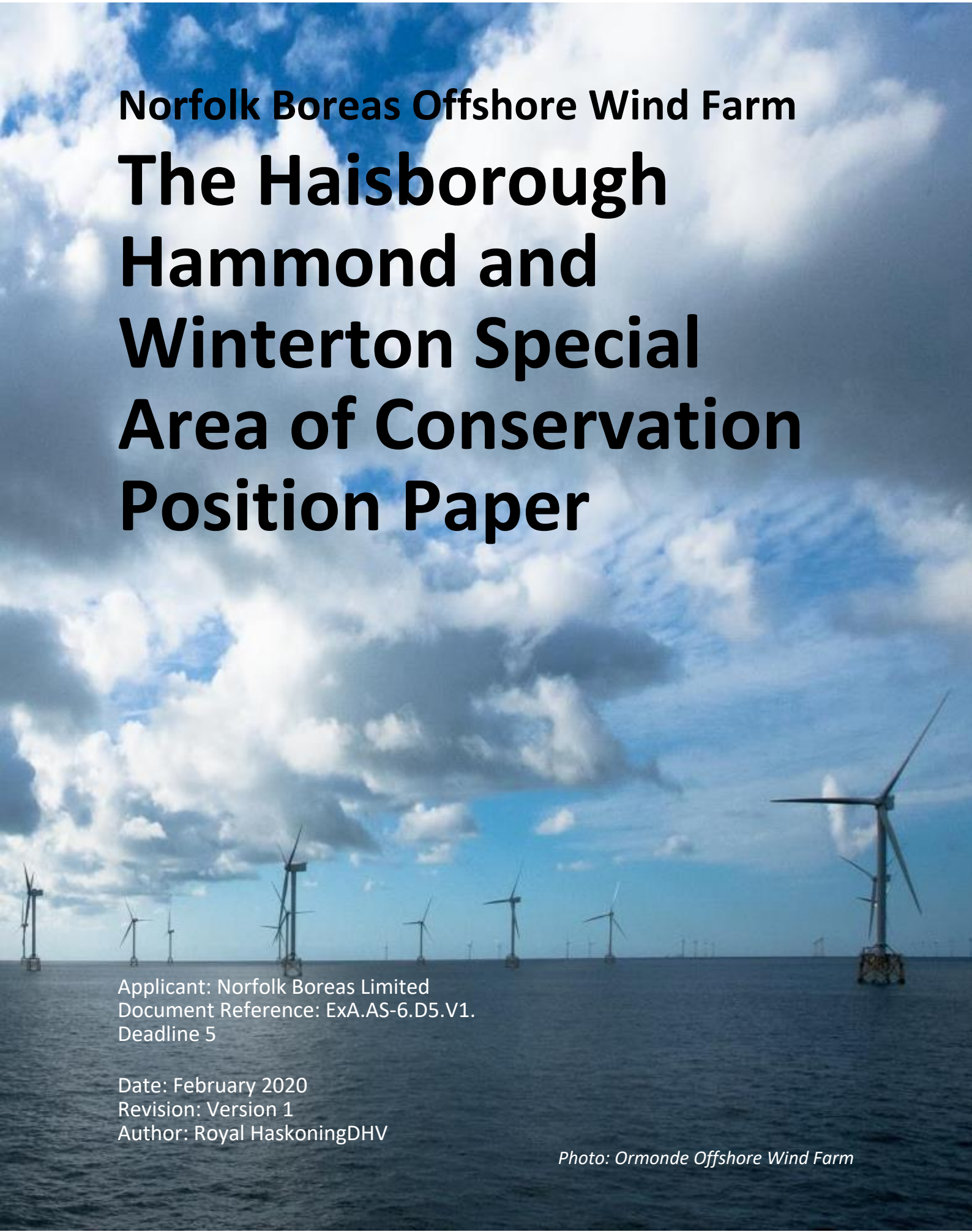
Royal HaskoningDHV
Enhancing Society Together

VATTENFALL

Norfolk Boreas Offshore Wind Farm

The Haisborough Hammond and Winterton Special Area of Conservation Position Paper



Applicant: Norfolk Boreas Limited
Document Reference: ExA.AS-6.D5.V1.
Deadline 5

Date: February 2020
Revision: Version 1
Author: Royal HaskoningDHV

Photo: Ormonde Offshore Wind Farm

Date	Issue No.	Remarks / Reason for Issue	Author	Checked	Approved
10/01/2020	01D	First Draft for internal review	DT/ES/CJ/VR	JL/AD	JL
26/01/2020	01F	First draft submitted at Deadline 5	DT	VR	JL

TABLE OF CONTENTS

1. Introduction

1. This paper sets out the position of Norfolk Boreas Limited ('The Applicant') that the Habitats Regulations Assessment (HRA) for Norfolk Boreas Offshore Wind Farm ('The Project') can conclude that there would be no Adverse Effect on Integrity (AEoI) on the Haisborough Hammond and Winterton (HHW) Special Area of Conservation (SAC).

2. The document provides responses to submissions made by Natural England and the Marine Management Organisation (MMO) (together with the Applicant termed "the parties") to the Norfolk Boreas Examination in particular:

   - Natural England's Relevant Representation [RR-099];
   - The MMO's Relevant Representation [RR-069];
   - Natural England's Advice on Cable Protection Assessment for Offshore Windfarms and Inclusion in Marine Licences - Draft Position Paper December 2019 [REP3-023];
   - Evidence provided by Natural England at Issue specific hearing 4 of the Norfolk Boreas Examination Offshore Effects including the draft Development Consent Order [REP4-043]

3. The Applicant's understanding of the current overall position of the parties is as follows:

   - **The Applicant**- As concluded in the Information to support HRA (document reference 5.3 of the application, APP-201) there would be no AEoI as a result of the Project. In summary, Natura 2000 sites are not strict nature reserves, but have an approach of sustainable use provided that activities carried out within the site do not affect the integrity of the site or the conservation status of the features[1]. The mitigation proposed by the Applicant ensures that the Project would not hinder achievement of the conservation objectives and that any impact would be *de minimis* or inconsequential in nature, such that there would be no AEoI. The Applicant does acknowledge that careful cable route planning will be required to achieve the proposed mitigation, especially where other constraints are present, however as demonstrated in the Applicant's clarification note on Optimising Cable Routeing through the HHW SAC [REP4-022] it would be achievable.
   - **Natural England**- recognise that the Applicant is moving in a positive direction in applying mitigation and reducing the impacts on the designated site features to a more acceptable level [REP4-038]. However, Natural England is currently not able to rule out AEoI [RR-099].

[1] https://ec.europa.eu/environment/nature/natura2000/index_en.htm

- **The MMO** defers to the opinion of the Statutory Nature Conservation Bodies (SNCBs) for conservation advice (Statement of Common Ground, AS-027).

4. There are four main topics on which the parties have not yet reached formal agreement. These are:

- Disturbance during cable installation;
- Cable protection;
- Disposal of seabed material; and
- Maintenance activities;

5. Sections 2 to 5 of this position statement consider each topic in turn.

6. Since the Information to support HRA Report [APP-201] was submitted, the Applicant, in consultation with Natural England, has undertaken work to refine the project envelope to reduce the worst case scenario and has also devised further mitigation. These further mitigation measures have been designed to give Natural England further comfort that a conclusion of no AEoI can be reached. These additional measures are shown in tracked changes in Version 2 of the outline HHW SAC SIP [REP1-034] and a further mitigation measure to install no cable protection in the priority areas to be managed as reef within the HHW SAC (as discussed at Issue specific hearing 4 [REP4-014] of the Norfolk Boreas Examination) will be included within an updated version of the HHW SAC SIP which will be submitted at Deadline 6.

1.1 The HHW SAC

7. The HHW SAC has been designated to protect two Annex I features:

- Sandbanks which are slightly covered by sea water all the time
- *Sabellaria spinulosa* reef

8. Section 4.1.1 of the HHW SAC SIP [REP1-034] provides a full description of the conservation objectives for the site. The overarching objectives are as follows (JNCC and Natural England, 2013):

- "Subject to natural change maintain the sandbanks in favourable condition, in particular the sub-features:
  - Low diversity dynamic sand communities
  - Gravelly muddy sand communities"; and
- "Subject to natural change maintain or restore the reefs in favourable condition".

9. It is agreed by the parties that it is not possible to know the extent to which *S.spinulosa* reef will exist within that part of the offshore cable corridor which overlaps with the HHW SAC at the point of construction. This is because:

- *S.spinulosa* reef is ephemeral;
- Fisheries management measures are proposed in certain parts of the HHW SAC, some of which partly overlap the offshore cable corridor. These management measures are designed to reduce the pressures on Annex I *S.spinulosa* reef, and therefore to facilitate recovery of the reef to fulfil the conservation objective for reef within the HHW SAC (as discussed further in section 2.1.1).

10. Both the Applicant and Natural England (in collaboration with JNCC) have undertaken separate mapping exercises which, although they have slightly different objectives, largely concur on where *S.spinulosa* has been consistently present and therefore is most likely to be present at the current point in time. The mapping undertaken by Envision Mapping Limited on behalf of the Applicant (APP-207) provides confidence that Annex I *S.spinulosa* reef can be avoided (as discussed further in section 2.1.1).

11. For Annex I sandbanks there is less uncertainty on their location at the point of construction as this will not have significantly changed from the present (as discussed further in section 2.1.1).

2. Disturbance during cable installation

12. In order to install up to two export cables required for Norfolk Boreas there would be some temporary disturbance to the seabed. The worst case scenario for the area of disturbance is described in section 7.3.3.4 of the information to support HRA Report [APP-201] and would be the result of a disturbed width of 30m along the length of each cable within the SAC (40km).

2.1 Micrositing Cable installation

2.1.1 For Annex I *S.spinulosa* reef

13. **The Applicant** considers that based on the understanding of where the location and extent of Annex I *S.spinulosa* reef is most likely to be (study completed by Envision mapping Limited, Appendix 7.2 of the information to support HRA Report [APP-207]) it would be possible to avoid Annex I *S. spinulosa* reef by micrositing around it. This understanding is underpinned by a site specific survey completed by the Applicant which focuses on the offshore cable corridor. This survey provided full geophysical data coverage and therefore provides a high level of certainty. As explained further below (paragraph 16.c), and notwithstanding the anticipated removal of fisheries pressures through the introduction of management measures, the Applicant

considers it unlikely that there will be a significant change in the location and extent of Annex I *S.spinulosa* reef, such that it would not then be possible to avoid it by micrositing during construction.

14. **Natural England** have concerns relating to the Envision study and advocate the use of work by Natural England and JNCC which has identified "areas to be managed as *S. spinulosa* reef" (Natural England's Relevant Representation [RR-099] Appendix 2 Benthos, App 2.3 Annex A NE/JNCC Site specific advice for Annex I habitat features). The "areas to be managed as *S.spinulosa* reef" do not represent the current extent of Annex I reef, but include large areas of seabed between and around locations where *S.spinulosa* reef has been recorded in the past. Two of these areas have been identified as top priority areas [Appendix 2.2, RR-099]. These are areas in which Natural England have the highest confidence that Annex I *S. spinulosa* reef is most likely to occur if fishing pressures are removed in the future. Both of the top priority areas overlap with the Norfolk Boreas offshore cable corridor. One of which is approximately 4km in length and spans the entire cable route, whilst the other is smaller and does not span the entire cable route (Figure 1).

15. Two fisheries management areas which partly overlap with the offshore cable corridor have been proposed with the intention of allowing the *S.spinulosa* reef to recover. The management areas have been designed to protect the priority areas (shown in dark purple in Figure 1). Natural England considers that, with the management of fishing pressures in these areas, it may be possible for reef to recover to such an extent that it will straddle the Norfolk Boreas offshore cable corridor in the larger location, such that it would not be possible for reef to be avoided by micrositing throughout the entire length of the cable corridor that lies within the HHW SAC [Appendix 2, RR-099].

16. The restore objective for the SAC and the defined "areas to be managed as reef" have been set using considerable precaution given that there is limited understanding of site condition and the location and extent of Annex I reef within the HHW SAC. This results in inherent precaution in impact assessments for the HHW SAC, which should be borne in mind when considering the potential impacts assessed and their potential to hinder the conservation objectives. In addition, the likely effect the proposed fisheries management measures might have on *Sabellaria* reef distribution and extent within the site is by no means certain, and there is little prospect, for example, that the proposed Defra offshore fisheries closure will be in place by the time the cables are due to be installed.

    a. There are three significant areas of precaution in the evidence underlying Natural England's advice on Annex I reef within the HHW SAC:
        i. In accurately defining the extent and distribution of Annex I reef;

ii. In determining the spatial extent of fishing activities within the site and their degree of impact on reef; and

iii. As to the current condition of Annex I habitat within the site, reflected in the need for indirect assessment by vulnerability rather than use of actual monitoring data on habitat condition.

This precaution, combined with the lack of prior environmental assessment of fishing activities and recent lack of control of fishing within the site, have led to the conservation objectives and Natural England's advice on operations for the SAC being overly precautionary - in particular:

- the 'recover' objective for Annex I reef (noting that the 2013 JNCC conservation objective for reef was to "maintain or recover", in acknowledgement of the lack of data to confirm whether a recover objective was indeed necessary); and
- the advice to avoid "areas to be managed as reef", as well as avoiding Annex I reef itself within the SAC.

That level of precaution in conservation objectives and advice on operations may be appropriate for *initial* advice on the conservation interests of the site and for management of marine activities that are not licensed to a particular location or subject to prior environmental assessment, such as fishing. However, it is over-precautionary in the context of the current application which relates to a defined area and is subject to prior assessment, additional data collection and mitigation.

b. **Extent and distribution of reef.** The "area to be managed as reef" (Natural England's Relevant Representation [RR-099] Appendix 2 Benthic Ecology 2.3 Annex A: JNCC/NE Site specific advice for Annex I habitat features, formal advice to MMO 11 Sept 2015.) was identified to aid in negotiations to protect areas of potential reef from bottom-contact fishing methods (principally trawling). It does not represent the extent of Annex I reef but identifies a maximum area within which *Sabellaria* reef has been recorded in some locations and seabed and sediment characteristics indicate potentially favourable conditions for reef to develop.

c. **Spatial extent and impact of fishing.** Available detailed data on fishing activity demonstrates that bottom-contact fishing activity in the offshore part of the HHW SAC is absent from most of the "area to be managed as *Sabellaria* reef" shown in Figure 1. The draft Defra Joint Recommendation policy document 2016, included as Appendix 2 of this document shows that the majority of fishing activity is concentrated on the sandbanks at the eastern edge of the SAC site (Figures on pages 65 to 69) and not in the central and eastern parts where *S.spinulosa* reef has been identified. This pattern of

fishing activity is also evidenced by the data presented in Figures 14.2 [APP-346] to 14.38 [APP-382] of the Commercial Fisheries chapter of the Norfolk Boreas ES. Therefore, the potential for recovery of Annex I *Sabellaria* reef in this location may be limited notwithstanding the removal of fisheries pressures.

d. **Recover objective** The 'recover' objective, and the 2019 assessment of condition of *Sabellaria* reef at the HHW SAC, are both based on a precautionary vulnerability assessment (Natural England Designated Sites View webpage [accessed 28/1/20]). This is based on the hypothesis that *Sabellaria* reef is sensitive to pressures resulting in physical damage to reef structures (resulting principally from bottom-contact fishing activities such as trawling in the HHW SAC); that the reef is exposed to such activity (i.e. it occurs in the same location as reef), and therefore concludes that the *Sabellaria* reef is vulnerable because it is both sensitive and exposed to such activity. The spatial extent of fishing activity data noted above indicates that offshore reef areas are not, in fact, significantly exposed to pressures from bottom-trawling as previously thought. Therefore, it should not be assumed that in this area extensive *Sabellaria* reef will ever actually develop in the "area to be managed as *Sabellaria* reef, whether fisheries management measures are implemented or not, or therefore that this will change the ability of the Applicant to avoid *Sabellaria* reef by micrositing at the point of construction.

17. Given the above levels of precaution underlying Natural England's advice, it is not proportionate to require activities such as cable installation, which are licensed to a specific area and subject to prior assessment and mitigation, to avoid these precautionary areas entirely on the grounds that Annex I *Sabellaria* reef *might* recover and increase its extent within the site *if* offshore fishing restrictions are in place before installation of cables proceeds. This is particularly relevant given the very small area (0.02%) of *potential* reef that could be temporarily impacted by the project in the worst case scenario and the strong evidence for rapid recolonization by *Sabellaria spinulosa* of suitable habitat following disturbance (Jackson & Hiscock 2008). It is also the case that even if such areas of Annex I reef *did* develop following the introduction of fisheries management measures, then the recover objective would no longer be justified as the extent of reef would have increased substantially, and therefore the relative effect of temporary disturbance would be even smaller.

18. In any event, the Applicant has committed to microsite the export cable to avoid Annex I *S.spinulosa* reef where possible. If this is possible, which the Applicant believes is the case based on existing data (The Envision mapping study [APP-207]), there would be no effect on Annex I *S.spinulosa* reef.

19. **Natural England** consider that within the fisheries management areas which are being proposed (the EIFCA Byelaw area and the Defra fisheries management measure area) there is a risk that Annex I reef may have recovered by the time Norfolk Boreas install export cables and therefore micrositing may not be possible within these areas.

20. The **Applicant** has noted above that there is considerable doubt whether the management measures proposed will significantly increase the extent of Annex I *S.spinulosa* reef within either the EIFCA Byelaw area or the Defra fisheries management area prior to cable installation, firstly because of the very low levels of fishing activity (as described in paragraph 16.c above) and secondly because the Defra management measure to prohibit bottom fishing methods in a large area of the HHW SAC beyond 12nm is unlikely to be in place before Norfolk Boreas cable installation. It is recognised by the Applicant that should the proposed EIFCA byelaw come into effect in 2020 as planned, it would protect the current extent of *S.spinulosa* reef from any fishing activity which could have occurred in that area if the bylaw had not been implemented.

2.1.2 Temporary disturbance

21. **The Applicant** has made a commitment in the Outline HHW SIP [REP1-033], that, should *S.spinulosa* reef span the entire cable route (which is very unlikely, see section 2.1.1 above), and micrositing is not achievable, the shortest possible route through the reef would be taken (information on how this could be achieved is presented within Appendix 1 of the outline HHW SAC SIP [REP1-033]). Therefore, minimising disturbance. The Applicant believes that there is sufficient evidence that any disturbed Annex I reef *S.spinulosa* reef would rapidly recover (Pearce et al 2007, Pearce et al 2014) meaning disturbance would be temporary.

22. **Natural England** do not believe that sufficient evidence has been presented to support these assumptions.

23. **The Applicant** considers that if *S. spinulosa* reef were to span the entire cable corridor preventing avoidance through micrositing, then the conservation objective of recover would not be compromised as in this scenario the area of impact in comparison to the total area of *S.spinulosa* reef would be so small as to be de minimus, therefore the small amount of temporary disturbance would not cause an AEoI (Section 7.4.2.1.1 of the Information to Support HRA [APP-201]).

24. Furthermore, there is sufficient evidence from the aggregates dredging industry to indicate that any impacts on Annex I reef would rapidly recover from cable installation. Studies have shown that established *S.spinulosa* reef rapidly recovers (within a matter of months to two years) after dredging operations (Pearce et al

2007). This coupled with evidence from Thanet offshore windfarm, that cable installation can increase *S.spinulosa* reef extent or lead to additional areas of reef becoming established within a similar time period (Pearce et al 2014), illustrates that there is sufficient evidence that recovery from installation of the Norfolk Boreas cables would occur.

2.2 For Annex I Sandbanks

2.2.1 Sandwave levelling vs increased maintenance

25. The **Applicant** is confident (due to site specific studies reported in the Environmental Statement - Appendix 5.2 Cable Installation Study [APP-548]) that sandwave levelling would allow cables to be installed within the bed reference level (depth at which the sand stops being mobile) and therefore drastically reduce, or even remove the need for any cable repair or reburial during the operation phase. However, the **Applicant** has maintained the option not to undertake sand wave levelling to allow for the eventuality that sandwave levelling within the SAC is not permitted as part of the consent.

26. **Natural England** (2018) Offshore wind cabling: ten years' experience and recommendations report contains evidence that cable burial is often more difficult to achieve than anticipated by developers and therefore it may become exposed even if sandwave levelling does occur during construction.

27. **The Applicant** has proposed further mitigation measures to ensure that the material dredged from the seabed as part of the sandwave levelling is disposed of in a way that promotes recovery of the sandbanks. This is further described in section 4 below.

3. Cable protection

28. Cable protection could be required for two reasons. Firstly, to protect the Norfolk Boreas export cables as they cross existing infrastructure (pipelines and cables) and secondly to protect Norfolk Boreas export cables where optimum burial cannot be achieved. These are considered separately below.

3.1 Cable protection at crossings

29. **The Applicant's position** is that the area impacted as a result of cable crossings would be small (no more than 0.012km^2) and therefore the potential impacts would be *de minimis*. The Applicant is seeking agreement with cable owners and operators to ensure that disused cables (of which there are four within the SAC that would be crossed by the Norfolk Boreas export cables) could be cut allowing the Norfolk Boreas export cables to be buried. This would reduce the requirement for cable protection. The Applicant has been provided with a letter of comfort from the owner

of these four disused cables which confirms that agreement will soon be reached that these cables can be cut. This would reduce the amount of cable protection installed at cable crossings within the SAC to an area of 0.004km^2 therefore reducing the possible effects of habitat loss.

30. **Natural England's position** is that cable protection associated with crossings would be placed in areas which have already been altered due to existing infrastructure and therefore as long as the Applicant continue to work to minimise the area affected as much as possible this would not contribute to an AEoI of the SAC.

3.2 Protection where optimum cable burial has not been achieved

31. During the Evidence Plan Process **Natural England** advised the Applicant to include contingency for the deployment of cable protection where it is not been possible to bury the cable to the optimum depth.

32. **The Applicant** included contingency within the project design envelope that assumed a highly precautionary value of 10% of the cable which may not be buried to the optimum depth (and therefore would require protection). An interim cable burial report has been undertaken (Appendix 2 of the SIP, REP1-033) which concludes that it is likely that cable burial will be possible throughout the SAC. However, the study suggests that a precautionary 5% figure should be maintained. Accordingly, the Applicant has reduced the amount of cable protection within the design envelope from 10% to 5%. It should be noted however that the 5% figure is still considered precautionary given the interim cable burial report concludes that cable burial will be possible throughout the SAC.

33. **Natural England** have welcomed this reduction, but have said that it will not change their advice (RR-099) regarding AEoI due to effects of cable protection.

34. **The Applicant** is confident that through this reduction and the further mitigation described in section 3.2.1, the potential adverse effects of cable protection on the Annex I habitats of the HHW SAC have been avoided and reduced such that recovery[2] of the Annex I *Sabellaria* reef would not be hindered. The Applicant considers that there is scientific evidence that restoration of extent and distribution of *Sabellaria spinulosa* Annex I reef would not be hindered (section 3.2.1) and the

[2] The conservation objectives for qualifying habitats of HHW SAC are to ensure that, subject to natural change, the integrity of the site is maintained or restored as appropriate, and that the site contributes to achieving the Favourable Conservation Status of its qualifying features, by maintaining or restoring [[inter alia]:

- the extent and distribution of qualifying natural habitats
- the structure and function (including typical species) of qualifying natural habitats
- the supporting processes on which qualifying natural habitats rely (Natural England Designated Sites webpages [accessed 28/1/20]

structure and function of the Annex I Sandbanks within the SAC (section 3.2.3) would not be affected.

3.2.1 For Annex I *S.spinulosa* reef

35. **The Applicant's position** is that installation of cable protection, if required, over a maximum of 5% of the cable length within the HHW SAC site would not constitute an AEoI of the HHW SAC in terms of physical loss of Annex I *Sabellaria spinulosa* reef for the following reasons (a to e):

    a. In the unlikely scenario of needing to use cable protection over 5% of the cable route (see paragraph 32), it is very likely that *S.spinulosa* would colonise the installed cable protection. Whilst the Applicant acknowledges Natural England's position that such structures could not be considered Annex I reef as they would be on artificial substrate, they would provide spawning stock of *S. spinulosa* which would help to ensure re-establishment of reef on nearby natural substrates where reef may be damaged due to natural degeneration or due to other marine activities (Jackson & Hiscock 2008). Colonisation of artificial structures as well as natural substrates following disturbance has been recorded following aggregate dredging in the southern North Sea and Channel (Pearce et al. 2007; Newell & Woodcock 2013);

36. **Natural England's** response is:

    a. Natural England's general advice is that no cable protection should be placed within the SAC (Advice on Cable Protection Assessment for Offshore Windfarms and Inclusion in Marine Licences [REP3-023]) as it represents a permanent impact (unless it can be proven that decommission is possible in which case it would be a lasting or persistent impact).

    b. Natural England also state that they recognise that *S.spinulosa* could colonise cable protection, but Natural England does not consider this to be Annex I reef (Natural England's Relevant Representation). "*Whilst Natural England (and other SNCBs) agree that Sabellaria spinulosa could colonise rock protection we consider the establishment of Sabellaria spinulosa reef on artificial substrate as not "counting" towards favourable condition of the feature and/or site".* Natural England also consider that "*All Annex I habitats have equitable protection; therefore it is not appropriate to trade one habitat in a site for another. For example, if the site is designated for both sandbanks and reef and rock protection is placed on the sandbank feature and then Sabellaria reef colonises this rock protection it cannot be considered as a*

benefit to the site that you have taken one feature in the site and swapped it for another." [RR-099].

37. The **Applicant's response** is to note that Natura 2000 sites are not strict nature reserves, but have an approach of sustainable use provided that activities carried out within the site do not affect the integrity of the site or the conservation status of the features[3]. The precautionary advice on the extent of areas to be managed as Annex I habitats within the site(Annex A, NE/JNCC advice to MMO 15th Sept 2015, which is included as Appendix 2.3 of Natural England's Relevant Representation [RR-099]), represents a maximum extent of qualifying habitats for the HHW SAC, and includes margins around known occurrences of both sandbank and reef habitat to allow for inclusion of supporting habitat and uncertainties in location and extent of qualifying features. Natural England's current position that the whole site is made up of habitats that support designated feature, with no site fabric (except where there are old pipelines) [REP4-043] appears to go beyond protecting the conservation status of the features for which the site is designated.

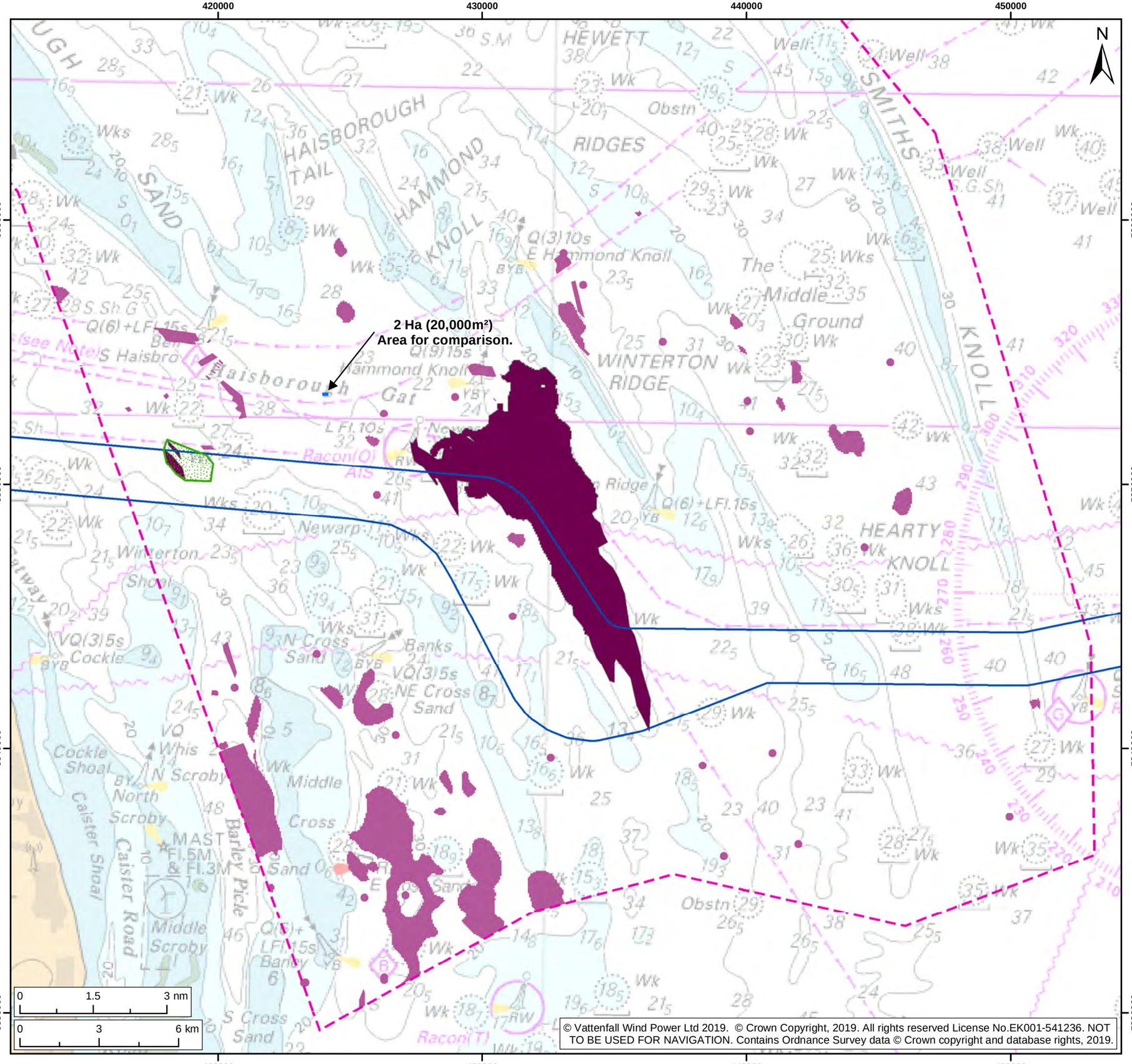
    b. The cable route through the HHW SAC was selected to coincide with the least amount of Annex I habitats (and therefore enable avoidance of) – both sandbanks and reef.

    c. The Applicant has completed a review of possible areas where cable protection might be required (Appendix 3 of the updated outline Haisborough Hammond and Winterton SAC Site Integrity Plan [RE1-033]), with the result that none of these areas overlap with any of the "areas to be managed as Annex I" *Sabellaria* reef (see paragraph 14 for further explanation). Therefore, permanent physical loss of potential Annex I reef habitat would not occur due to the deployment of cable protection (should it be required in the HHW SAC at all);

    d. The area to be managed as *S.spinulosa* within the HHW SAC is approximately 88.3km^2. The maximum area that would be occupied by cable protection within the HHW SAC at 5% of the total cable length within the SAC would be 0.02km^2 or 20,000m^2. Although there is likely to be no overlap, the area of cable protection would be less than 0.023% of the size of the areas to be managed as *S.spinulosa* reef. A size comparison of this is shown in Figure 1 below.

38. Taking into account the above mitigation, there is clear evidence to support the conclusion that the project will not hinder recovery in the priority areas, where Natural England have the highest confidence of recovery.

[3] https://ec.europa.eu/environment/nature/natura2000/index_en.htm



Legend:

- Offshore cable corridor
- EIFCA Byelaw
- Haisborough, Hammond and Winterton SAC[1]
- Top priority areas to be managed as *S. spinulosa* reef[2]
- Area to be managed as *S. spinulosa* reef (Natural England)[2]
- Area for comparison (20,000m²)

[1] JNCC, 2019.
[2] Natural England/MALSF, 2013/2011

Project:	Report:
Norfolk Boreas	The Haisborough Hammond and Winterton Special Area of Conservation Position Paper

Title:

Geographical illustration of maximum area or cable protection

Figure: 1 | Drawing No: PB5640-008-004-004

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	10/02/2020	JT	DT	A3	1:145,000
01	16/01/2019	GC	DT	A3	1:145,000

Co-ordinate system: ETRS 1989 UTM Zone 31N **EPSG:** 25831

VATTENFALL

Royal HaskoningDHV
Enhancing Society Together

39. **Natural England** recognise that the work undertaken by the Applicant to demonstrate that the likely areas of cable protection would avoid the priority[4] areas to be managed as *S.spinulosa* reef gives more confidence that reef will be avoided [RE4-038], however unless there is a firm commitment, consider that this should not be treated as mitigation.

40. **The Applicant** is therefore proposing further mitigation through a new commitment to use no cable protection in the "*Priority areas to be managed as S. spinulosa Annex I reef*" within the HHW SAC (Figure 1), unless otherwise agreed with the Marine Management Organisation (MMO) in consultation with NE[5]. The Applicant has also undertaken an assessment of the potential effects of cable protection on the SAC taking into account the new proposed mitigation. The Assessment is provided in Appendix 1 of this document, and has taken account of Natural England's advice on Small scale impacts (Appendix 2.6 of Natural England's Relevant Representation [REP1-057]. As discussed above the Applicant is in an advanced position in agreeing with one of the cable owners that four of the disused cables within the HHW SAC can be cut and removed, rather than using cable protection as required at a crossing. Therefore, the number of crossings within the HHW SAC will be reduced from six down to two, dramatically reducing the overall amount of cable protection that will be required for cable crossings.

41. **Natural England's** position is that the Applicant has taken all possible measures to limit the effects of cable protection on Annex I *S.spinulosa* reef however as stated above Natural England have concerns about any cable protection being placed within an SAC.

42. **The MMO's position** is that they defer matters relating to assessment of adverse effect on integrity to Natural England. The MMO require that any additional cable protection placed in new areas during the operation phase of the project should be subject to a separate marine licence [RR-069]. The MMO propose to publish a position paper on this point in due course.

43. In response the **Applicant** has amended the Offshore Operations and Maintenance Plan (OOOMP) [REP1-028] to make it clear that a separate marine licence would be required for the deployment of additional cable protection in new areas, therefore resolving this issue.

[4] The term "priority" area has been used by the Applicant as this is the term used in Natural England's relevant representation [RR-069]. These are the areas in which Natural England have "high confidence" that reef will recover.

[5] The caveat of "unless otherwise agree with the MMO and Natural England is to allow for the possibility that the priority areas to be managed as Sabellaria reef may not be effective and reef may not have established within them at the time of construction.

3.2.2 Additional points of note

44. *Sabellaria spinulosa* is acknowledged to be a widely distributed and common species, it is only when it forms extensive reef structures formed by dense settlement of individuals that it is of conservation interest. Natural England states that the Applicant only provides evidence of *S. spinulosa* individuals colonising cable protection within the HRA (RR-099), however the Applicant has provided at least two references for *S. spinulosa* Annex I reef colonising cable protection (Tillin, H.M. & Marshall, C.M. (2015) and Holt, T.J., Rees, E.I., Hawkins, S.J., & Reed, R. (1998)).

45. **The Applicant** also notes that although the target for the HHW SAC is to restore the extent of Annex I *S.spinulosa* reef, the assessment of the condition of the feature[6] states:

It is not possible to provide a reliable estimate of the area of this feature that may be in unfavourable condition due to the ephemeral nature of the reef, …..

46. Therefore, it is not clear at what point it could be concluded that the restore objective has been met. Should reef have recovered to an extent that it occupied all of the areas to be managed as S.*spinulosa* reef, then the Applicant considers that the restore objective would have been met and exceeded as that would constitute 88km^2 or 6% of HHW SAC site, thus containing some of the biggest extents of *S.spinulosa* reef ever found.

47. **Natural England's** response is that once the restore objective has been met this would convert to a maintain objective, and that as a matter of principle cable installation would not be in line with a maintain objective in any event.

48. **Natural England** also have the concern that the pre-construction surveys, the findings of which are to be used in the final cable routing will occur too late in the pre-construction process to allow the Applicant to be able to effectively microsite, or even that the Applicant will not know until these surveys whether micrositing is possible.

49. **The Applicant** has made a new commitment in Version 2 of the outline HHW SAC SIP [REP1-034] to an interim survey to map the extent of *S.spinulosa* reef within the cable corridor. This will be completed in 2020 and will allow the Applicant to develop its core reef approach and undertake preliminary cable route design.

[6] https://designatedsites.naturalengland.org.uk/MarineCondition/publicFeatures.aspx?SiteCode=UK0030369&SiteName=hais&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

3.2.3 For Annex I Sandbanks

50. The **Applicant's** position is that there is high confidence that the project will not have AEoI for the following reasons:

    a. Cable burial to the optimum depth (e.g. to the seabed reference level) is highly likely to be possible in the Sandbanks as this is where the most mobile sediment is located and therefore cable protection will not be required in these areas

    b. The area occupied by cable protection due to inability to bury to the optimum depth would be small (no more than 20,000m^2) equating to less than 0.003% of the Area to be managed as Sandbank within the SAC;

    c. Although it could, in a worst case scenario overlap with "areas to be managed as Annex I Sandbanks" (Appendix 3 of the SIP, [REP1-033]) this overlap would be small and during the final route design stage it may be possible to avoid overlap altogether; and

    d. As the height of the cable protection would be no more than 0.5m high, this would not affect the form and function of Sandbanks. Sandbanks would continue to migrate across the cable protection and the associated communities would establish once protection is covered.

    e. As discussed above the applicant is in advanced discussions with the owners of four disused cables within the SAC and will be able to reduce the number of cable crossings (and therefore cable protection) from six down to two, thus reducing the area of cable protection associated with crossing points from 0.012km^2 to 0.004km^2.

51. **Natural England's** response is:

    a. Natural England is concerned that the introduction of hard material will result in a permanent change (if cable protection cannot be decommissioned) or lasting change (if protection can be decommissioned) to the sandbank communities.

    b. While Natural England recognise that the area may be quite small-scale in relation to the whole SAC site, it considers that the amount of rock is still large and could impact ecological functioning and therefore needs to be considered in relation to the conservation objectives for the site. Natural England's view, therefore, is that impacts are not *de minimis*.

52. The **Applicant's** position is that the maps from Natural England showing potential areas to be managed as Annex I sandbank are overly precautionary, as they are a

result of the possible length of towlines of fishing gear rather than actual locations of the Annex I sandbanks. This should only be used for protection from fisheries rather than to restrict the installation of export cables.

53. The **Applicant** has also made the commitment to cut all disused cables within the SAC rather than constructing a cable crossing using cable protection. As discussed above the Applicant has recently received a letter of comfort from the cable owner which secures the ability to reduce the amount of cable crossings within the SAC from six down to two. Furthermore, the Applicant has undertaken a detailed market review of cable protection which could be decommissioned at the end of the project if this would reduce the effect on the SAC. The results of the review are positive and may result in the Applicant committing to decommissioning of all cable protection (apart from at cable crossings) within the SAC.

3.3 Natural England's Advice on Cable Protection Assessment for Offshore Windfarms and Inclusion in Marine Licences

54. The Applicant has reviewed Natural England's Advice on Cable Protection Assessment for Offshore Windfarms and Inclusion in Marine Licences - Draft Position Paper December 2019 [REP3-023]. The Applicant considers that even though this advice has been provided post submission of the Norfolk Boreas application, the assessment undertaken in the Information to Support HRA does comply with the advice given.

4. Disposal of seabed material

55. As discussed above the Applicant wish to undertake sandwave levelling in order to install export cables within the SAC at a depth which would ensure they remain buried. In order to undertake this, up to 500,000m^3 of sediment would need to be dredged from within the HHW SAC (see section 7.3.3 of the information to support HRA Report [APP-201]).

4.1 For Annex I sandbanks

56. The **Applicant** has maintained the option to dispose of seabed material dredged during cable installation within a discrete site within the SAC or along the cable route in multiple disposal locations (or one single linear site).

57. **Natural England** state in their Relevant Representation (RR-099) that:

"*In order to ensure the ongoing form and function of the sandwaves and sandbank system is perpetuated, the dredged material would ideally be disposed of nearby and up-drift (i.e. to the south) from the proposed levelling works*."

58. The **Applicant** has therefore made a post application commitment, should sandwave levelling be permitted, to dispose of material along the cable route, as close as possible to the area from which it was dredged and up drift of the dredged area. Furthermore, the applicant has committed to disposing of any dredged sediment within the SAC using a fall pipe. This will ensure accuracy of disposal. A hierarchical approach would be used to implement these conditions. This is provided in section 5.4 of the outline HHW SAC SIP [REP1-034].

4.2 For Annex I *S.spinulosa* reef

59. **Natural England** advised during the preparation of the Norfolk Vanguard HHW SIP [REP9-028 of the Norfolk Vanguard Examination] that disposal of any seabed material which had been dredged from the seabed should be at least 50m from any *S.spinulosa* reef.

60. **The Applicant** has agreed to this mitigation in its application and this was stated in the original HHW SIP [APP-711].

61. As stated in **Natural England's** Relevant Representation "*for offshore designated sites the appropriate buffer is normally 500m and therefore further justification for a reduced buffer should be considered to ensure a consistent approach across sites and industry*".

62. **The Applicant** considers that the introduction of a new commitment to dispose of material using a fall pipe from the dredging vessel will ensure accuracy of disposal and allow the applicant to be confident in maintaining the 50m buffer.

5. Maintenance activities

63. Maintenance activities that might be required within the HHW SAC include repair of cables should a fault occur and reburial of cable should it become exposed. The worst case scenario for both of these maintenance actives is included within section 7.3.3 of the Information to Support HRA report [APP-201].

64. **The Applicant** has proposed sandwave levelling to ensure that the cables are buried to the optimum depth, therefore reducing the amount of cable protection required and the number or repair and reburial events.

65. **Natural England** requested that sufficient contingency was included within the assessment for repair and reburial as sandwave levelling may not be permitted and even if it is Natural England's view is that the cable may not remain buried.

5.1 Repairs and reburial

66. **The Applicant** has included a highly precautionary estimate of the number of export cable repairs and reburial events which may be required during the project's life

span. These have been estimated using a worst case assumption that there would be no sandwave levelling. Given the area which would be affected and the known migration rate of sandwaves, the assessment concludes that there would be no AEoI (section 7.4.1.1.2 of the Information to support HRA Report [APP-201]).

67. **Natural England** believes that there is insufficient evidence of sandwave levelling successfully reducing the need for reburial to rule out AEoI due to multiple repair work [RR-099].

6. The use of Site Integrity Plan (SIP) and a Grampian Condition.

68. **The Applicant's** position is that an AEoI can be ruled out now based on the worst case scenario presented within the Information to support HRA (document reference 5.3, [APP-201]).

69. **Natural England's** position is that an AEoI cannot be ruled out at this stage.

70. **The Applicant** recognises that Natural England do not share the same position as the Applicant and have therefore produced the HHW SAC SIP and an associated Grampian condition. This was proposed with the aim of providing confidence that there would be no AEoI on the HHW SAC notwithstanding the ephemeral nature of *S.spinulosa* reef and its potential for recovery within the HHW SAC before cable installation (as a result of fisheries management measures). The MMO and NE have concerns with the Grampian condition associated with the SIP which requires the Applicant to demonstrate that there will be no AEoI on the HHW SAC post consent to the satisfaction of the MMO in consultation with Natural England.

71. The Applicant has not and is not proposing to defer an Appropriate Assessment through the use of a Grampian condition. A full Information to support Habitats Regulations Assessment (HRA) Report has been provided with the application [APP-201] which concludes, with no reliance on the Grampian condition, that there is no adverse effect on integrity. Whilst it is correct that the final number and precise route of the cable has yet to be determined, the HRA has been undertaken on the basis of a worst case scenario.

72. As is explained above, with the mitigation secured in the SIP, and not in reliance on the Grampian condition, the Applicant's position is that the project will not hinder or impede the restore objective for the HHW SAC, and any residual impacts are therefore *de minimis* and inconsequential.

73. The extent of future recovery of the Annex I *S. spinulosa* reef , and therefore its future location at the point of cable installation, cannot be known during the consenting process. The intention of the SIP and the Grampian condition is, therefore, to provide a mechanism to verify that assessments undertaken now

remain accurate at the point of cable installation. This is no different to conditions which have previously required verification of assessments at the point of construction to confirm avoidance of Annex I habitats.

74. Given the context that the Grampian condition is seeking to verify previous assessments, there is every prospect that the Grampian condition can be discharged in the timescales for DCO implementation. The Applicant has undertaken a number of studies to give confidence that the mitigation proposed can be delivered with certainty; as outlined above to, for example, support the reduced amount of cable protection, and to support the commitment not to use cable protection in priority areas.

75. The Applicant does not consider that the use of the SIP and Grampian condition for the HHW SAC is any different to the concept and principle of using a site integrity plan for the Southern North Sea SAC (SNS SAC). In both cases, it will not be known until construction whether any impacts will actually arise in practice. The fact that this relates to in-combination piling impacts in the case of the SNS SAC, or to the extent of recovery of the Annex I *S. spinulosa* reef in the case of the HHW SAC is immaterial. In both cases a number of mitigation measures are proposed by the Applicant and, in the case of the HHW SAC, irrespective of the extent of reef recovery in the intervening period, the Applicant considers that the impacts will be *de minimis* and will not impede the restore objective.

76. The Applicant also considers that if Natural England and the MMO's position was to be accepted, it would never be possible to rule out adverse effect on integrity for any project which had an effect on *S. spinulosa* reef due to its ephemeral nature. This is of course not the intention of the Habitats Regulations which seeks to ensure that sustainable development is not precluded from European sites.

77. Notwithstanding the above, and whilst the Applicant considers that the Grampian condition and the use of the SIP is appropriate, given that the Applicant is confident that a conclusion of no AEoI can be made pre-consent, particularly in light of the mitigation proposed, the Applicant (following the approach of Norfolk Vanguard) is proposing an alternative to secure the mitigation for cable installation and cable protection in the HHW SAC. This alternative condition requires a Cable Specification, Installation and Monitoring Plan (CSIMP) for the HHW SAC to be submitted to the MMO (in consultation with NE) in advance of commencement of licensed activities. The HHW SAC CSIMP would contain all the mitigation currently contained within the outline SIP for the HHW SAC, save for references to the requirement for the MMO to be satisfied that the mitigation continues to avoid AEoI post consent. In addition, the alternative plan would deal with the matters usually contained in a cable specification, installation and monitoring plan post consent (as identified in

condition 9(1)(g)(i) to (iv) of the DMLs (Schedule 11-12)). The Applicant proposes to submit an outline of the HHW SAC CSIMP at Deadline 6.

78. The Applicant is content to offer this alternative condition because the Applicant is confident that the mitigation secured in the alternative plan will enable the Secretary of State to rule out AEoI at the consenting stage. However, in view of Natural England's current concerns, the Applicant cannot remove the HHW SAC SIP and Grampian condition. The Applicant therefore proposes to include two alternative conditions to be considered by the Examining Authority and the Secretary of State. In the event that the Secretary of State concludes that there is no AEoI, the following alternative condition could be taken forward in any as-made Order:

"9(1) The licensed activities or any part of those activities must not commence until the following (as relevant to that part) have been submitted to and approved in writing by the MMO …

(m) A cable specification, installation and monitoring plan for the installation and protection of cables within the Haisborough, Hammond and Winterton Special Area of Conservation which accords with the principles set out in the outline Norfolk Vanguard Haisborough, Hammond and Winterton Special Area of Conservation Cable Specification, Installation and Monitoring Plan such plan to be submitted to the MMO (in consultation with the relevant statutory nature conservation body) at least six months prior to commencement of licensed activities."

79. The following amendment to condition 9(1)(g) is also proposed to clarify that the Cable Specification, Installation and Monitoring Plan referred to in condition 9(1)(g) applies outside of the HHW SAC only:

"9(1) The licensed activities or any part of those activities must not commence until the following (as relevant to that part) have been submitted to and approved in writing by the MMO

(g) A cable specification, installation and monitoring plan for the installation and protection of cables outside of the Haisborough, Hammond and Winterton Special Area of Conservation, to include

[(i) to (iv) to remain as currently drafted]"

80. The Applicant proposes to include the above drafting within the next version of the dDCO alongside the current HHW SAC SIP condition. The Applicant will also include an outline of the HHW SAC CSIMP.

7. Summary

81. In summary the Applicant considers that based on the best available scientific evidence, AEoI on the HHW SAC can be ruled out. The primary reasons for this position are:

- SACs are not strict nature reserves, but have an approach of sustainable use provided that activities carried out within the site do not affect the integrity of the site or the conservation status of the features.
- The mitigation proposed by the Applicant ensures that the Project would not hinder achievement of the conservation objectives and that any impact would be *de minimis* or inconsequential in nature, such that there would be no AEoI.
- The Applicant does acknowledge that careful cable route planning will be required to achieve the proposed mitigation, especially where other constraints are present, however as demonstrated in the Applicant's clarification note on Optimising Cable Routeing through the HHW SAC [REP4-022] and due to the existing mapping work, the Applicant is very confident that this is achievable.

82. The Applicant recognises that Natural England do not have the same opinion and therefore has been working with them to commit to further mitigation to reduce any residual risk. The Applicant has made new commitments in the post application stage and has continued to make further commitments during the Examination. Although Natural England and the MMO have welcomed these additional commitments Natural England have not changed their overall position and maintain that AEoI cannot be ruled out.

83. Natural England point to fisheries management measures which they consider will allow *S.spinulosa* reef to recover by increasing its extent and that this may reduce or remove the Applicant's ability to microsite around the reef. The timescales of one of these management measures (the Defra area, which represents the greatest overlap with the Norfolk Boreas export cable corridor within the SAC) are uncertain and it is not yet determined whether this will be ratified prior to the construction phase. Even if this should be the case, the Applicant is still confident that due to the low levels of fishing that currently occur within the HHW SAC that the measures will not result is a significant change in fishing pressure and therefore will not result in a significant change to the Applicant's ability to microsite around Annex I *S.spinulosa* reef.

84. Natural England recognise that the Applicant has mitigated as far as is reasonably possible effects of cable protection on Annex I *S.spinulosa* reef, however they have outstanding concerns with regards to the potential effects on Annex I sandbanks. The Applicant is working to reduce possible effects on Sandbanks by reducing the number of cable crossings to be constructed and working towards a commitment to

decommission cable protection installed where cable burial to the optimum level has not been possible. Natural England also have outstanding concerns relating to the possible effects of cable installation on both Annex I *S.spinulosa* reef and Annex I sandbanks.

85. The HHW SAC SIP and Grampian condition was proposed by the Applicant with the aim of providing confidence that there would be no AEoI on the HHW SAC on the basis that construction could not commence until the MMO is "*satisfied that the plan provides such mitigation as is necessary to avoid adversely affecting the integrity*".

86. Whilst the Applicant considers that the Grampian nature of the condition is appropriate, noting the MMO and NE's concerns but recognising the Applicant's confidence that a conclusion of no AEoI can be made pre-consent (particularly in light of the additional mitigation provided), the Applicant is proposing an alternative approach to securing the mitigation for cable installation and cable protection in the HHW SAC. This alternative condition requires a CSIMP for the HHW SAC to be submitted to the MMO (in consultation with NE) in advance of commencement of licensed activities.

87. The HHW SAC CSIMP and the HHW SAC SIP both provide the same suite of mitigation measures which will be agreed with the MMO in consultation with NE post consent, and the Applicant proposes to submit these documents at Deadline 6.

8. References

Defra 2016 Joint Recommendation Policy Document available from https://lbst.dk/fileadmin/user_upload/NaturErhverv/Filer/Fiskeri/Natura_2000_hav/Fiskeriregulering_i_andre_lande/WORKING_Draft_NNSSR_HWW_Joint_Recommendation_v0.7.pdf [accessed 29/1/20]

Natural England (2018) Offshore wind cabling: ten years' experience and recommendations available at: https://infrastructure.planninginspectorate.gov.uk/wpcontent/ipc/uploads/projects/EN010080/EN010080-001240-Natural%20England%20-%20Offshore%20Cabling%20paper%20July%202018.pdf

Jackson, A. & Hiscock, K. 2008. *Sabellaria spinulosa* Ross worm. In Tyler-Walters H. and Hiscock K. (eds) Marine Life Information Network: Biology and Sensitivity Key Information Reviews, [on-line]. Plymouth: Marine Biological Association of the United Kingdom. [cited 29-01-2020]. Available from: https://www.marlin.ac.uk/species/detail/1133

Natural England Designated Sites View webpage available at: https://designatedsites.naturalengland.org.uk/Marine/SupAdvice.aspx?SiteCode=UK0030369&SiteName=hais&SiteNameDisplay=Haisborough%2c+Hammond+and+Winterton+SAC&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=&NumMarineSeasonality=0 [accessed 28/1/20]

Newell, R.C. and Woodcock, T.A. (Eds.). 2013. Aggregate Dredging and the Marine Environment: an overview of recent research and current industry practice. The Crown Estate, 165pp ISBN: 978-1-906410-41-4

Pearce, B. Taylor, J. & Seiderer, L.J., 2007. MAL0027 Recoverability of *Sabellaria spinulosa* following aggregate extraction. Marine Aggregate Levy Sustainability Fund. 68-75pp In: Marine Aggregate Dredging: Helping to Determine Good Practice. Marine Aggregate Levy Sustainability Fund (ALSF) Conference Proceedings September 2006. (Eds. R.C.Newell & D.J.Garner). Cefas, Lowestoft

Pearce, B., Fariñas-Franco, J. M., Wilson, C., Pitts, J., deBurgh, A., & Somerfield, P. J. (2014). Repeated mapping of reefs constructed by *Sabellaria spinulosa* Leuckart 1849 at an offshore wind farm site. Continental Shelf Research, 83, 3-13. https://doi.org/10.1016/j.csr.2014.02.003

Appendix 1 Assessment of Additional Mitigation in the Haisborough, Hammond and Winterton Special Area of Conservation

1. Introduction

1. In response to discussions between the Applicant and Natural England and a letter dated 6 December 2019 from BEIS to Norfolk Vanguard Limited, further mitigation measures to address the potential effects of cable protection on the features of the Haisborough, Hammond and Winterton (HHW) Special Area of Conservation (SAC) have been proposed by Norfolk Boreas Limited and Norfolk Vanguard Limited.

2. In order to understand the effectiveness of this additional mitigation, Natural England (NE) has requested further assessment is undertaken. This document contains the requested assessment which should be considered in addition to that provided in the original Norfolk Boreas Information to Support Habitats Regulations Assessment (HRA) report (document 5.3, [APP-201]).

3. A description of the mitigation measures is provided in section 2, the proposed approach to the assessment is provided in section 3 and the assessment of effects is provided in section 5.

2. Proposed New Mitigation Measures

4. As set out in the updated outline Haisborough Hammond and Winterton (HHW) Special Area of Conservation (SAC) Site Integrity Plan (SIP) (updated version submitted at Deadline 6, document reference 8.20) and the Applicant's Written Summary of the Applicant's Oral Case at Issue Specific Hearing 4 [REP4-014], a new commitment has been made by the Applicant to use no cable protection in the "*priority areas to be managed as S. spinulosa Annex I reef*" identified by NE within the HHW SAC (Figure 1), unless otherwise agreed with the Marine Management Organisation (MMO) in consultation with NE.

5. The areas to be managed as *S. spinulosa* Annex I reef have formed the basis for fisheries management measures within the HHW SAC. As a result, two fisheries management areas have been proposed to manage the areas where *S. spinulosa* reef is most likely to recover. One of the management areas has been proposed by Defra and one by the Eastern Inshore Fisheries and Conservation Authority (IFCA)) both of which, if implemented, would partly overlap with the Project offshore cable corridor.

6. The management areas have been identified with the aim of enabling the priority areas[7] to be managed as *S. spinulosa* Annex I reef to recover to favourable condition

[7] The term "priority" area has been used by the Applicant as this is the term used in Natural England's relevant representation [RR-069]. These are the areas in which Natural England have "high confidence" that reef will recover.

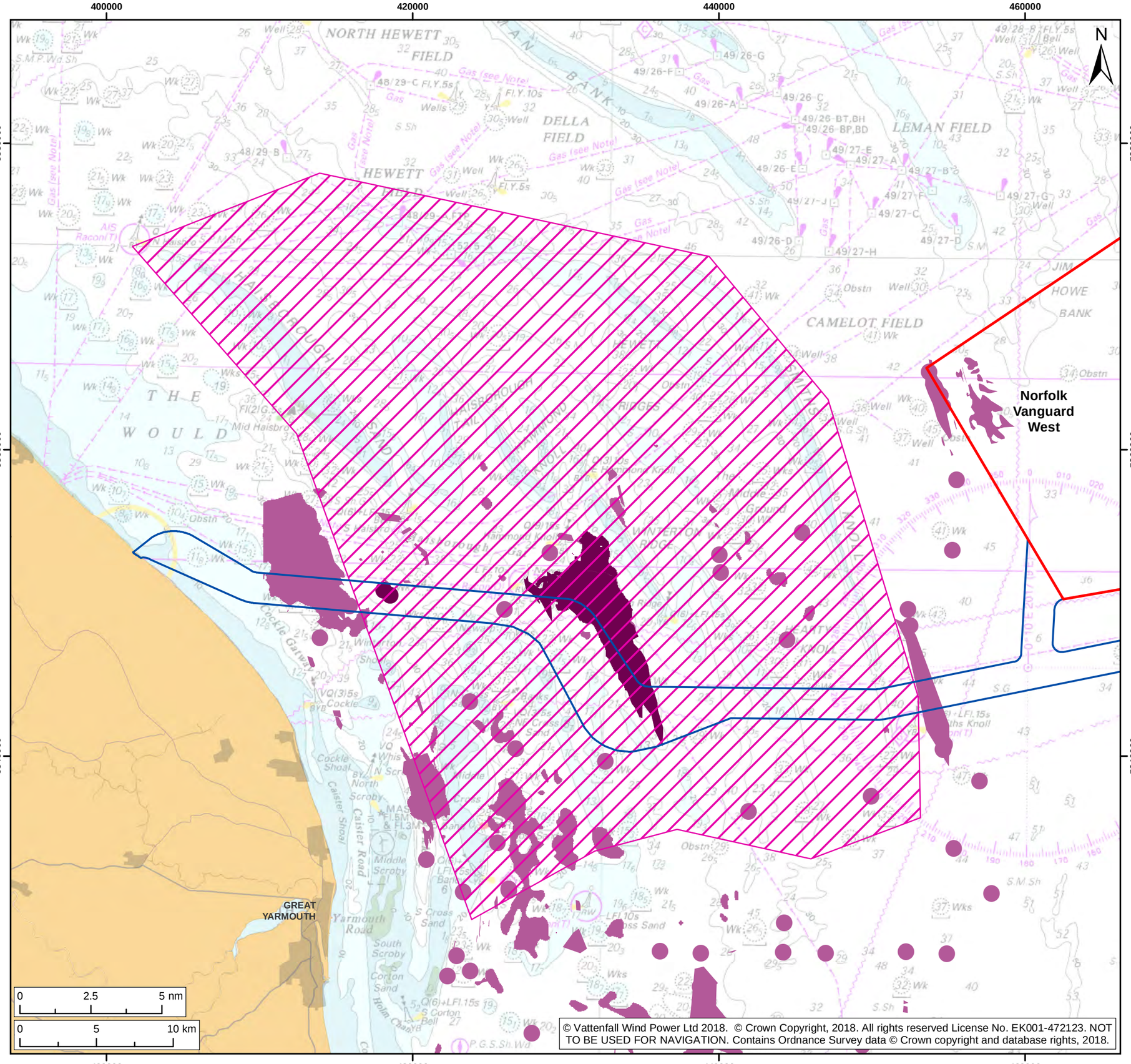
in accordance with the Conservation Objectives for the site (section 4). These areas have been identified by Natural England as areas with high confidence that the existing reef will increase in extent if the recurring impact from bottom towed fishing gear ceases in these areas.

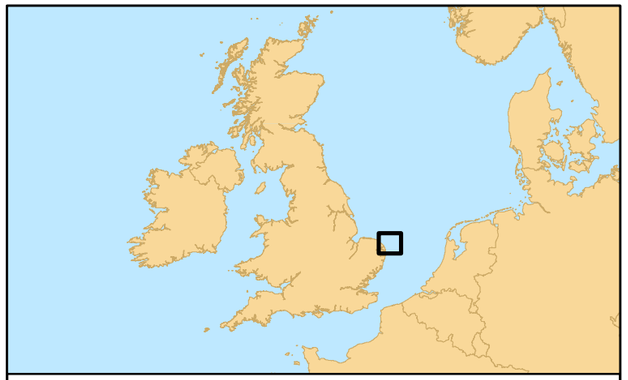
7. As stated in the MMO's submission at Deadline 6 of the Norfolk Vanguard Examination [REP6-030], fisheries management measures in offshore waters (beyond 12 nautical miles) must be agreed by other Member States with an active interest in the site. With regards to the Defra fisheries management area, at the time of writing this designation does not appear to have progressed since a draft recommendation[8] was produced by Defra in 2016 (Appendix 2) and there is a high level of uncertainty that this designation will progress in advance of Norfolk Boreas construction (proposed to commence in 2025). Agreement has not been reached with the Member States for the proposed management area and therefore the likelihood of this management measure being successfully implemented appears to be low. The timescale for this management measure is therefore highly uncertain and likely to be many years away. It is therefore unlikely that any existing fishing (albeit low levels, see section 2.1.1 in the main document) pressure will be removed and therefore that any *S. spinulosa* Annex 1 reef will have restored in this management area, at the point at which cable protection for the Project is installed.

8. Based on the EIFCA's Deadline 2 submission (REP2-069), the Applicant understands the proposed small byelaw area in the inshore part of the Norfolk Boreas offshore cable corridor is currently in a period of review by the MMO and Defra and could be implemented in late 2020, if accepted. It is however noted that there is limited fishing activity at the proposed EIFCA byelaw area (see section 2.1 of the main document) and therefore, should this byelaw be implemented, it is uncertain whether there will be a significant change in the habitat condition and extent of *S. spinulosa* Annex I Reef.

   The Interim Cable Burial Study submitted by the Applicant (Appendix 3 of the HHW SAC SIP, [REP1-033]) (Likely Cable Protection Locations) provides evidence that cable protection will not be required in the priority areas to be managed as *S. spinulosa* Annex I reef, illustrating that the areas where it is more likely that cable protection may be required are outside of the areas to be managed as reef. The findings of this study are reflected in Figure 2 and Figure 3 of this document. However, the commitment to use no cable protection in the priority areas to be managed as reef within the HHW SAC is further mitigation proposed by the Applicant at Deadline 4 and not previously offered by Norfolk Vanguard Offshore Wind Farm.

8 https://lbst.dk/fileadmin/user_upload/NaturErhverv/Filer/Fiskeri/Natura_2000_hav/Fiskeriregulering_i_andre_lande/WORKING_Draft_NNSSR_HWW_Joint_Recommendation_v0.7.pdf





Legend:

- Norfolk Vanguard
- Offshore cable corridor
- Haisborough Hammond and Winterton Special Area of Conservation (SAC)[1]
- Priority areas to be managed as *S. spinulosa* reef[2]
- Potential areas to be managed as *S. spinulosa* reef[2]

[1] JNCC, 2019
[2] Natural England/MALSF, 2013/2011

Project:	Report:
Norfolk Boreas	Assessment of Additional Mitigation in the Haisborough, Hammond and Winterton Special Area of Conservation

Title: Areas Identified by Natural England to be managed as *S.spinulosa* reef

Figure: 1 | Drawing No: PB4476-009-008-001

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
01	27/01/2020	JT	GK	A3	1:250,000

Co-ordinate system: ETRS 1989 UTM Zone 31N **EPSG:** 25831

VATTENFALL

Royal HaskoningDHV
Enhancing Society Together

3. Approach to Assessment

3.1 Overview

9. The further assessment in this document of the HHW SAC in relation to cable protection has been undertaken based on the additional mitigation measure being proposed by the Applicant (described in section 2).

10. At this stage, a worst case assumption has been used that any cable protection would not be decommissioned and has therefore would cause a permanent habitat loss however, the potential for decommissioning to further lessen the effect of cable protection is being actively explored by the Applicant in light of decommissioning (see paragraph 53 of the main document). The Applicant will keep NE informed of the progress with this further research however this work is unlikely to materially effect the outcome of this assessment.

11. The approach to the assessment is set out below. This follows an approach agreed with NE through Norfolk Vanguard's HHW SAC position statement (document reference: NE;11.D10A) provided to NE during consultation between Norfolk Vanguard Limited and NE on the letter dated 6 December 2019 from BEIS to Norfolk Vanguard Limited.

12. An assessment of the effect of habitat loss of *S. spinulosa* Annex I reef and Annex I sandbanks is provided. This is the only effect that is of relevance to the new mitigation; avoidance of cable protection in the areas to be managed as *S. spinulosa* Annex I reef.

13. The Applicant maintains the position that there will be no AEoI on the Annex I Sandbank feature of the HHW SAC as a result of cable protection and this position is outlined in section 5.2.

14. It is noted that an assessment of permanent habitat loss on *S. spinulosa* Annex I reef was not provided in the original Norfolk Boreas Information to Support HRA report (document 5.3 [APP-201]) due to the Applicant's position that cable protection can be colonised by *S. spinulosa* reef and that this would provide the same function in terms of biodiversity and is therefore not a loss of habitat. However, it is acknowledged that NE's position is that whilst *S. spinulosa* can be expected to colonise cable protection, this is not on a natural substrate and therefore NE does not consider this an Annex I Habitat (Natural England's generic position on cable protection, submitted at Deadline 4 of the Norfolk Boreas Examination). As a result, the assessment provided in section 5.1 considers habitat loss of Annex I Reef as a worst case scenario.

15. Where cable protection is required due to pipeline / cable crossings this will not be treated as Annex I habitat in the assessment in accordance with NE's advice that *S. spinulosa* reef growing on artificial substrate is not Annex I reef and in accordance with NE's Pre 22nd January 2020 Issue Specific Hearing Updated Benthic Ecology Advice, which states *"Natural England is less concerned about cable crossing points compared to un-impacted areas, as it is unlikely for reef to be present."* [REP4-038].

3.2 Approach

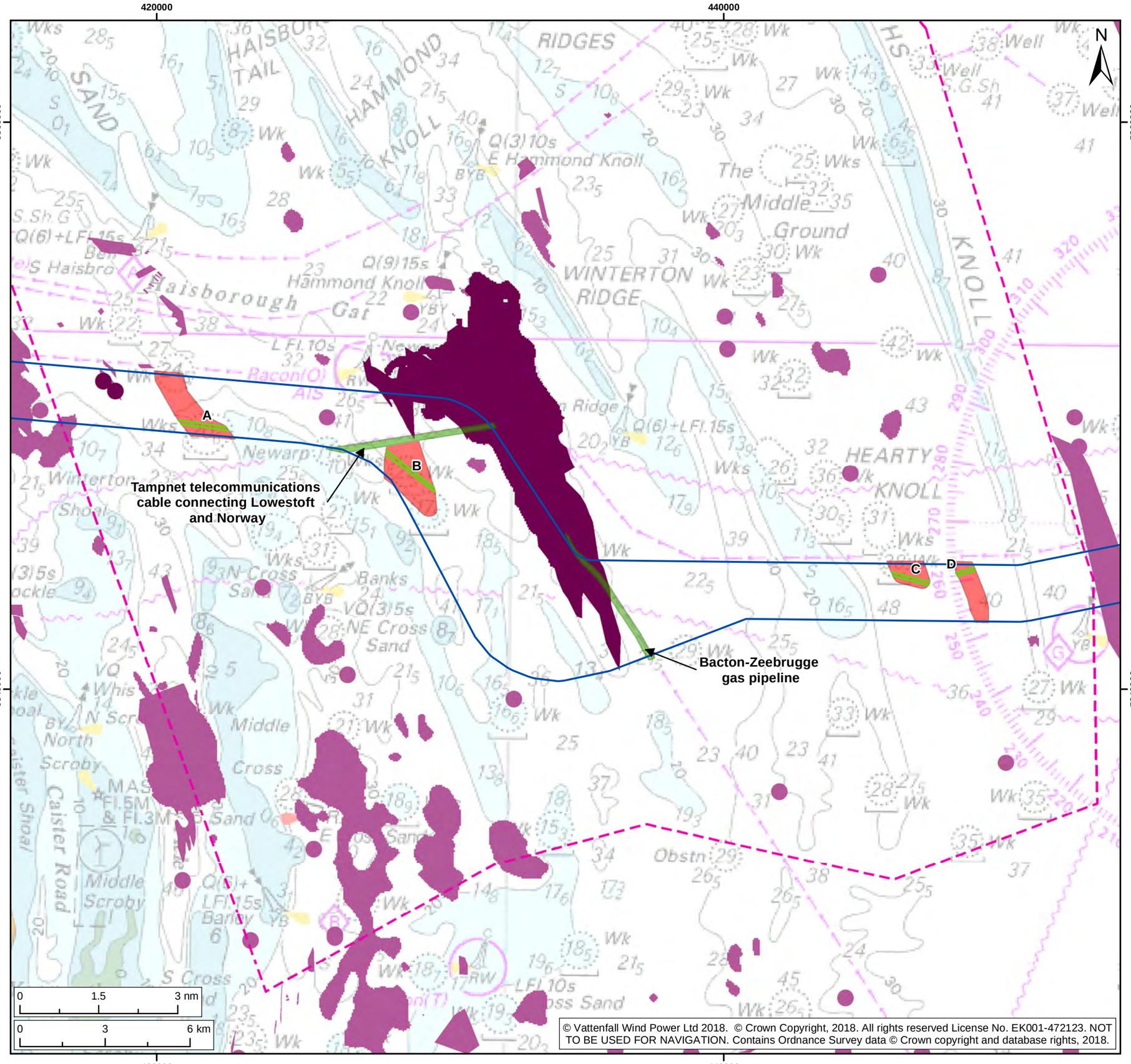
16. In accordance with the 'Natural England advice note regarding consideration of small scale habitat loss within SACs in relation to cable protection' submitted at Deadline 1 (REP1-057), the assessment will consider the following:

- Location of the predicted habitat loss in terms of whether it overlaps a designated or supporting feature of the site;
- Duration of the loss;
- Scale of the loss in relation to the feature / sub feature of the site including consideration of the quality and rarity of the affected area;
- Impact on structure, functioning or supporting processes of the habitat;
- Feature condition; and
- Existing habitat loss within the same site/ feature/ sub feature.

17. The advice from NE also states that whilst there are no 'hard and fast' rules or thresholds, in order for NE to advise that there is no likelihood of an adverse effect the project would need to demonstrate the following:

- That the loss is not on the priority habitat/feature/ sub feature/ supporting habitat; and/or
- That the loss is temporary and reversible (within guidelines above); and/or
- That the scale of loss is so small as to be *de minimus* alone; and/ or
- That the scale of loss is inconsequential including other impacts on the site/ feature/ sub feature.

18. The assessment has also considered the Conservation Objectives (section 4) and targets within the Supplementary Advice for the HHW SAC and uses areas identified by NE to be managed as Reef (Figure 2) and areas to be managed as Sandbank (Figure 3) as the baseline for the assessment.



Legend:

- Offshore cable corridor
- Zones where cable protection could be required
- Zones where cable protection could be required due to infrastructure
- Haisborough Hammond and Winterton Special Area of Conservation (SAC)[1]
- Priority areas to be managed as *S. spinulosa* reef[2]
- Potential areas to be managed as *S. spinulosa* reef[2]
- Indicative cable route

[1] JNCC, 2019
[2] Natural England/MALSF, 2013/2011

Project:	Report:
Norfolk Boreas	Assessment of Additional Mitigation in the Haisborough, Hammond and Winterton Special Area of Conservation

Title:

Indicative cable protection locations and Area to be managed as Sabellaria reef

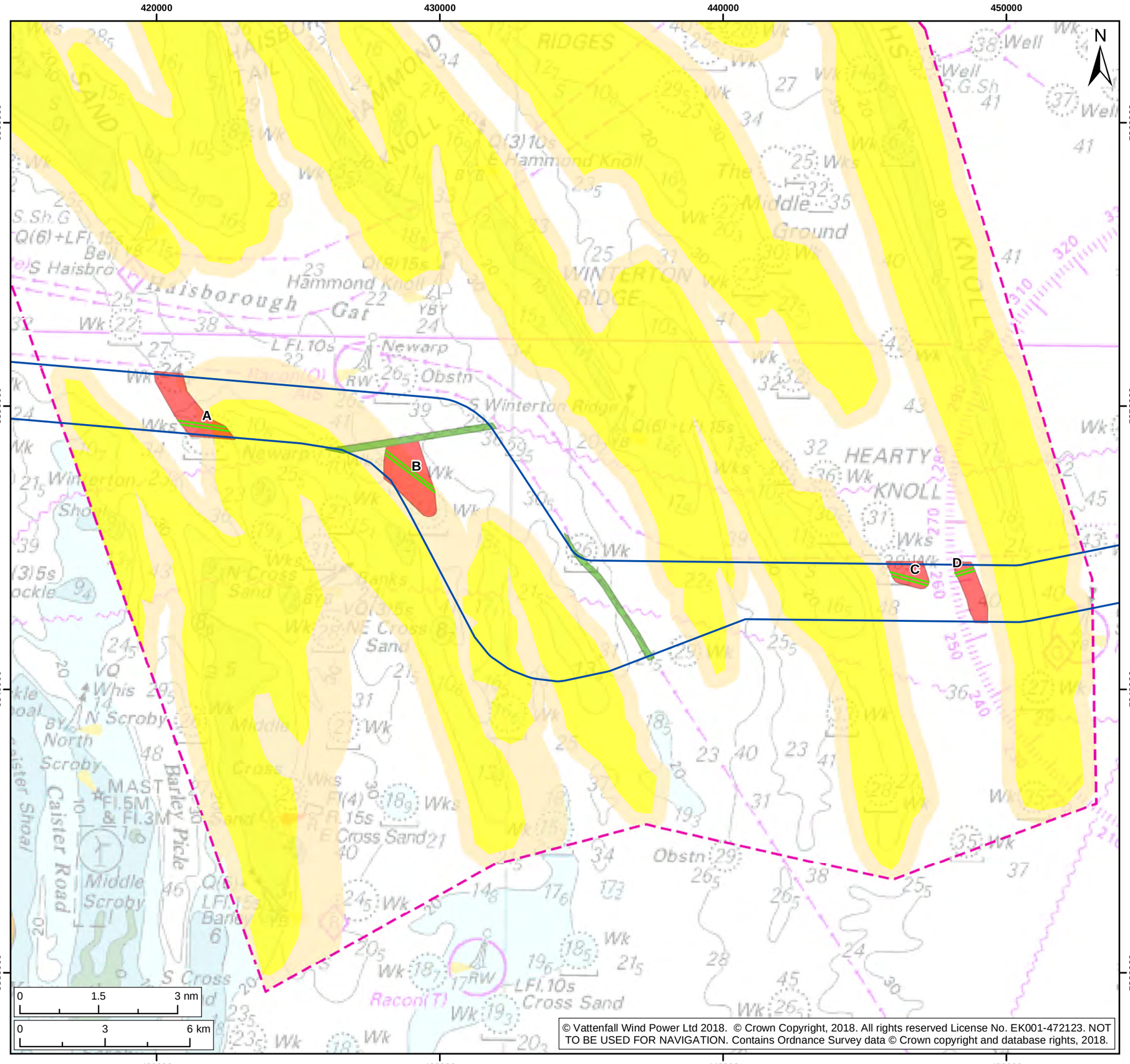
Figure: 2 | Drawing No: PB4476-009-008-002

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
01	27/01/2020	JT	GK	A3	1:135,000

Co-ordinate system: ETRS 1989 UTM Zone 31N **EPSG:** 25831

VATTENFALL

Royal HaskoningDHV
Enhancing Society Together



Legend:

- Offshore cable corridor
- Zones where cable protection could be required
- Zones where cable protection could be required due to infrastructure
- Haisborough Hammond and Winterton Special Area of Conservation (SAC)[1]
- Indicative cable route

Areas to be managed as sandbanks which are slightly covered by seawater at all times[2]

- Annex 1 Sandbank Area
- Potential Annex 1 Sandbank

[1] JNCC, 2019.
[2] JNCC, 2016.

Project:	Report:
Norfolk Boreas	Assessment of Additional Mitigation in the Haisborough, Hammond and Winterton Special Area of Conservation

Title: Indicative cable protection locations and areas to be managed as sandbanks which are slightly covered by seawater at all times.

Figure: 3 | Drawing No: PB4476-009-008-003

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
01	27/01/2020	JT	ES	A3	1:135,000

Co-ordinate system: ETRS 1989 UTM Zone 31N **EPSG:** 25831

VATTENFALL

Royal HaskoningDHV
Enhancing Society Together

3.3 Cable Protection Worst Case Scenario

19. The worst case scenario for deployment of cable protection incorporates the new mitigation outlined in section 2 in addition to the various mitigation commitments made prior to submission of the DCO application, as well as commitments made during the ongoing Norfolk Boreas Examination (see below).

20. The Applicant committed to use an HVDC export solution in order to reduce the number of cables and cable protection. This results in the following mitigating features in relation to cable protection:

- There will be two cable installations instead of six for Norfolk Boreas (and the same for Norfolk Vanguard);
- The potential quantities of cable protection in the unlikely event that cables cannot be buried is reduced due to the reduction in the number of cables; and
- The number of export cables required to cross existing cables and pipelines and the associated cable protection is reduced; and
- The space required for cable installation is reduced, increasing the space available within the cable corridor for micrositing to increase burial success and avoid constraints such as *S. spinulosa* reef.

21. An interim survey in 2020 and pre-construction survey within 12 months of any cable installation works will be undertaken. Data from Norfolk Vanguard pre-construction surveys are also likely to be available to inform the Norfolk Boreas project. The detailed cable route, including micrositing will be determined based on the results of the interim and pre-construction surveys and must be agreed with the MMO in consultation with NE before any installation works can commence.

22. Cables will be buried where the substrate allows burial to a depth of at least 1m and appropriate burial tools will be selected following the preconstruction surveys in order to maximise cable burial success and minimise the requirement for cable protection.

23. A maximum of 5% of the cable length within the HHW SAC may require cable protection due to insufficient ground conditions for burial. This is reduced from 10% in the original DCO application (and used in the Information to support HRA report [APP-201]) based on evidence from an interim cable burial study (provided in Appendix 2 of the HHW SAC Site Integrity Plan (document 8.20 [REP1-033]).

24. The Applicant has been in discussion with one of the cable owners and is progressing an agreement that four of the disused cables within the HHW SAC can be cut and removed, rather than using cable protection to create a crossing. Therefore, the number of crossings within the HHW SAC will be reduced from six down to two, dramatically reducing the amount of cable protection that will be required for cable

crossings. This assessment has been conducted on the basis that this agreement is completed such that this additional mitigation can be secured.

25. Total habitat loss within the HHW SAC could be up to 24,000m^2 (0.024km^2) based on the following:

- 4,000m^2 as a result of up to two crossings for each of the export cable pairs (four crossings in total) within the HHW SAC. Each crossing could require up to 100m length and 10m width of protection.
- 20,000m^2 as a result of up to 5% of the cable length in the SAC (2km of cable protection per cable pair, 4km in total) potentially requiring cable protection in the unlikely event that unsuitable ground conditions are encountered. A 5m width of cable protection could be required. **If required, this would only be deployed outside the priority areas to be managed as reef in the HHW SAC.**

4. Conservation Objectives

4.1 Overview

26. Conservation objectives are set to ensure that, subject to natural change, the integrity of the site is maintained or restored as appropriate, and that the site contributes to achieving the Favourable Conservation Status of its qualifying features, by maintaining or restoring:

- The extent and distribution of qualifying natural habitats and habitats of the qualifying species;
- The structure and function (including typical species) of qualifying natural habitats;
- The structure and function of the habitats of the qualifying species;
- The supporting processes on which qualifying natural habitats and habitats of qualifying species rely;
- The population of qualifying species;
- The distribution of qualifying species within the site

4.2 Favourable condition

27. 'Favourable Condition' is the term used in the UK to represent 'Favourable Conservation Status' for the interest features of SACs. For an Annex I habitat, Favourable Conservation Status occurs under the Habitats Directive when (JNCC and Natural England, 2013):

- Its natural range and area it covers within that range are stable or increasing;

- The specific structure and functions, which are necessary for its long-term maintenance, exist and are likely to continue to exist for the foreseeable future; and
- The conservation status of its typical species is favourable.

28. Favourable condition of the sandbanks and reefs is assessed based on the long-term maintenance of the following (JNCC and Natural England, 2013):

- Extent of the habitat (and elevation and patchiness for reef);
- Diversity of the habitat;
- Community structure of the habitat (population structure of individual species and their contribution to the functioning of the habitat); and
- Natural environmental quality (e.g. water quality, suspended sediment levels).

4.2.1 Targets for achieving Favourable Condition

4.2.1.1 Annex I *S. spinulosa* reef

29. Natural England's Supplementary Advice Targets[9] for Annex I Reef are outlined in Table 4.1.

Table 4.1 Supplementary Advice Targets of Relevance to Norfolk Boreas

Attribute	Target
Distribution: presence and spatial distribution of biological communities	Restore the presence and spatial distribution of reef communities.
Extent of subtidal biogenic reef	When Sabellaria reef develops within the site, its extent and persistence should not be compromised by human activities, accepting that, due to the naturally dynamic nature of the feature, its extent will fluctuate over time.
	Restore the total extent and spatial distribution and types of reef (and each of its subfeatures).
Structure and function: presence and abundance of key structural and influential species	Maintain OR Recover OR Restore the abundance of listed species, to enable each of them to be a viable component of the habitat.
Structure: non-native species and pathogens	Restrict the introduction and spread of non-native species and pathogens, and their impacts.
Structure: population density	Restore the density of Sabellaria species across the feature.
Structure: species composition of component communities	Restore the species composition of component communities.
	Restore the species composition of the Sabellaria reef community.
Supporting processes: areas with conditions suitable for reef formation	Restore the environmental conditions in those locations that are known, or which become known, to be important for Sabellaria reef formation.
	Maintain the natural rate of sediment deposition.

9 https://designatedsites.naturalengland.org.uk/Marine/SupAdvice.aspx?SiteCode=UK0030369&SiteName=haisborough&SiteNameDisplay=Haisborough%2c+Hammond+and+Winterton+SAC&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

Attribute	Target
	Maintain natural levels of turbidity (e.g. concentrations of suspended sediment, plankton and other material) across the habitat.
	Maintain the natural water flow velocity to the subtidal Sabellaria reefs, to provide high levels of oxygen, sediment supply and food.

4.2.1.2 Annex I Sandbank

30. Natural England's Supplementary Advice Targets for Annex I Sandbank are outlined in Table 4.1.

Table 4.2 Supplementary Advice Targets of Relevance to Norfolk Boreas

Attribute	Target
Distribution: presence and spatial distribution of biological communities	Restore the presence and spatial distribution of subtidal sandbank communities.
Extent and distribution	Restore the total extent and spatial distribution of subtidal sandbanks to ensure no loss of integrity, while allowing for natural change and succession.
Structure and function: presence and abundance of key structural and influential species	Maintain OR Recover OR Restore the abundance of listed species, to enable each of them to be a viable component of the habitat.
Structure: non-native species and pathogens	Restrict the introduction and spread of non-native species and pathogens, and their impacts.
Structure: sediment composition and distribution	Restore the distribution of sediment composition across the feature (and each of its sub-features).
Structure: species composition of component communities	Restore the species composition of component communities.
Structure: topography	Maintain the presence of topographic features, while allowing for natural responses to hydrodynamic regime, by preventing erosion or deposition through human-induced activity.
Structure: volume	Maintain the existing (where no previous evidence exists) or best-known (where some evidence exists) volume of sediment in the sandbank, allowing for natural change.
Supporting processes: sediment movement and hydrodynamic regime	Maintain all hydrodynamic and physical conditions such that natural water flow and sediment movement are not significantly altered or prevented from responding to changes in environmental conditions.

5. Assessment of Effects

5.1 Permanent Loss of Annex I Reef

31. As stated in section 3, the assessment focuses on the effect of habitat loss only as this is the only effect that is of relevance to the new mitigation; avoidance of cable protection in the areas to be managed as *S. spinulosa* Annex I reef by NE. All other effects are assessed in the Information to Support HRA report (document 5.3 [APP-201]).

32. As discussed in section 3.3, micrositing will be undertaken to avoid *S. spinulosa* reef where possible and therefore it is highly unlikely that there would be any cable protection in areas of *S. spinulosa* reef and therefore there will be no loss of existing reef. Based on current data there is likely to be space to microsite cables through existing reef, as recognised in NE's Relevant Representation for Norfolk Boreas which states "*Whilst Natural England understands that on the basis of survey data at this point there should be room to microsite around reef in cable corridor, we note that this may not be the case pre construction.*"

33. The Applicant acknowledges the potential for *S. spinulosa* to extend prior to construction but notes that the basis for this would largely be as a result of fisheries management measures in the priority areas to be managed as reef which the Applicant has now committed to avoiding for cable protection.

5.1.1 Location of habitat loss

34. There will be no loss of an Annex I priority natural habitat[10] as a result of cable protection as there are no priority natural habitats within the HHW SAC.

35. The potential location of habitat loss due to the cable protection required within the HHW SAC is indicated in Figure 2, showing that the areas where cable protection may be required are outside areas to be managed as *S. spinulosa* Annex I Reef. NE and JNCC have identified these areas of potential *S. spinulosa* reef habitat as a management measure in order to meet the conservation objectives for Annex I reefs, as they consider those are areas where there is high confidence that *S. spinulosa* has potential to increase in extent if damaging pressures (i.e. from bottom towed fishing gear) are removed. Therefore, if these areas are avoided, the cable protection cannot hinder the achievement of the conservation objective of maintain or restore the *S. spinulosa* Annex I reef to a favourable condition. Therefore, this ensures that any small scale permanent loss of habitat within the SAC would be inconsequential to the conservation objectives of Annex I reef.

5.1.2 Duration of habitat loss

36. As it is currently assumed that any cable protection would not be decommissioned, the habitat loss within the SAC would be permanent, should cable protection be required. The Applicant is actively exploring the potential to decommission cable protection to further lessen the potential effect.

[10] As stated in the Habitats Directive, priority natural habitat types means natural habitat types in danger of disappearance, which are present on the territory referred to in Article 2 and for the conservation of which the Community has particular responsibility in view of the proportion of their natural range which falls within the territory referred to in Article 2; these priority natural habitat types are indicated by an asterisk (*) in Annex I of the Habitats Directive;

37. Despite there being a permanent effect associated with the placement of cable protection, there will be no loss of areas to be managed as *S. spinulosa* Annex I reef. Therefore, NE's management measures will not be impacted and targets for achieving the conservation objectives of *S. spinulosa* Annex I reef will not be hindered.

5.1.3 Scale of habitat loss

38. As discussed above, micrositing will be undertaken to avoid *S. spinulosa* reef where possible and therefore it is highly likely that there will be no loss of existing reef. Based on current data there is likely to be space to microsite cables through existing reef, as recognised in NE's Relevant Representation for Norfolk Vanguard [RR-106 of the Norfolk Vanguard Examination]. The Applicant acknowledges the potential for *S. spinulosa* to recover prior to construction but notes that the basis for this would largely be as a result of fisheries management measures and it remains highly uncertain whether this will lead to increased levels of *S. spinulosa* prior to cable installation, as discussed previously (see section 2.1.1 of the main document).

39. As demonstrated in section 5.1.1 of this Appendix there will be no permanent loss of areas to be managed as *S. spinulosa* Annex I reef, therefore the scale of loss would not be significant, and any loss would not prevent achievement of the conservation objectives for *S. spinulosa* Annex I reef within HWW SAC.

40. With regards to *S. spinulosa* Annex I reef outside the areas to be managed as reef, the Application has committed to micrositing around any *S. spinulosa* Annex I reef identified during the pre-construction surveys where there is sufficient space to do so, unless otherwise agreed with the MMO in consultation with NE (see the Outline HHW SAC SIP, document reference 8.20 [REP1-033]). Therefore, there is not expected to be any cable protection in areas of existing *S. spinulosa* Annex I reef.

41. However, should *S. spinulosa* reef colonise the 2km to 4.7km wide offshore cable corridor to such an extent that micrositing is not possible, and in the unlikely event that cable protection would be required in these areas, the habitat loss would be of *de minimis* proportions in relation to a new large expanse of reef bisecting the cable corridor. Such a reef extent would have grown significantly compared with the current extent and would be significantly larger than the Annex I Reef that the HHW SAC was designated for, therefore any small scale loss would be within the natural variation of this ephemeral species. This would therefore not impact NE management measures and would not hinder the conservation objectives for the HHW SAC in relation to Annex I reef.

42. As a worst case, total habitat loss within the HHW SAC would be 24,000m^2 (0.02km^2), as discussed in section 3.3. This represents 0.002% of the 1,468km^2 SAC

area, however as explained above there will be 0% loss of habitat in the priority areas to be managed as reef.

5.1.4 Effect on structure, function and supporting processes

43. As there will be no permanent habitat loss of *S. spinulosa* Annex I reef from the areas to be managed as reef, there will be no adverse effect on the structure, functioning, supporting processes or feature condition of the *S. spinulosa* Annex I reef within the managed areas as a result of the deployment of cable protection. Therefore, as demonstrated in section 5.1.1 the management measures being proposed by NE will not be impacted and the following targets for achieving the conservation objectives of *S. spinulosa* Annex I reef will not be hindered:

- No significant decline in community with different growth phases present;
- No decline in the abundance of specified species from an established baseline; and
- Maintain age/size class structure of individual species.

5.1.5 Existing habitat loss

44. Annex I Reef in the HHW SAC has been assessed as being in unfavourable condition due to various existing pressures on the site, for example fishing, aggregate dredging and existing cables and pipelines which have all been permitted or unmanaged in the site to date. This unfavourable condition and the target to restore the site has been taken into account in the assessment and therefore any further assessment of existing habitat loss would be double counting.

45. The in-combination effect of Norfolk Boreas and Norfolk Vanguard cable protection is considered below.

5.1.6 In-combination habitat with Norfolk Vanguard

46. Total habitat loss associated with cable protection for Norfolk Boreas and Norfolk Vanguard within the HHW SAC could be up to 48,000m^2 (0.048km^2) based on the following:

- 8,000m^2 as a result of up to two crossings for each of the export cable pairs (eight crossings in total) within the HHW SAC. Each crossing could require up to 100m length and 10m width of protection.
    - It is noted that every effort has been made by the Applicant to further reduce the area occupied by cable protection at crossings where agreement can be reached with the cable owners. This is evidenced by the reduction in number of cable crossings from six to two (section 3.3) for each cable.

- Where cable protection is required due to pipeline / cable crossings this is not considered Annex I reef, in accordance with NE advice.

- 40,000m^2 as a result of up to 5% of the cable length in the SAC (2km of cable protection per cable pair, 4km in total) potentially requiring cable protection in the unlikely event that unsuitable ground conditions are encountered. A 5m width of cable protection could be required. **If required for Norfolk Boreas and/or Norfolk Vanguard, this would only be deployed outside the priority areas to be managed as reef in the HHW SAC.**

47. Norfolk Vanguard will also incorporate the new additional mitigation with regards to committing to no cable protection in the priority areas to be managed as reef, therefore any loss would not prevent restoration in accordance with the conservation objectives for *S.spinulosa* Annex I reef within the HWW SAC.

48. As with Norfolk Boreas alone, micrositing will be undertaken for Norfolk Vanguard to avoid Annex I *S. spinulosa* reef where at all possible and therefore, it is highly unlikely that there would be any cable protection on areas of Annex I reef and therefore there will be no loss of existing reef.

49. The worst case scenario for cable protection for Norfolk Boreas and Norfolk Vanguard represents 0.003% of the 1,468km^2 SAC area, however as explained above, there will be 0% loss of habitat in the priority areas to be managed as reef.

5.2 Permanent Loss of Annex I Sandbank

5.2.1 Location of loss of Annex I Sandbank

50. As discussed in section 5.1, there will be no loss of an Annex I priority natural habitat as a result of cable protection as there are no priority natural habitats in the HHW SAC.

51. The potential location of habitat loss due to the cable protection required within HHW SAC is indicated in Figure 3, showing that the majority of cable protection is likely to be outside NE's identified areas to be managed as Annex I Sandbanks.

5.2.2 Duration of habitat loss

52. The habitat loss within the SAC would be permanent should cable protection be required as it is currently assumed that any cable protection would not be decommissioned. However, the Applicant is actively exploring the potential to decommission cable protection and is working towards a commitment to decommission all cable protection (apart from at cable crossing) within the SAC (see paragraph 53 of the main document).

5.2.3 Scale of habitat loss

53. Total habitat loss within the HHW SAC could be up to 24,000m^2 (0.02km^2) as discussed in section 3.3. This represents 0.0016% of the 1,468km^2 SAC area and 0.0035% of the 678km^2 area of sandbanks within the SAC. This extent of loss is *de minimis,* taking into account the absence of effect on the function of the Annex I Sandbank (discussed in section 5.2.4). This is in keeping with various case studies, for example (Natural England, 2016):

- Walney Extension - habitat loss of intertidal mudflats and sand flats due to cable installation and rock armour. 0.41% of overall 600ha of feature was affected and the appropriate assessment concluded no AEoI.
- Hinkley Point C - habitat loss of a small area of potential Sabellaria reef within the rock armour barge berthing and unloading area. This area equated to less than 0.05% of the SAC reef feature and was not considered significant.
- Kentish Flats Extension - habitat loss of 0.003% of Special Protection Area (SPA). The Secretary of State (SoS) and NE agreed this loss to be negligible.

54. It is noted that NE has previously made reference to the Sweetman case study, however the Applicant notes that this refers to permanent loss of priority natural habitat, which is not applicable in the HHW SAC.

5.2.4 Effect on structure, function and supporting processes

55. It is expected that the cable protection may undergo some periodic burial and uncovering and will therefore be a persistent, rather than permanent impact.

56. Due to the small scale of cable protection, with a height of approximately 50cm in the context of sand wave heights of approximately 5m, the natural patterns of erosion, accretion and movement of sand waves will not be restricted by the deployment of cable protection in areas of unsuitable burial conditions (if applicable).

57. As the natural processes of the mobile Sandbanks would continue, there would be no effect on the low diversity communities associated with this feature.

5.2.5 Existing habitat loss

58. Annex I Sandbank in the HHW SAC is in unfavourable condition due to various existing pressures on the site, for example fishing, aggregate dredging and existing cables and pipelines which have all been permitted or unmanaged in the site to date. This unfavourable condition and the target to restore the site has been taken into account in the assessment and therefore any further assessment of existing habitat loss would be double counting.

59. The in-combination effect of Norfolk Boreas and Norfolk Vanguard cable protection is considered below.

5.2.6 In-combination habitat with Norfolk Boreas

60. There is potential for permanent habitat loss to Annex I Sandbanks in the shared Norfolk Boreas and Norfolk Vanguard offshore cable corridor due to the presence of cable protection. The worst case total area of cable protection installed within the HHW SAC could be up to 48,000m^2 (0.048km^2) for both Norfolk Boreas and Norfolk Vanguard based on the following:

- 8,000m^2 as a result of up to two crossings for each of the export cable pairs (eight crossings in total) within the HHW SAC. Each crossing could require up to 100m length and 10m width of protection.
    - It is noted that every effort has been made by the Applicant and Norfolk Vanguard Limited to further reduce the area occupied by cable protection at crossings where agreement can be reached with cable owners. This is evidenced by the reduction in number of cable crossings from six to two (section 3.3) for each cable.
- 40,000m^2 as a result of up to 5% of the cable length in the SAC (2km of cable protection per cable pair, 4km in total) potentially requiring cable protection in the unlikely event that unsuitable ground conditions are encountered. A 5m width of cable protection could be required.

61. This represents 0.003% of the 1,468km^2 SAC area and 0.055% of the 678km^2 area of sandbanks within the SAC.

62. This extent of loss is *de minimis,* taking into account the absence of effect on the function of the Annex I Sandbank (discussed in section 5.2.4). This is in keeping with the case studies discussed in section 5.2.3.

6. Conclusion

63. The Applicant is proposing a new commitment to use no cable protection in the priority areas to be managed as *S. spinulosa* Annex I reef within the HHW SAC, unless otherwise agreed with the MMO in consultation with NE.

64. This commitment ensures that the proposed management measures for the site will not be impacted and the targets for achieving the conservation objectives of *S. spinulosa* Annex I reef will not be hindered.

65. The assessment of habitat loss on the HHW SAC, taking into account this new additional mitigation, demonstrates that any small scale permanent loss of habitat

within the SAC would not affect the form and function of the Annex I Reef and Annex I Sandbanks.

66. In addition, the small proportion of cable protection proposed would be of *de minimis* scale, in accordance with existing case studies.

67. Waddenzee case law (C-127/02) states that a project which is not likely to undermine the site's nature conservation objectives cannot be considered to have an adverse effect on site integrity.

68. Based on the outcome of the assessment it is determined there will be **no adverse effect on the integrity of the HHW SAC in relation to the conservation objectives for *S. spinulosa* Annex I reef and Annex I Sandbank due to habitat loss as a result of cable protection.**

7. References

JNCC and Natural England (2013). Haisborough, Hammond and Winterton candidate Special Area of Conservation: Formal advice under Regulation 35(3) of The Conservation of Habitats and Species Regulations 2010 (as amended), and Regulation 18 of The Offshore Marine Conservation Regulations (Natural Habitats, &c.) Regulations 2007 (as amended). [Version 6.0 March 2013]. JNCC, Peterborough.
Natural England (2016). Small-scale effects: How the scale of effects has been considered in respect of plans and projects affecting European sites - a review of authoritative decisions. Natural England Commissioned Report NECR205

Appendix 2 Draft Joint Recommendation Paper

The full title of Appendix 2 which is submitted as a separate document [ExA.AS-6.D5.V1 Appendix 2] is:

Joint Recommendation regarding the protection of Sandbanks slightly covered by seawater all the time and Reefs features within the North Norfolk Sandbanks and Saturn Reef Site of Community Importance and the Haisborough, Hammond and Winterton Site of Community Importance under the Habitats Directive 92/43/EEC of 21 May 1992 under Articles11 and18 of Regulation (EU) No 1380/2013ofthe European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy (the Basic Regulation).