination. In the process of doing so, I have exposed serious questions about the simple quantitative adequacy of the Applicant's SSSI compensation proposals and their ability to meet the tests set out in applicable National Policy Statements.

52. I have attempted to articulate and particularise my objections as clearly and full as possible in response to the ExA's question, but the Applicant's continued refusal to be transparent about its data inputs and workings out remains a serious hindrance. For as long as this deliberate refusal to disclose relevant information continues, there remains a risk of the Examining Authority being unsighted on BNG and related important matters.

Yours sincerely

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Director