

**From:** [Brown, Emma](#)  
**To:** [Hornsea Project Three](#)  
**Subject:** EN010080 Hornsea Project 3: Deadline 7 Submission from Natural England  
**Date:** 15 March 2019 00:02:45  
**Attachments:** [EN010080 Hornsea Project Three Deadline 7 - Natural England - ANNEX C - Cable Protection Advice Note.pdf](#)  
[EN010080 Hornsea Project Three Deadline 7 - Natural England - ANNEX D - Note on Small Scale Impact.pdf](#)  
[EN010080 Hornsea Project Three Deadline 7 - Natural England - ANNEX E - Ornithology Response.pdf](#)  
[EN010080 Hornsea Project Three Deadline 7 - Summary of Natural England's Advice on Cromer Shoal MCZ.pdf](#)  
[EN010080 Hornsea Project Three Deadline 7 - Summary of Natural England's Advice on Markham's Triangle pMCZ.pdf](#)  
[EN010080 Hornsea Project Three Deadline 7 - Summary of Natural England's Advice on North Norfolk Sandbanks and Saturen Reef SAC.pdf](#)  
[EN010080 Hornsea Project Three Deadline 7 Natural England's comments on the RIES .pdf](#)  
[JNCC Report 598 Revised-2018 WEB - Monitoring guidance for marine benthic habitats.pdf](#)  
[Natural England and JNCC joint Technical Guidance Note - Marine Buffers and Margins - Final.pdf](#)  
[NECR164 Non-breeding season populations of seabirds in UK waters.pdf](#)  
[SNCB response to MSS avoidance rate report FINAL\\_251114.pdf](#)  
[EN010080 Hornsea Project Three Deadline 7 - Natural England - ANNEX A - Further Advice on PTA REP5 - 010.pdf](#)  
[EN010080 Hornsea Project Three Deadline 7 - Natural England - ANNEX B - Sabellaria Spinulosa Advice Note.pdf](#)  
[EN010080 Hornsea Project Three Deadline 7 - Natural England - Rule 17 Response.pdf](#)  
[Natural England and JNCC joint Technical Guidance Note - Marine Buffers and Margins - Final.pdf](#)

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Good Evening,

Please find attached Natural England's Deadline 7 Response.

This includes:

- Comments on the RIES
- Rule 17 Response
- ANNEX A: Further Advice on PTA REP 5 – 010
- ANNEX B: Sabellaria Spinulosa Advice Note
- ANNEX C: Cable Protection Advice Note
- ANNEX D: Note on Small Scale Impact
- ANNEX E: Ornithology Response
- Summary of Natural England's Advice on Cromer Shoal MCZ
- Summary of Natural England's Advice on Markham's Triangle pMCZ
- Summary of Natural England's Advice on The Wash and North Norfolk Coast SAC
- Summary of Natural England's Advice on North Norfolk Sandbanks SAC
- Natural England & JNCC joint Technical Guidance Note – Marine Buffers and Margins
- SNCB response to MSS Avoidance Rate Report
- NERC164
- JNCC Report 598

Please note that Natural England has reviewed the MMO's draft Response to the ExA dDCO/DML and are in agreement with their comments. Therefore we will not be providing a separate response on this occasion.

Kind regards,

Emma

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THE PLANNING ACT 2008  
THE INFRASTRUCTURE PLANNING (EXAMINATION PROCEDURE)  
RULES 2010

HORNSEA PROJECT THREE OFFSHORE WIND FARM

Planning Inspectorate Reference: EN010080

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NATURAL ENGLAND

Written Submission for Deadline 7

**ANNEX A: Further Advice on REP5 -010 Preliminary Trenching  
Assessment (PTA)**

14 March 2019

## **1. Introduction**

- 1.1. Further to the interim advice provided by Natural England for Deadline 6 [REP – 048] England's Stratigrapher has subsequently considered the evidence presented by the Applicant.

## **2. Summary**

- 2.1. Having reviewed the report the stratigrapher has confirmed our initial comments that there is a clear issue regarding the current extent of the geophysical and geotechnical data available to inform the design and execution of the cable burial along parts of the cable route within the protected areas. This might be critical if (for example) the Egmond Ground Formation is present within the range of the trench depth.
- 2.2. Whilst we agree that there is inevitably an iterative process in the acquisition of this data; the comments set out at point 3 (below) indicates that an improvement in understanding of these particular sectors is a priority in relation in relation to achieving confidence in the trenching methodology.
- 2.3. NB: The advice provided below should be considered alongside our previous advice provided at Deadline 6 [REP – 048].

## **3. Coverage**

- 3.1. Currently there are some substantial sections along the cable route that are within marine SACs or MCZs that have not been intrusively sampled and/or lack shallow seismic data because of the presence of strong surface or near-surface reflectors.
- 3.2. Given that some of these gaps could be interpreted as being underlain by the Egmond Ground Formation, and given that this may be cogent to the tooling assessment, a greater degree of certainty is needed in order to be confident of successful cable burial in these zones.

## **4. Lithologies**

- 4.1. Chalk: In terms of a geotechnical material, the Chalk has been treated as weathered and structureless, as is also suggested by the cone penetration tests. Nevertheless, where exposed on the foreshore between Weybourne and West Runton there is evidence of hard grounds, as well as horizons containing frequent large flints. These suggest that conditions could be quite variable and are hardly structureless. It may be that the foreshore exposures were originally overlain by glacially tectonised and weathered chalk that has been removed by

wave action. But remain uncertain that the Chalk will be in a weathered condition wherever it is encountered on the cable route. The lessons gained from the Rampion Project indicate that cabling could be installed successfully in trenches cut in unweathered chalk which (given the location and route) would have encountered hardgrounds and nodular chinks where the unconfined shear strengths of the rock are in the range of 10s of MPa as opposed to the maximum 500kPa indicated for the Hornsea route.

4.2. No comments on other lithologies.

## 5. Transects and assumptions regarding the underlying geology.

5.1. The limitations in the ground models have been noted. While it is clear that further investigations will improve the ground models, some comment should be made about the assumptions made along parts of these transects where the data remains limited.

- i) *Figure 4.3.* Shows the Bolders Bank Formation abutting the coast. One would therefore expect there to be an onshore correlate (Holkham Till Formation?) which might help to characterise this unit given its extensive distribution along the cable route.
- ii) *Figure 4.6.* Seems reasonable to infer the presence of the Bolders Bank Formation at the northern end of the section.
- iii) *Figure 4.8.* If it is the Egmond Ground Formation underlying the Bolders Bank Formation, then it appears that it would intersected by the trench and needs to be considered in the trenching feasibility assessments (tables 5.2 - 5.4). At present this unit does not appear to have been considered and since it is reported to have different properties to the Botney Cut and Bolders Bank formations (table 4.3), this may be cogent when considering the appropriate tooling for the work.
- iv) *Figure 4.9.* We don't believe that the interpretation makes sense. If the missing layer is the lower part of the Botney Cut Formation and it extends the full length of this sector, then it is underlying the Bolders Bank Formation – which would be a paradox – as everywhere else the Botney Cut Formation rests unconformably on the Bolders Bank and older formations. One possibility is that the missing layer is represented by the Egmond Ground Formation. If this were to be the case, then this would need to be addressed in table 4.3).
- v) *Figure 4.11.* Agreed – likely to be Egmond Ground Formation. Given that it is very shallow in places it again needs to be addressed in table 4.3.
- vi) *Figure 4.18.* On the basis of figure 4.20 could be Botney Cut or Bolders Bank formations, while the presence of the Egmond Ground Formation cannot be ruled out on the available evidence. Clearly needs physical sampling.
- vii) *Figure 4.19.* Comments as for figure 4.18 (above).

## **6. Remarks**

- 6.1. We would recommend that geotechnical, geophysical and geological data acquired through these surveys is deposited with the British Geological Survey where it would supplement other North Sea data and contribute to a much improved knowledge of the geology of the Quaternary and Holocene sediment of the North Sea. As this data accumulates, it will provide a much more reliable evidence base on which to judge risk and inform management of development and infrastructure in the North Sea.