



White Cross Offshore Wind Farm ES Addendum

Appendix C: Response to Environment
Agency



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Glossary of Acronyms

Acronym	Definition
CEMP	Construction Environmental Management Plan
EIA	Environmental Impact Assessment
ES	Environmental Statement
HDD	Horizontal Directional Drilling
km	Kilometre
LPA	Local Planning Authority
NPS	National Policy Statement
NPPG	The National Planning Practice Guidance

Glossary of Terminology

Defined Term	Description
Applicant	Offshore Wind Limited
Environmental Impact Assessment (EIA)	Assessment of the potential impact of the proposed Project on the physical, biological and human environment during construction, operation and decommissioning.
Export Cable Corridor	The area in which the export cables will be laid, either from the Offshore Substation or the inter-array cable junction box (if no offshore substation), to the NG Onshore Substation comprising both the Offshore Export Cable Corridor and Onshore Export Cable Corridor.
Mean high water springs	The average tidal height throughout the year of two successive high waters during those periods of 24 hours when the range of the tide is at its greatest.
Mean low water springs	The average tidal height throughout a year of two successive low waters during those periods of 24 hours when the range of the tide is at its greatest.
Mean sea level	The average tidal height over a long period of time.
Mitigation	<p>Mitigation measures have been proposed where the assessment identifies that an aspect of the development is likely to give rise to significant environmental impacts, and discussed with the relevant authorities and stakeholders in order to avoid, prevent or reduce impacts to acceptable levels.</p> <p>For the purposes of the EIA, two types of mitigation are defined:</p> <ul style="list-style-type: none"> • Embedded mitigation: consisting of mitigation measures that are identified and adopted as part of the evolution of the project design, and form part of the project design that is assessed in the EIA • Additional mitigation: consisting of mitigation measures that are identified during the EIA process specifically to reduce or eliminate any predicted significant impacts. Additional mitigation is therefore subsequently adopted by OWL as the EIA process progresses.
National Grid Onshore Substation	Part of an electrical transmission and distribution system. Substations transform voltage from high to low, or the reverse by means of the electrical transformers.
National Grid Connection Point	The point at which the White Cross Offshore Windfarm connects into the distribution network at East Yelland substation and the distributed electricity network. From East Yelland substation electricity is transmitted to Alverdiscott where it enters the national transmission network.
Onshore Export Cables	The cables which bring electricity from MLWS at the Landfall to the White Cross Onshore Substation and onward to the NG grid connection point at East Yelland.
Onshore Export Cable Corridor	The proposed onshore area in which the export cables will be laid, from MLWS at the Landfall to the White Cross Onshore Substation and onward to the NG grid connection point at East Yelland.

Defined Term	Description
the Onshore Project	The Onshore Project for the onshore TCPA application includes all elements onshore of MLWS. This includes the infrastructure associated with the offshore export cable (from MLWS), landfall, onshore export cable and associated infrastructure and new onshore substation (if required).
the Project	the Project is a proposed floating offshore windfarm called White Cross located in the Celtic Sea with a capacity of up to 100MW. It encompasses the project as a whole, i.e. all onshore and offshore infrastructure and activities associated with the Project.
Project Design Envelope	A description of the range of possible elements that make up the Project design options under consideration. The Project Design Envelope, or 'Rochdale Envelope' is used to define the Project for Environmental Impact Assessment (EIA) purposes when the exact parameters are not yet known but a bounded range of parameters are known for each key project aspect.
White Cross Offshore Windfarm	100MW capacity offshore windfarm including associated onshore and offshore infrastructure
White Cross Onshore Substation	A new substation built specifically for the White Cross project. It is required to ensure electrical power produced by the offshore windfarm is compliant with NG electrical requirements at the grid connection point at East Yelland.

1. Introduction

1. This document provides the Applicant's responses related to the Environment Agency's comments (dated 3rd November 2023).

2. Environment Agency comments on the Flood Risk Assessment

Table 1: Applicant's responses to Environment Agency's comments

ID	EA Comment	Applicant Response
Flood Risk Assessment		
General comments		
1	<p>We object to this application on flood risk grounds. The submitted assessment on Coastal and Tidal flood risk is not acceptable.</p> <p>For clarity our flood risk comments below relate to both offshore and onshore elements of the development.</p> <p>Should this objection be overcome we advise we will request conditions relating to groundwater, contaminated land, flood risk, CEMP/LEMP for the protection of species, habitats and water quality.</p>	<p>The Applicant notes the comment and has aimed to address key comments in the following responses.</p>
2	<p>Sequential Test Advice We advise your authority to consider whether the Sequential Test has been passed.</p> <p>Further information is attached at the end of this response.</p>	<p>A Flood Risk Clarification Note has been prepared by the Applicant in relation to a number of comments received from the Planning Officer at North Devon Council. This Clarification Note has been provided as Annex 1 to this response.</p> <p>It includes clarification on the consideration of the Sequential Test as part of the EIA process and provided signposting to Chapter 4: Site Selection and Assessment of Alternatives of the Onshore ES where various elements of the Sequential</p>

ID	EA Comment	Applicant Response
		<p>Test and site selection have been considered throughout the development of the Project.</p> <p>Further consideration of the Sequential Test has also been included in Appendix D: Flood Risk Assessment of the ES Addendum.</p>
3	<p>Reasons</p> <p>The coastal and flood risk assessments (EIA Chapter 8 & 14) have not properly considered wave action at the landfall or sub station sites for both current and future flood and erosion risks, so do not show that Exception Test has been passed.</p> <p>Given that this is a 'regional' significant infrastructure, the credible maximum scenario H allowance should be considered in the assessment, as a sensitivity scenario. This should be applied to the Coastal Erosion, Coastal Change Management Area (CCMA) CCwaMA and flood risk assessments.</p> <p>A large area of the site is within CCMA and triggers the need for a Coastal Land stability Assessment. This should look in greater detail than currently provided, including the impact to current and future coastal erosion (including wave action), the impacts and required changes to the coastal defences (including whether this is financially viable), Coastal Squeeze impacts and Shoreline Management Plan (SMP)/Taw Torridge Estuary Plan action/policies, including managed realignment of defence lines.</p>	<p>The Applicant notes that the guidance related to the use of the credible maximum scenario (or in this case H++) is provided in the 'Flood risk assessments: climate change allowances guidance' (Environment Agency, 2022), where it states:</p> <p><i>"Nationally significant infrastructure projects (NSIPs) are major infrastructure projects such as new harbours, roads, power stations and power lines. If you develop NSIPs you may need to assess the flood risk from a credible maximum climate change scenario. Check the relevant national policy statement."</i></p> <p>The Applicant notes that this guidance is specifically applicable to NSIPs and the Project does not qualify as an NSIP; hence the application is submitted under the Town and Country Planning Act 1990. Therefore, it is considered that consideration of the credible maximum scenario is not applicable based on national policy and guidance.</p> <p>Furthermore, during an ETG meeting with the Environment Agency on 6th June 2023, it was recorded in the minutes that the use of the 'Upper end' allowance for climate change was considered to be appropriate.</p> <p>The minutes from the ETG meeting are included within Appendix B, Annex 1: Meeting Minutes of the ES Addendum, for ease of reference.</p> <p>Changes to wave action at the landfall have been investigated by numerical modelling of swell waves. The results are presented in</p>

ID	EA Comment	Applicant Response
		<p>Appendix 8.A: Wave Modelling Report of the Offshore ES. A range of wave conditions were input into the model. The potential effect of the Offshore Project on significant wave height, peak period and mean wave direction was assessed at seven coastal sites: Saunton Sands, Downend Point, Croyde Beach, Putsborough, Woolacombe, Combesgate, and Lynmouth. The results show that there will be no change to the nearshore wave conditions along the North Devon coast, and at each of the seven coastal locations analysed. Hence, there will be no impact on waves at the coast during operation of the wind farm, and any future changes to waves and any indirect changes to erosion/accretion (or potential coastal squeeze) induced by these changes will only be brought about by climate change. This means that the development will not influence the policies that are adopted in the Shoreline Management Plan (SMP), the CCMA or the Taw-Torridge Estuary Plan including any policies related to managed realignment or defence lines. Appendix Y: Outline Cable Landfall Plan of the ES Addendum describes the phasing of cable installation including Phase 1 across Saunton Sands Dunes. The design has been informed by the Geotechnical Investigation (GI) and Surveys carried out in 2023 and 2024, which is detailed in Appendix T Annex 1: Onshore Ground Investigation Factual Report of the ES Addendum.</p> <p>Also, please refer to Section 1.1: Cable Installation and Potential Cable Exposure at the Landfall of Appendix F: Coastal Geomorphology Technical Note of the ES Addendum which demonstrates that the cables at the landfall</p>

ID	EA Comment	Applicant Response
		can/will be buried to a sufficient depth that there will be no impact on current and future coastal erosion.
4	A large area of the site is within Coastal Change Management Area (CCMA) and therefore MMO requests that a Coastal Land stability Assessment is undertaken. This should look in greater detail than currently provided, the impact to current and future coastal erosion (including wave action), the impacts and required changes to the coastal defences (including whether this is financially viable), Coastal Squeeze impacts and Shoreline Management Plan (SMP)/Taw Torridge Estuary Plan action/policies, including managed realignment of defence lines.	Please refer to the Applicant's response to Comment ID 3 of this document.
5	<p><u>Landfall Area</u></p> <p>The changing conditions at the landfall area, with sea level rise and increase wave action, must be properly explored so that it demonstrates that the cable will not be frequently exposed, which in turn may affect the damage to the nearby sand dunes (Coastal defence), lifeguard hut and leisure facilities. The depth of the bedrock at that location needs to be found at this full application stage, so that the maximum depth of the cable can be found. The statement that the landfall area is in flood zone 1 – little or no risk, is strange given that it is below 90% of the tidal levels. Our flood zones only map above MHWS, and it is assumed that most people would recognise the high risk in the normal sea area.</p>	The Applicant notes this comment. Please refer to Section 8.1: Cable Installation and Potential Cable Exposure at the Landfall, 8.2: Saunton Sands – Taw-Torridge Estuaries System, and 8.3: Open Cut Trench and Trenchless HDD as the Worst-Case Scenario at the Landfall of Appendix F: Coastal Geomorphology Technical Note of the ES Addendum (WHX001-FLO-CON-CAG-ASS-0002) for information regarding this comment.
6	The EIA sections (Chapter 8 & 14) also have contradicting design details for the proposed landfall trench details. In place it says that it will be at least 1.5m deep, and	Chapter 5: Project Description of the Offshore ES includes design options for the installation of the cable landfall including open cut and a trenchless technique. The assessment considered

ID	EA Comment	Applicant Response
	<p>in others that it will be 1.2m (EIA chapter 8). In the FRA (EIA chapter 14 – paragraph 308) it says that a trenchless method will be used. The ‘actual’ proposed design needs to properly considered and applied in the risk assessments.</p>	<p>which of the options constituted the worst-case scenario and assessed that option(s).</p> <p>Following the submission of the Offshore Application further design work have been undertaken, informed by the results from Appendix T: Onshore Ground Investigation Interpretative Report of the ES Addendum.</p> <p>The final design at landfall is described in Section 5.2 and Appendix Y: Outline Cable Landfall Plan of the ES Addendum. The work at landfall and within the Saunton Sands car park have been split into six phases. One phase of landfall construction will consist of trenchless duct installation beneath the Saunton Sands dune system. Another phase will consist of an open cut trench across the intertidal beach. This will be installed using a cable plough from a cable lay barge for a distance of approximately 2.3km, of which 700m is above MLWS (i.e. ‘onshore’). The width of the intertidal area affected by the installation depends on the type and specification of the cable plough used, but they are typically 4m to 6m wide. The cable trench would be up to 0.5m wide, with a burial depth between 0.5 and 3m (likely to be 2m but the specifics of the depth are awaiting finalisation the Burial Assessment Study and Cable Burial Risk Assessment).</p> <p>Further clarity is provided in Section 8.3 of Appendix F: Coastal Geomorphology Technical Note of the ES Addendum (WHX001-FLO-CON-CAG-ASS-0002).</p>
7	<p>Chapter 8 has used tidal level at Ilfracombe, rather than the Coastal Boundary data point, just offshore Saunton Sands.</p>	<p>The Coastal Boundary data point just offshore Saunton Sands describes a one in one-year water level of 5.06m and a 1 in 50-year water level of 5.53m. These values are about 0.35m lower than the Ilfracombe values likely because of the different coastal orientations. The Saunton Sands data should have been used</p>

ID	EA Comment	Applicant Response
		and will be used for any further assessment to inform detailed design. The water level data was a simple baseline statement and was not used in the assessment of effects.
8	Paragraph 52 is unclear whether the higher central or upper end rate have been used correctly. They state that they are using the RCP8.5 (Upper End scenario) but use a higher central (8mm) and upper end rate (16mm), for the period during 2081-2100.	This is a typo. The original reads 'For RCP8.5, the rise by 2100 is 0.74m (range 0.52m to 0.98m) with a predicted sea-level rise rate during 2081–2100 of 8mm/year to 16mm/year'. It should read 'For RCP8.5, the rise by 2100 is 0.74m (range 0.52m to 0.98m) with a predicted sea-level rise rate up to 2081–2100 of about 8mm/year to 16mm/year'.
9	<p><u>Substation Area</u> The substation area will be affected by wave action in the future conditions and just apply 300mm of flood resilience is not acceptable assessment or mitigation measure. This is also not inline with the hierarchy set out in paragraph 004 of the NPPG, with the first action is to Avoid (by location or raising the site/FFL).</p> <p>EIA Chapter 14 Paragraph 258 in the FRA say that the substation layout has not yet defined, but there are plans submitted with the application.</p> <p>Paragraph 259 say that further (flood risk) assessment is required, and the mitigation measures can be incorporated – There is no description on any migration measures, and given that further assessment may require the site/FFL to be raised further, that information is required at this stage of the application.</p>	<p>In the ETG meeting with the Environment Agency on 6th June 2023, the minutes provide a record of the discussion surrounding the flood risk to the substation area, including the impact of wave action. The minutes from this meeting are provided in Annex 2: Meeting Minutes of the document.</p> <p>Concerns related to flood risk were noted in the ETG meeting and the Environment Agency indicated that updated wave modelling was due in December 2023. The Applicant has requested this modelling from the Environment Agency for use within the updated FRA, however it was confirmed at the ETG meeting in December 2023 that it remains unavailable for use.</p> <p>During the ETG meeting, it was confirmed that, in the interim, a conservative approach to flood resilience would be adopted, and it was agreed that 600mm freeboard would be applied above the design water level, until such time as the Environment Agency modelling became available. Furthermore, during the ETG meeting it was agreed that other measures such as lifting of non-waterproof equipment would be acceptable.</p> <p>The mitigation measures are summarised in Appendix D: Flood Risk Assessment (FRA) (Section 1.10) of the ES Addendum.</p>

ID	EA Comment	Applicant Response
		<p>These mitigation measures have been developed on the basis of a hybrid approach, whereby the substation platform has been lifted 300mm above the future 1 in 200 year event, as set out in Paragraph 379 of Appendix D:</p> <p><i>"Given that 300mm freeboard is provided by setting the Onshore Substation platform at 6.73mAOD, it is proposed that the additional 300mm freeboard is provided through the adoption of resilience measures as part of the detailed design for the Onshore Substation. This approach was also discussed with the Environment Agency at the ETG meeting on 6th June 2023."</i></p> <p>Additionally, Paragraph 380 of Appendix D confirms the remaining 300mm of mitigation will be incorporated within the design of the substation, as follows:</p> <p><i>"To provide the additional 300mm of flood resilience, the exterior of the Onshore Substation building has been designed using flood resistant materials, to limit flood water ingress into the building and to provide protection to the electrical equipment and infrastructure contained within it."</i></p> <p>This is further supported by Paragraph 275 of Section 5.8.3.3 Building construction of Chapter 5: Project Description of the Onshore ES, which notes:</p> <p><i>"To further mitigate the flood risk the exterior of the White Cross Onshore Substation building has been designed using flood resistant materials, to limit flood water ingress into the building and to provide protection to the electrical equipment and infrastructure contained within it. Therefore, the buildings will be constructed on a brick or concrete base lined or coated with a</i></p>

ID	EA Comment	Applicant Response
		<p><i>suitable watertight material up to 600mm above the FFL. Access and egress into the buildings will be from steps or ramps in order that the threshold will also be raised."</i></p> <p>On this basis, the Applicant concludes that appropriate mitigation, as discussed and agreed with the Environment Agency at the ETG meeting, has been included within the design of the substation.</p>
10	<p>The proposed substation site is in a high risk surface water risk area, and with the raising of the site, this will move this risk area on to third party land. No assessment of the impacts on third parties and any required mitigation measures has been carried out.</p>	<p>With regards to the surface water flood risk to and from the substation site it is noted that Devon County Council, as the LLFA, are statutory consultees on surface water flooding matters and as such a response to concerns raised in relation to surface water flooding have been addressed in the updated FRA submitted as Appendix D: Flood Risk Assessment of the ES Addendum.</p> <p>Notwithstanding the above, the Applicant notes that the Outline Drainage Strategy (provided in Appendix E: Outline Drainage Strategy of the ES Addendum) has been updated to limit the risk associated with surface water flooding and the existing surface water flood risk in this location.</p> <p>Furthermore, the design lifetime used within the assessment for the Project has been confirmed with the Local Planning Authority, as being 50 years. Additionally further clarification on the commitments at the end of its design lifetime are set out within Section 5.4 of the ES Addendum and the Outline Decommissioning Programme (WHX001-FLO-CON-ENV-PLN-0011) is provided as part of the Further Environmental Information submission.</p>
11	<p>Design Lifetime – this needs to be agreed with the LPA and us. We feel that is very unlikely that a building/raise land will be in existence for just 50 years, but a 75yr or 100yr lifetime is more</p>	<p>The Applicant notes the design lifetime of the Project was discussed at the ETG meeting with the Environment Agency on 6th June 2023, where the Applicant confirmed a 50 year lifetime</p>

ID	EA Comment	Applicant Response
	<p>appropriate. A value should be agreed and used consistently throughout the planning documents.</p>	<p>is proposed for the Project, and this was in accordance with the operational lifetime of other similar projects.</p> <p>The Applicant confirms there is no inconsistency between planning documents and the use of 50 years within the FRA is in accordance with the lifetime of the development set out in Paragraph 51 of Chapter 5: Project Description, as follows:</p> <p><i>"It is anticipated that the realistic worst-case for construction of the Onshore Project will take 28 months (18 months for cable installation and 16 months for the White Cross Onshore Substation Construction). The operational phase of the Onshore Project will last for 50 years, the decommissioning phase is anticipated to last up to 18 months."</i></p> <p>On the basis of the above the Applicant believes a 50 year operational lifetime comprises a consistent and realistic approach within the planning documentation submitted as part of the application.</p>
12	<p>Comments on Cable Route:- <u>Northern Cable Route</u> We are generally happy with the proposed cable route north of the Taw estuary, in the crossing (open trench or trenchless) of the water course. The location of any compound next to the defence/car park at the White house, must be at least 20m from the edge of the raised land.</p>	<p>The Applicant notes the comments and can confirm that embedded mitigation within the design is such that the exit pit for the HDD crossing, in the vicinity of the White House, would be located approximately 70m to the north / rear of the car park.</p> <p>No compound will be required at the exit pit location, however materials may be stored within this field parcel. The Applicant will ensure no storage of material is within 20m of the edge of the raised land.</p> <p>The location of the exit pit is shown on the drawing entitled River Taw Outline HDD Plan and Profile found within Chapter 5: Project Description, Appendix 5.A: Braunton Burrows and</p>

ID	EA Comment	Applicant Response
		<p>Taw Estuary Crossing Method Statement of the Onshore ES. The locations of the entry and exit locations are also shown in Appendix B Annex 3: Taw Crossing of the ES Addendum.</p>
13	<p><u>South Cable Route</u> We are generally happy with the proposed cable route south of the Taw estuary, however the cable depth beneath any defence or the Tarka Trail will need to be approved in the detail design stage.</p>	<p>The Applicant notes the comments and will confirm the cable depth at key locations, for example below crossings, under defences and under the Tarka Trail during the detailed design stage.</p> <p>A Constructability Technical Note which forms part of Appendix T: Onshore Ground Investigation Interpretative Report of the ES Addendum outlines that the crossing of the Tarka Trail is expected to be undertaken by trenchless technique (likely to be Piperam duct) installation due to the prevailing geology (sand).</p>
14	<p><u>Cable removal</u> We would advise that a plan (financially secured) is approved by your authority for the 'end of project life' removal of the cable and associated infrastructure.</p>	<p>The Applicant notes the comment. As set out in Chapter 5: Project Description of the Offshore ES the decommissioning strategy for the Project is not yet known but will be undertaken in accordance with all relevant legislation, policy and guidance at time of decommissioning.</p> <p>Further clarification on the decommissioning phase of the Project are set out within Section 5.4 of the ES Addendum, and an Outline Decommissioning Programme (WHX001-FLO-CON-ENV-PLN-0011) provided as part of the Further Environmental Information submission.</p>
Additional MMO comments		
15	<p>MMO advises conditions securing an adequate CEMP and LEMP (Construction Environment Management Plan and Landscape and Ecological Management Plan). This plan will need to include details on appropriate timings of works / methodology to avoid</p>	<p>The Applicant notes the comment. The following documents have been submitted:</p>

ID	EA Comment	Applicant Response
	<p>impacts to bathing water quality, adequate methodology for preventing increase of sediments released into the water, methodology to ensure prevention of pollution impacts on watercourses/habitats during construction. MMO will include a condition within the Marine Licence (if positively determined).</p>	<ul style="list-style-type: none"> • Outline Construction Environmental Management Plan (CEMP) (WHX001-FLO-CON-ENV-PLN-0010) provided as part of the Further Environmental Information submission. • Appendix N: Outline Landscape and Ecological Management Plan (OLEMP) of the ES Addendum. <p>These will be further develop post-consent, and the Applicant is open to a planning and Marine Licence condition being imposed requiring the updating and approval of these documents.</p>
16	<p>With regards to an Environmental permit, MMO strongly advises that advice is sought from the Environment Agency at the earliest opportunity and an application is submitted for an environmental permit (for elements of the development that impact man river).</p> <p>The Environmental Permitting (England and Wales) Regulations 2016 require a permit to be obtained for any activities which will take place:</p> <ul style="list-style-type: none"> - on or within 8 metres of a main river (16 metres if tidal) - on or within 8 metres of a flood defence structure or culverted main river (16 metres if tidal) - on or within 16 metres of a sea defence - involving quarrying or excavation within 16 metres of any main river, flood defence (including a remote defence) or culvert - in the floodplain of a main river if the activity could affect flood flow or storage and potential impacts are not controlled by a planning permission <p>For further guidance please visit https://www.gov.uk/guidance/flood-risk-activities-environmental-permits or contact the National Customer Contact Centre on 03708 506506. It should not be assumed that a</p>	<p>The Applicant notes this comment. Advice will be sought on all required permits and licences from the Environment Agency prior to an environmental permit application.</p>

ID	EA Comment	Applicant Response
	permit will automatically be forthcoming if planning permission has been granted.	

3. References

Environment Agency (2022). Flood risk assessments: climate change allowances guidance'. <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>.

Stocktons (2023). White Cross Report on Ground Investigation: Onshore Cable Route.

Annex 1: Flood Risk Clarification Note



White Cross Offshore Windfarm Flood Risk Clarification Note

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1. Clarifications related to the Flood Risk Assessment

1.1 Introduction

2. White Cross Offshore Windfarm is a proposed floating offshore windfarm located in the Celtic Sea with a capacity of up to 100MW. A Flood Risk Assessment (FRA) was developed to support the Environmental Statement (ES) for the 'Onshore Project', comprising all components of the Onshore Project during its construction, operation and maintenance and decommissioning phases.
3. The FRA was submitted on 18 August 2023 alongside the ES and other planning documentation to North Devon Council (NDC) to support the planning application for the Onshore Project (Planning Application Reference: 77576).
4. Initial feedback was provided by NDC on 25 August 2023 with regards to the information provided for the Onshore Project.

1.2 Summary of NDC comments

5. Initial comments provided by NDC covered a variety of topics and elements of the Onshore Project, including comments related to flood risk aspects.
6. As a result, this Clarification Note has been prepared to provide NDC with both signposting and / or a summary response related to their comments. It is noted that it only seeks to provide clarification on the aspects related to flood risk and other matters will be addressed separately.
7. For ease of reference the comments related to flood risk have been reproduced as follows:

"Flood Risk Assessment – please review in the context of the local list requirements and provide more detailed analyses particularly in regard to the Sequential and Exceptions test. More detail is required on the implication of the impacts of flooding for the cable route and associated works including compounds and haul roads, particularly during the construction phase. Interrelation and detailed analyses between existing site levels, flood levels and proposed levels across the site are important in this respect."

8. A review of the above comments found they relate to two specific themes as follows:
 - Sequential Test and Exception Test
 - Impacts of flooding along the cable route and associated works during the construction phase.

9. As such, the remainder of this Clarification Note has been sub-divided on this basis with the aim of addressing the comments in the following sections.

1.3 Consideration of the Sequential and Exception Test

10. In accordance with the comments raised by NDC a review of the local list requirements¹ has been undertaken to understand the context within which this specific concern has been raised.

11. The local list requirements related to the Sequential Test are summarised as follows:

“Sequential Test Applications for new development in flood zones 2 and 3 should additionally include a sequential test statement (other than for minor extensions), which should demonstrate that there are no reasonably available alternative sites, within / around the same settlement, where the proposed development could be sited within an area of lower flood risk; the sequential test should consider sites in flood zone 2 if the proposal is located in flood zone 3. The following evidence should be provided:

- *a written statement explaining the area of search;*
- *a map identifying all other sites considered within lower areas of flood risk; and*
- *a written statement explaining why the alternative sites listed within lower areas of flood risk are not reasonably available.”*

12. Requirements related to the consideration of the Sequential Test are set out in national planning policy and its supporting documentation. This was summarised in **Section 1.2 Policy, Legislation and Guidance** of the **FRA**, which also notes that:

“This FRA has been prepared in accordance with the methodology and guidance set out in National Planning Policy Framework (NPPF) (Ministry of Housing, Communities & Local Government, 2021), Planning Practice Guidance (PPG) for Flood Risk and Coastal Change (Ministry of Housing, Communities & Local Government, 2022) and the Environment Agency’s climate change allowance

¹ North Devon Council (1st November 2022) Validation checklist requirements for planning applications submitted to North Devon and Torridge District Councils. Available at: <https://www.northdevon.gov.uk/media/382034/local-list-november-2022.pdf> [Accessed: 20/09/23]

guidance (Environment Agency, 2022). It has also been considered within the context of the relevant National Policy Statements.”

13. In addition, a section related to the application of the Sequential and Exception Test was also provided as **Section 1.7 Consideration of the Sequential Test and Exception Test** of the **FRA**.
14. A review of the comment provided by NDC indicates that the concerns relate to the consideration of alternative sites and site selection process undertaken as part of the Onshore Project.
15. With regard to the various aspects of the Onshore Project, it is noted that with regards to the consideration of flood risk, alternative sites and the site selection process are principally, although not entirely, related to the proposed Onshore Substation.
16. This is on the basis that all other permanent elements of the Onshore Project will be located below ground and therefore will not be subject to flood risk concerns once operational.
17. Given the detailed nature of the Onshore Project, whilst the FRA provides some information related to the application of the Sequential Test, the majority of the information related to the selection of sites is set out in **Chapter 4: Site Selection and Assessment of Alternatives** of the **ES**.
18. Furthermore, given the information on site selection was originally provided within this chapter, it was not felt appropriate to reproduce the information in detail within the FRA.
19. To aid in providing clarification to NDC as part of this note, it is confirmed that during the assessment of alternative sites within **Chapter 4: Site Selection and Assessment of Alternatives** of the **ES**, flood risk alongside other key parameters was included as part of the assessment process.
20. **Section 4.3.2 National Planning Policy Framework** of **Chapter 4: Site Selection and Assessment of Alternatives**, includes flood risk in the list of receptors and criteria which were used in the site and route selection process. Furthermore, **Table 4.6 Siting Principles for the Onshore Substation** summarises the flood risk criteria applied for the site selection process.
21. In addition, **Paragraph 53** of **Chapter 4: Site Selection and Assessment of Alternatives** confirms that:

*"The key drivers for the identification of the substation Area of Search (AoS) were the location of the grid connection offer (as described in **Section 4.4**) and a 3km buffer around it, and the presence of settlements, flood zones, and internationally and nationally designated nature conservation sites (see **Figure 4.2**)."*

22. It then reiterates in **Paragraph 54** of **Chapter 4: Site Selection and Assessment of Alternatives** that:

*"Subsequent to the identification of the AoS, a range of long list substation zones was developed (see **Section 5.2** in **Appendix 4.B**). In accordance with the Horlock Rules outlined, "consideration must be given to environmental issues from the earliest stage" and therefore the areas with relatively fewer sensitive features were included in order to identify the location for the White Cross Onshore Substation. The design assumptions and site selection principles and criteria (see **Section 5.1** in **Appendix 4.B**) used included the avoidance of:*

...

- *Flood Zone 2 and 3*
- *Areas at high risk of surface water flooding including flood risk from groundwater, sewers and reservoirs..."*

23. With regards to the local list requirements, for ease of reference, clarification has been provided with regards to where the information can be found within the ES documentation.
24. Information related to "A written statement explaining the area of search" is set out within **Chapter 4: Site Selection and Assessment of Alternatives** and specifically within supporting document **Appendix 4.A: White Cross Offshore Windfarm Area of Search**.
25. Within **Appendix 4.A: White Cross Offshore Windfarm Area of Search, Section 1.1 Project Background** provides a summary of the legislation, policy and guidance that governs the site selection process as well as summarising the range of design parameters / assumptions that were adopted in the process. **Section 1.2 Project Area of Search** provides a summary of the datasets that were used to identify the Project Area of Search, whilst **Section 1.3 Onshore Area of Search** identifies the constraints related to each element of the Onshore Project, including the Landfall and Onshore Substation.
26. **Appendix 4.A: White Cross Offshore Windfarm Area of Search** provides an overview summary of the Project Area of Search, supported by **Figure 2 Area of**

Search – Onshore; however, it is also noted that further explanation related to the specific locations and zones considered for each element of the Onshore Project are subsequently provided in **Appendix 4.B: White Cross Offshore Windfarm Long List Report**.

27. Within **Appendix 4.B: White Cross Offshore Windfarm Long List Report, Section 4 Onshore Cable Corridor – Identification of Long List** provides a more detailed assessment of the Area of Search for the Onshore Cable Corridor and the routes that were subject to consideration. In addition, **Section 5 Onshore substation – Identification of Long List** provides further clarification related to the substation zones considered, which was based on the same design principles and engineering assumptions as those used for the initial Area of Search, which included, but was not limited to, Flood Zones and surface water flood risk mapping.
28. Supporting information related to *"a map identifying all other sites considered within lower areas of flood risk"* is provided in **Appendix 4.B: White Cross Offshore Windfarm Long List Report**. As noted above, this report sets out the zones considered and includes a series of figures mapping the various constraints, including flood risk, which are provided as **Figures 4.1 – 4.3** for the Onshore Export Cable Corridor and **Figure 5.1** for the Onshore Substation.
29. It is noted that flood risk comprises one of a series of environmental constraints and parameters that need to be considered when considering a site for its suitability. An assessment of each element of the Onshore Project is provided in **Appendix 4.C: White Cross Offshore Windfarm Short List Report** which includes a BRAG assessment to enable comparative analysis of the various constraints / risk associated with each of the options, including consideration of flood risk.
30. With regard to the provision of *"a written statement explaining why the alternative sites listed within lower areas of flood risk are not reasonably available"* for each element of the Onshore Project i.e. Landfall, Onshore Export Cable Corridor and Onshore Substation, there is a conclusion at the end of each section setting out which locations are feasible based on the consideration of various environmental constraints.
31. **Section 6 BRAG Assessment of Onshore Cable Corridors** of **Appendix 4.C: White Cross Offshore Windfarm Short List Report** provides a summary of the BRAG assessment for the long list onshore cable corridors and routes that were identified in the preceding **Appendix 4.B: White Cross Offshore Windfarm Long List Report**. This includes identifying routes classified as having Black criteria and as a result were not progressed further. A summary of the main conclusions

related to the potential engineering and environmental constraints is provided in **Section 6.5 Onshore Export Cable Corridor Conclusions** of **Appendix 4.C: White Cross Offshore Windfarm Short List Report**, including identifying a refined preferred Onshore Export Cable Corridor.

32. For the Onshore Substation, **Section 7 BRAG Assessment of Onshore Substation Zone** provides a summary of the BRAG assessment for the long list onshore substation zones that were identified in the preceding **Appendix 4.B: White Cross Offshore Windfarm Long List Report**. Similar to the process for the Onshore Export Cable Corridor, those zones identified as having Black Criteria were considered and removed from the assessment. A summary of the main conclusions and discounted zones is provided in **Section 7.5 Onshore Substation Conclusions** of **Appendix 4.C: White Cross Offshore Windfarm Short List Report**, as well as identification of the preferred zones to be progressed for further consideration.
33. Based on the clarifications provided above, it is concluded that whilst the assessment of suitable alternative sites, from a flood risk perspective, has not been included in detail within the FRA it has been undertaken for the Onshore Project and primarily evidenced in **Chapter 4: Site Selection and Assessment of Alternatives** of the **ES** and its supporting appendices.
34. Furthermore, this assessment is in accordance with the approach to the Sequential Test set out in the PPG for Flood Risk and Coastal Change and summarised in the local list requirements for NDC.
35. The assessment of alternative sites has considered flood risk including locations at lower risk from the various flood risk sources than the proposed location of the Onshore Substation. However, this assessment indicated that on balance when considering all environmental factors and constraints the chosen location was the most appropriate.

1.4 Impacts along cable route and associated works during the construction phase

36. The comments from NDC related to the flood risk impacts, principally during construction along the cable route and to the temporary works, are provided as follows:

"More detail is required on the implication of the impacts of flooding for the cable route and associated works including compounds and haul roads, particularly during

the construction phase. Interrelation and detailed analyses between existing site levels, flood levels and proposed levels across the site are important in this respect.”

37. In addition, a review of the local list requirements in relation to developments in Flood Zone 3 indicated that Flood Risk Assessments should set out:
 - “...existing flood risk to the site from all sources (e.g. flood depth, flow routes, flood velocity, defence failure);
 - the potential impact of development upon flood risk, including off site/downstream; and
 - design measures proposed to mitigate the risk of flooding, and their impact (details should include floor levels, ground levels, evacuation routes, SUDs).”
38. With regards to the Onshore Export Cable Corridor, it is noted in **Section 1.10** of the **FRA** that following construction of the Landfall and Onshore Export Cables there will be no permanent above ground elements, except for the proposed link boxes. The FRA also notes in **Section 1.10** that drainage along the Onshore Export Cable Corridor will be reinstated to match the baseline conditions and that all temporary construction compounds and temporary access tracks will be fully reinstated and would have no operational use. This process is also summarised in **Section 5.6.3.2.6.3 Drainage Reconnections of Chapter 5: Project Description**.
39. Furthermore, the drainage design for both permanent and temporary elements of the Onshore Project will also be developed as part of the detailed Drainage Strategy post-consent.
40. It is therefore concluded that following construction given current ground levels will be reinstated as well as existing drainage routes reinstated, there will be no change in flood risk as a result of the Onshore Project i.e. there will be no change to flood depths, flow routes etc and there will be no impact on off-site or downstream as the existing flood risk will remain unchanged.
41. On this basis, it was concluded that there would be no flood risk impact either to or from these elements of the Onshore Project, once operational, despite them being located in Flood Zone 3.
42. Therefore, in providing the following clarification it is concluded that the principal concerns related to flood risk impact are associated with the construction phase, as indicated by NDC in their correspondence.
43. It is acknowledged that the temporary construction compounds and haul road are not subject to detailed assessment within the FRA. However, this is based on the

temporary nature of the risk and the inclusion of mitigation measures as an inherent part of the Onshore Project to reduce this risk.

44. Furthermore, despite the low risk of flooding associated with the above temporary elements of the Onshore Project, the remaining risk will also be subject to consideration during detailed design. It will also be considered as part of the permitting process for Flood Risk Activity Permits and / or when obtaining the appropriate consent under the Land Drainage Act 1991.
45. Flood risk as a result of the temporary construction compounds is considered within **Section 1.9.5 Temporary Construction Compounds Surface Water Drainage** of the **FRA**. It provides a summary of the design measures that will be put in place to ensure there is no adverse off-site impact as a result of surface water flooding during construction:
 - Use of trenches to collect rainfall; and
 - Use of either infiltration or controlled discharge to a nearby ditch or watercourse via a silt trap.
46. These measures are also included in **Chapter 5: Project Description** and **Section 5.8 Surface Water Management** of **Appendix 5.B: Outline Construction Environmental Management Plan (OCEMP)**. They will also be reviewed and included in the Final CEMP.
47. **Section 1.10.1 Onshore Export Cable Corridor Design Mitigation** of the **FRA** also notes the potential flood risk impact as a result of the installation of the haul road during construction and summarises the design mitigation that will be included as part of the Onshore Project to ensure there is no off-site risk to receptors during construction. These include:
 - Use of trenchless crossing techniques at Main Rivers;
 - Installation of surface water drainage along the edge of the working width to intercept surface water; and
 - Installation of parallel drainage channels (one on each side) of the haul road to intercept drainage.
48. The mitigation measures outlined in the **FRA** primarily relate to land drainage and surface water flood risk.
49. As part of the construction phase works, there will be no increase in ground levels associated with either the haul road or the temporary construction compounds

which would result in off-site displacement of tidal flood water should there be an extreme event.

50. In addition, given the size and scale of the temporary compounds in comparison with the much larger tidal flood extent there would be minimal change in flood depth should there be any displacement during an extreme event. On this basis, it is concluded that there would be no change in flood depth, flow routes, flood velocity or impact on off-site / downstream receptors during an event of this type.
51. With regards to design measures to mitigate the risk associated with flooding the FRA acknowledges there may be a risk to site workers and users during construction.
52. As such **Section 1.10.3 Flood Warning and Evacuation** of the **FRA** addresses this and provides a summary of the measures that will be required to minimise the risk to site workers. The **FRA** sets out the information required within a flood warning and evacuation plan, including a summary of types of warnings, actions to take and the need to identify access routes away from the Site (both in terms of the Onshore Export Cable Corridor and Onshore Substation). It also states that:

"Flood warning and evacuation plans should be produced for the construction phase of the Onshore Export Cable Corridor, specifically related to construction works where personnel or materials may be located, albeit temporarily, within Flood Zones 2 and 3."
53. Given that during construction there will be limited impact on flood risk, beyond identification of the existing flood risk, it is concluded that measures to ensure the Onshore Project does not increase risk during the construction phase are limited to ensuring the safety of construction workers and materials on-site, should an extreme event be forecast.
54. As noted above, these are measures are summarised in the FRA and will be developed further during the detailed design phase.

1.5 Conclusion

55. This Clarification Note has considered the concerns and comments raised by NDC in correspondence dated 25th August 2023 and in the context of the NDC local list requirements.
56. It has also been considered within the context of the guidance set out in the NPPF and the supporting PPG for Flood Risk and Coastal Change.

57. Furthermore, clarification has been provided to indicate where either the FRA or the wider ES documentation includes existing information to address the concerns raised by NDC.
58. As such, it is considered that all sources of flood risk to the Onshore Project have been considered within the existing documents in the context of the relevant national planning policy and guidance as well as in accordance with local planning policy.

Annex 2: Meeting Minutes

Key notes

**HaskoningDHV UK Ltd.
Industry & Buildings**

Present: Tom Murfin, Conor Barron, Helena Wicks, Colin Roberts, Mark Williams, Simon Dart, Oliver Gardner, Jess Breedon, Neale Hall

Apologies: [Click to enter "Apologies"](#)

From: Tom Murfin

Date: 06 June 2023

Location: Teams

Copy:

Our reference: [Click to enter "CDC"](#)

Classification: Open

Enclosures:

Subject: White Cross OWF Flood Risk ETG

Flood Risk ETG meeting minutes

Introductions:

Conor Barron- RHDHV
Helena Wicks – RHDHV
Colin Roberts – RHDHV
Tom Murfin – RHDHV
Oliver Gardner – FLO
Jess Breedon – FLO
Mark Williams – EA
Simon Dart – EA
Neale Hall - NDDC

Project Overview

RLB:

Simon: At the landfall, how deep will cable be buried?

Conor: Buried at sufficient depth so no risk of cable becoming exposed, minimum of 1.5m if open-cut technique is used. A cable risk burial assessment has been carried out.

Simon: have experience of beach dropping, has fluctuated by half meter, sand movement due to eroding cliffs.

Conor: has all been looked at and including in offshore and onshore projects.

Oliver: Preferred installation technique is trenchless anyway, so would be meters below the beach. Geotech will be carried out to confirm.

Action: Confirm the depth of burial on the beach.

Simon: There is a water level management plan for the area but is quite old.

Colin: We were wondering whether you think a more detailed hydrological assessment of Branton marshes and arable land is required or are you happy with my understanding having previously worked for EA on Branton marshes area?

Simon: I think for flood risk grounds probs not, it's the impact on the water levels for grazing. If works impact that with increasing/decreasing water levels. I have a copy of the plan Colin can have.

Colin: we have a good understanding of movement of water around the system. We have spoken to Melvyn (IDB), he informed us that the channels are clay lined, we do have to take that on board.

Simon: The great sluice was updated 2018, changed water management side of things. One reason why IDB wanted to do an updated water level management plan.

Helena: Boreholes in place, are they still monitored?

Mark: I have that information, we had sites between 2003 and 2009, 3 ditch level sites, rain gauge and boreholes, I have a map to show. All was closed off at the end of the project in 2009.

Info and data available if required.

Colin: monitoring was carried out monthly.

Oliver: contractors will be installing monitoring wells, can do monitoring of that if needed.

Action: EA to provide RHDHV with map showing where the boreholes etc are located.

Helena: SI works, need to understand the water levels for grazing? Can this be done post consent? As a condition for example?

Oliver: RLB is wider than we need at the moment, can build conditions in to do monitoring/further assessment as part of the detailed design.

Helena: Simon, would you be happy with that approach?

Simon: That would make perfect sense. As long as conditions are specific, that will ease concerns for land owners etc.

Colin: relatively flat land, looks suitable for onshore substation. It is in flood zone 3. Not fluvial flooding, more tidal flooding without defences. Existing defences are in place around the PowerStation site. Defences are in varying states of condition. Provide protection of up to 1 in 200 years

Simon: The proposed substation location is in flood zone protection 3a, although that doesn't take into account wave action.

Helena we have uplifted still water levels. Will you agree that it is flood zone 3a. Also worth noting that we have carried out extensive site selection and have gone through other site selection parameters when deciding on this location.

Simon: When doing site selection and looking at buffers from other properties, is that existing properties or developments with planning permission too?

Conor: Built properties, we are aware of Yelland quay.

Simon: That's fine, make sure flood risk zones are correct

Action: Assume we have a flood risk for the substation, RHDHV to provide the note to show the considerations we've gone through to decide the location of the substation, to give confidence to the EA.

Simon: Upper end for sea level rise is ok, design life is a discussion, 50 yrs. is a bit low, substation will likely be around for longer than 50 years, may need to be extended out.

Helena: We are proposing to use the upper end, this is not a DCO. We have adopted a 50 year substation lifetime for other similar projects.

What would you want to be working with?

Simon: Change of land use is what the planning application is for. 300mm freeboard concerns me due to waves. Waves are large in this area and if crow point disappears then waves will get bigger. Work has been done with this on Yelland quay. Have you seen the wave action report for Yelland quay?

Colin: JBA and AWP – I did read, didn't go into much detail.

Simon: Assessment of worst case conditions, if they produce better wave modelling, defences can be brought down etc. I'm not confident with current modelling, particularly with waves in this area.

Oliver: Could we do something very conservative at the moment, include condition to reduce once further modelling has been done?

Simon: That sounds sensible to me, worst case then it comes down a bit.

Helena: Note uses upper level, Simon is not confident 300mm is sufficient. What do we need to say in the FRA. Try and adopt similar approach to the Yelland quay development. Or is Simon more confidence with 500mm for example?

Conor: We have progressed on the assumption of the finished floor level already.

Simon: Quick answer is no. 300mm is minimum freeboard we will do. 600mm or 900mm freeboard as we are dealing with Atlantic waves here. Wave action erodes away defences.

Helena: For the FRA, want to be looking at 600mm to be refined if it can be brought down?

Simon: I don't know if 600mm is enough, may have to be 900mm if I don't get enough evidence. As we know this area floods. Waves are getting into that area; I have to be ultra-precautionary. If crow point goes 2-3m waves are possible on that stretch of coast.

Colin: did this area flood in 2018?

Simon: 2013/14 winter was worse up here, so many unknowns. EA are hoping to have an updated wave modelling report out in December 2023.

Helena: Are there any scheduled works/upgrades on defences?

Simon: Defences are not due to be upgraded. We don't have the money to defend. Would be retreating in this location.

Oliver: Have National Grid carried out any defence works on the existing substation?

Simon: No, National grid not doing anything for the existing substation that we know.

Conor: What level of assessment would you be happy with?

Simon: Looking at setting the level at 8m aod, we have to be ultra precautionary. If you can wait 6 months until modelling report comes out this may decrease.

Helena: Is there scope for the platform to remain but the equipment within the substation be raised up?

Simon: Non waterproof equipment being lifted is fine but need access 24/7. If use Yelland quay access road, then that's fine.

Simon: You need a FRAP to go under the Taw, and one FRAP for all works to do with Sir Arthurs Pill. Provision in place to say if flood warning is issued then certain things would be done.

Oliver: Around the HDD exit pit at the north side of the taw, need to take into account flood risk.

Simon: Concern is more overtopping to the north.

Conor: We are programming to do this work in summer,

Simon: There is often big spring tides in august.

Helena: SWEP needed, including construction works. Materials as well as people not a risk – detailed one would be as a condition.

Oliver: RLB is still subject to refinement.

Helena: Wrapping FRAPs up together?

Simon: Sir Arthur's Pill grouped together, not sure if Taw is a main river. But maybe needed as building near defences.

Helena: Temporary construction compounds, if 16m away from any coastal assets it can negate the need for FRAP.

Action: RHDHV to check compound etc distances from main rivers, coastal assets etc.

Helena: If it is within 16m it would need this, it isn't it won't need this.

Oliver: Assume worst case for each different type of crossing.

Mark: Please send any questions to me.