

Summary of the Site Selection Process for the Hornsea Three Artificial Nesting Structures

Background

A Development Consent Order (DCO) was made for the benefit of Orsted Hornsea Project Three (UK) Limited (hereafter 'Orsted') on 31st December 2020. The department for Business, Energy and Industrial Strategy (BEIS)¹ included a requirement for ecological compensation measures for kittiwake to be put in place, due to the potential mortality from collision with rotor blades of the Hornsea Project Three Offshore Wind Farm (hereafter 'Hornsea Three'), in-combination with other wind farm projects.

In 2021, Orsted conducted a thorough search for locations to site four Artificial Nesting Structures (ANS) for kittiwake, within North East and South East search zones, in accordance with the Kittiwake Compensation Plan (KCP)², the results of which have been summarised in **Table 2**. Following extensive stakeholder consultation, the sites at Hartlepool Old Yacht Club (Site B), Seaham (Site A/Aii), Lowestoft (Site N), and Minsmere (Site Q) were identified as primary locations and progressed for ANS development. In 2023, three ANS were constructed in the nearshore environment at Lowestoft and Minsmere. In order to comply with the DCO, Hornsea Three is required to construct a fourth ANS within the North East search zone.

In December 2021, Orsted completed the purchase of the Old Hartlepool Yacht Club and following an appeal process, planning permission was granted in March 2023 for ANS development. The Old Yacht Club lies in very close proximity (approximately 30m) to a highly productive kittiwake colony and has strong backing from the Offshore Ornithology Engagement Group (OOEG), of which Natural England, the Marine Management Organisation (MMO) and Royal Society for the Protection of Birds (RSPB) are core members. This is due to its excellent location and capacity to facilitate onshore monitoring campaigns, yielding valuable insights into natal breeding dispersal, adult survival, and diet studies.

Although an optimum site for the fourth ANS at Hartlepool Old Yacht Club was purchased in 2021, Hornsea Three has continued to explore back-up sites to ensure the deliverability of a fourth ANS, which is crucial in enabling operation of Hornsea Three. Therefore, other onshore options have been explored. The site selection process devised in 2021³ was applied again in the search for new onshore options and information collated in **Table 3** summarises the work that was undertaken. The Hartlepool Old Yacht Club remains the preferred location for the fourth ANS.

Site selection process

Digital aerial maps and local knowledge were used to assess initial suitability for an ANS site. Sections of coast within the search zones were selected which were likely to provide favourable conditions for new colonies, including:

- Sites which were in proximity (within 1 to 5 km) of existing kittiwake colonies with good productivity and increasing / stable population trends (indicative of favourable prey resources); and
- Sites which had the potential for interchange of birds with the Flamborough and Filey Coast (FFC) Special Protection Area (SPA) (<100 km) but were not close enough (< 56 km) to create additional competition for the same food resources likely to be used by FFC SPA birds.

¹ BEIS is now the Department for Energy Security and Net Zero.

² [EN010080-003246-HOW03-30Sep Appendix 2 Kittiwake Compensation Plan \(06543754_A\).pdf \(planninginspectorate.gov.uk\)](#).

³ <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010080/EN010080-003663-Hornsea%20Three%20Site%20Selection%20Narrative%20Report%20Redacted.pdf>

At the request of Statutory Nature Conservation Bodies (SNCBs) to diversify/spread risk over a number of ecologically distinct sites, areas beyond 100 km from FFC SPA were considered.

Consultants, NIRAS (kittiwake ecologists) and LDA Design (architect, landscape architect and planning consultant) were consulted to produce ecological and site appraisals for the identified areas, taking into consideration the following criteria:

1. **Proximity to coast (Critical)** - within <100 m of where site would have a direct view of the sea. With higher preference given to sites with frontage directly onto tidal waters, based on distance from Lowest Astronomical Tide (LAT). Sites on tidal rivers to be considered where existing birds are known to nest or transit further upstream (<100m from Highest Astronomical Tide (HAT)).
2. **Proximity to existing small sub colonies (Critical)** - generally at <1 km i.e. within visible range but may be extended if passage of birds to/from an existing site is likely to cross the proposed site. With higher preference given to areas closer to expanding existing colonies as these are likely to enable a higher chance of colonisation success.
3. **Protection from adverse weather conditions** - with preference given to more sheltered areas, as overly exposed locations may be less favourable/successful once colonised.
4. **Avoidance of residential / busy tourist areas and roadside sites** - to minimise disturbance to residential properties and human conflicts.
5. **Avoiding proximity to existing nearshore offshore wind farms** – Offshore wind farms were considered within mean foraging range (as per Woodward et al. (2019)⁴) of site and informed by likely routes birds would choose to travel in/out of colony i.e. following water channels.
6. **Preference towards a coastal area where structures could blend in with environments which kittiwake naturally occupy** - (i.e. tall cliffs, quaysides, seafront buildings) over stand-alone structures in a currently unoccupied atypical environment (e.g. woodland, mud flats, sand dunes); i.e. avoiding standalone structure onshore in otherwise flat surroundings.
7. **Consideration for potential conflicts with other SPA/protected site/cultural and heritage designations** - e.g. a tall structure could overshadow wader roosting/feeding sites.
8. **Preference away from habitat in retreat through coastal erosion** - given required longevity of project.

After all sites meeting the initial criteria were thoroughly explored, the search was expanded to include sites which did not meet all the criteria. This often resulted in a decrease in ecological suitability, thereby decreasing the likelihood of success for any ANS introduced into these areas. Ten new potential ANS sites were identified, and a site selection matrix was applied, using a BRAG (Black, Red, Amber, Green) rating to assess each site from the perspective of land and property acquisition, planning constraints and engineering considerations alongside the sites' ecological merits. The BRAG criteria are outlined in [Table 1](#).

⁴ Woodward, I., Thaxter, C.B., Owen, E. & Cook, A.S.C.P. (2019). Desk-based revision of seabird foraging ranges used for HRA screening. BTO research report number 72

Table 1 - BRAG criteria. "Black (Showstoppers to development)", "Red (Significant level of constraints, low suitability of site)", "Amber (Moderate level of constraints, medium suitability of site)", "Green (Low level of constraints, high suitability of site)".

Criteria	Black (Showstoppers to development)	Red (Significant level of constraints, low suitability of site)	Amber (Moderate level of constraints, medium suitability of site)	Green (Low level of constraints, high suitability of site)
Land & Property	The landowner has indicated that either 1) they do not wish to consider Artificial Nesting Structures (ANS) on their property; or 2) a specific feature that we have identified (e.g. a pier) is not available for Artificial Nesting Sites.	The landowner has indicated that their entire property or a specific part we have identified, would not be suitable for the provision of ANS due to their current or future use of the property. OR Although suitable locations exist for ANS the landowner has not responded to date to discuss if they are willing to discuss the siting of ANS.	The landowner has indicated they may be willing to discuss the siting of an ANS on their property subject to more information being provided regarding location.	The landowner has indicated they are willing to discuss the siting of an ANS on their property. Successful location of an ANS would be subject to a number of criteria including design, location and contract.
Planning	Whilst certain constraints introduce risk and make it more challenging to secure planning permission, for the purpose of this BRAG assessment none were considered "showstoppers" and instead would be navigated through the planning process.	A combination of three or more of the following constraints (or one designation or policy that may prohibit development): <ul style="list-style-type: none"> • Within a nationally and/or internationally designated site (or buffer zone); • Local Planning Authority (LPA) policy prohibiting or restricting development; • Intensive site investigation or surveys required; • Multiple consent/permit requirements; • Multiple stakeholder engagement requirements; • Costly/difficult design requirements to meet aesthetics/landscape/historic criteria. 	Generally suitable site for development but may have one or two of the constraints listed in the 'RED' category. This may mean a more lengthy assessment, consultation and/or costly process compared to Green.	<ul style="list-style-type: none"> • No international, nationally, or locally designated sites within the site location; • LPA development and/or local plan policies are not prohibitive to development; • Stakeholder engagement is limited; • Site investigations and surveys are not required/limited; • Limited design requirements (including access).

Table 1 - BRAG criteria. "Black (Showstoppers to development)", "Red (Significant level of constraints, low suitability of site)", "Amber (Moderate level of constraints, medium suitability of site)", "Green (Low level of constraints, high suitability of site)".

Criteria	Black (Showstoppers to development)	Red (Significant level of constraints, low suitability of site)	Amber (Moderate level of constraints, medium suitability of site)	Green (Low level of constraints, high suitability of site)
Ecology	Whilst some sites are less ecologically favourable, non were considered "showstoppers" for the purpose of this BRAG assessment. However, it's noted that a less ecologically favourable site could significantly impact the success of the compensation measure and future need for adaptive management.	Score <10 based on site selection criteria or: <ul style="list-style-type: none"> • Areas with unsuitable habitat over 50 m tidal waters; • Areas beyond 100 km from any existing kittiwake colony; • Areas close to sites where existing colonies are in decline; • Areas in close proximity to FFC, therefore foraging range is likely to overlap with the foraging area of FFC birds (based on tracking data from RSPB Open data portal)⁵. Definitive range was justified by identifying area which fall outside a set distance - mean foraging range (24.8 km)⁶ from the FFC core hotspots (50% UD). 	Score 11-20 based on site selection criteria.	Score >20 based on site selection criteria.
Engineering	Whilst some sites would pose constraints making ANS significantly more challenging, time-consuming and costly to install, nothing was considered insurmountable therefore no "showstoppers" from an engineering perspective.	If the proposed ANS would be located on an existing structure which appears to be in a poor state of repair, meaning significant restoration and stabilisation works would be required to create safe access and to ensure design life criteria is met.	Possible contaminated land or poor ground conditions due one of the following: <ul style="list-style-type: none"> • Current or historic industrial use; • Land which is reclaimed from the sea or rivers; • Land identified as marsh on historic/current ordinance survey maps. 	Greenfield site with no obvious ground risk in relation to foundation design.

⁵ <https://opendata-rspb.opendata.arcgis.com/datasets/black-legged-kittiwake-spa-level-flamborough-head-and-bempton-cliffs-95-utilisation-distributions-in-5-bands?geometry=-19.623%2C52.391%2C22.191%2C56.838>

⁶ Woodward, I., Thaxter, C.B., Owen, E. & Cook, A.S.C.P. (2019). Desk-based revision of seabird foraging ranges used for HRA screening. BTO research report number 72.

Table 2 - Results of 2020/2021 BRAG exercise for each of the identified potential ANS locations from different perspectives. BRAG criteria -: "Black (Showstoppers to development)", "Red (Significant level of constraints, low suitability of site)", "Amber (Moderate level of constraints, medium suitability of site)", "Green (Low level of constraints, high suitability of site)".

Site ID ⁷	Ecology	Land and property	Planning	Engineering	Natural England's viewpoint ⁸	Overall project classification	Outcome
Aii	GREEN	RED	AMBER	AMBER	YELLOW	AMBER	Discounted due to negative response from onshore landowner.
A	AMBER	GREEN	AMBER	AMBER	YELLOW	AMBER	Discounted due to concerns with exposure and coastal erosion in the area (also raised by Natural England during the OOEG) in addition to the challenges of locating a structure in clifftop location with open public access.
Bii	GREEN	BLACK	RED	RED	YELLOW	BLACK	Discounted due to negative response from landowner.
B (Hartlepool Old Yacht Club)	GREEN	GREEN	AMBER	AMBER	GREEN	GREEN	Positive response from private landowner, Orsted completed the purchase of the Old Hartlepool Yacht Club site in December 2021. Subsequently, planning permission secured, and engineering/design solutions reached.

⁷ The exact locations of these sites are considered to be commercial information and disclosing the information would adversely affect the confidentiality of commercial information where such confidentiality is required to protect a legitimate economic interest.

⁸ Natural England's ratings used the following criteria: "Green" – likely to be suitable, "Yellow" – Potentially suitable, but some constraints to be addressed, "Amber" – Significant level of constrains/parts of site not suitable, "Red" – Not suitable.

Site ID ⁷	Ecology	Land and property	Planning	Engineering	Natural England's viewpoint ⁸	Overall project classification	Outcome
C	AMBER	RED	RED	AMBER	RED	AMBER	Discounted after further investigations – limited opportunities and concerns raised over interactions with existing protected habitats / species at this location.
D	AMBER	GREEN	RED	AMBER	RED	AMBER	Discounted after further investigations – limited opportunities and concerns raised over interactions with protected habitats/species at this location.
E	GREEN	BLACK	AMBER	AMBER	AMBER	BLACK	Discounted after further investigation into land availability.
		GREEN	RED			RED	
F	AMBER	RED	RED	AMBER	RED	RED	Discounted due to likely conflict with existing protected habitats / species.
G	GREEN	RED	AMBER	AMBER	RED	RED	Discounted due to likely conflict with existing protected habitats / species.
H	GREEN	BLACK	AMBER	AMBER	YELLOW	BLACK	Discounted after further investigation into land availability – negative response from landowner.
		GREEN	RED	RED		RED	

Site ID ⁷	Ecology	Land and property	Planning	Engineering	Natural England's viewpoint ⁸	Overall project classification	Outcome
I	GREEN	RED	RED	AMBER	AMBER	AMBER	Discounted after further investigation into land availability.
J	GREEN	BLACK	AMBER	AMBER	AMBER	BLACK	Discounted after further investigation into land availability.
K	GREEN	RED	AMBER	AMBER	YELLOW	GREEN	Discounted after further investigation into land availability - negative response from landowners .
L	GREEN	RED	AMBER	AMBER	YELLOW	AMBER	Discounted after further investigation into land availability - negative response from landowners.
M	Small section GREEN rest of area unsuitable - RED	Largely residential area so not investigated.	RED	AMBER	RED	RED	Discounted as largely unsuitable site (E.g. largely residential).
N (Lowestoft)	GREEN	GREEN	AMBER	RED	YELLOW	GREEN	Negative response from onshore landowners. Therefore, investigated marine environment – positive engagement with The Crown Estate,

Site ID ⁷	Ecology	Land and property	Planning	Engineering	Natural England's viewpoint ⁸	Overall project classification	Outcome
							and 2 leases were granted and 2 ANS built.
Nii	AMBER	AMBER	AMBER	AMBER	YELLOW	AMBER	Discussions held with landowners but not interested in pursuing an agreement.
O	AMBER	Not initially investigated as site is unsuitable (Natural England ecological viewpoint).	RED	AMBER	RED	RED	Discounted as very few areas within site are suitable.
P	GREEN	RED	RED	AMBER	RED	AMBER	Landowner was initially interested but ultimately agreements were not secured.
Pii	GREEN	BLACK	RED	AMBER	RED	BLACK	Discounted as landowner was not interested in leasing land for the purpose of kittiwake ANS.
Q (Minsmere)	GREEN	GREEN	AMBER	AMBER	AMBER	GREEN	Positive engagement with The Crown Estate. lease was granted and ANS built.
R	AMBER	Not initially investigated as site is unsuitable (Natural England ecological viewpoint).	AMBER	AMBER	RED	AMBER	Discounted as a lower preference area ecologically.

Table 3 - Results of 2022/2023 BRAG exercise for each of the identified potential alternative ANS locations from different perspectives. "Black (Showstoppers to development)", "Red (Significant level of constraints, low suitability of site)", "Amber (Moderate level of constraints, medium suitability of site)", "Green (Low level of constraints, high suitability of site)".

Site name	Ecology	Land and property	Planning	Engineering	Overall project classification	Outcome
Blyth Port	RED	RED	AMBER	RED	RED	Discounted. After a site visit Blyth Port was discounted as a suitable option due to the need to upgrade the degrading pier, openness to the elements, and little evidence of kittiwake in the area.
Hawsker Site 1	RED	GREEN	RED	RED	RED	Discounted. There is limited potential for nesting as kittiwake would have to locate up and over the cliff face. The site poses high risk due to the rate of coastal erosion, an ANS would not be able to be in place for the required 40-year period. Additionally, there is a health and safety risk.
Hawsker Site 2	RED	AMBER	RED	RED	RED	Discounted. The site poses as high risk due to the rate of coastal erosion (meaning an ANS would not be able to be in place for the required 40-year period), listed sites nearby, and limited potential for kittiwake nesting.
Marsden	AMBER	AMBER	RED	AMBER	AMBER	Discounted. The kittiwake colony is not considered to be limited by nesting space, an ANS might not be successful. The development of an ANS could compromise the operation of the site as a food and beverage establishment.
North Shields Ferry	AMBER	BLACK			BLACK	Discounted. The location was explored but the area has been bought for industrial and residential use and therefore could not be progressed. Therefore planning and engineering appraisals were not carried out.
Port of Tyne	AMBER	BLACK	AMBER	AMBER	BLACK	Discounted. Landowner has indicated they will not consider an ANS. Prime kittiwake habitat, near the Tyne population & other ANS are being introduced in the area. However, overhead line and potential predators in the area. Survey would be required to confirm the engineering suitability.
Redcar	AMBER	AMBER	AMBER	GREEN	AMBER	Discounted. Landowner open to discussions but unresponsive when approached. Within Site of Special Scientific Interest (SSSI) and

Site name	Ecology	Land and property	Planning	Engineering	Overall project classification	Outcome
						potential concerns of interactions with other Special Protected Areas (SPAs). Long lead in time for planning and Land and Property. Directly opposite a kittiwake colony.
Seaham Beach site 1	AMBER	AMBER	RED	RED	RED	Discounted. Close to an existing kittiwake colony however the beaches are publicly accessible and busy, causing disturbance. The land has environmental designations and is in close proximity to residential housing. There are engineering concerns with regards to access to the site, coastal erosion, and ground foundations.
Seaham Beach site 2	RED	AMBER	RED	AMBER	RED	Discounted. The site is 2 km from the existing kittiwake colony. It is in the greenbelt, high landscape quality, heritage coast, introducing considerable planning risks. Received a negative response from the landowner and were unable to secure an agreement within our programme
Skinningrove	AMBER	AMBER	AMBER	AMBER	AMBER	Discounted. Publicly accessible and highly visible, access to the site is not practical. No response to our enquiry received from landowner, aside from initial acknowledgement of receipt.