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White Cross Offshore Windfarm Environmental Statement

Chapter 0: Non-Technical Summary

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Glossary of Acronyms

Acronym	Definition
DCC	Devon County Council
EIA	Environmental Impact Assessment
ES	Environmental Statement
HGV	Heavy Goods Vehicle
km	Kilometre
m	Metre
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MMO	Marine Management Organisation
MoD	Ministry of Defence
MW	Megawatts
NCR	National Cycle Route
NDDCP	North Devon District Council Planning
NE	Natural England
NTS	Non-Technical Summary
SAC	Special Area of Conservation
SSSI	Site of Special Scientific Interest
UK	United Kingdom
WCOWL	White Cross Offshore Windfarm Ltd

Glossary of Terminology

Defined Term	Description
Agreement for Lease	An Agreement for Lease is a non-binding agreement between a landlord and prospective tenant to grant and/or to accept a lease in the future. The Agreement for Lease only gives the option to investigate a site for potential development. There is no obligation on the developer to execute a lease if they do not wish to.
Applicant	White Cross Offshore Windfarm Limited
Cumulative effects	The effect of the Onshore Project taken together with similar effects from a number of different projects, on the same single receptor/resource. Cumulative Effects are those that result from changes caused by other past, present or reasonably foreseeable actions together with the Onshore Project.
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.
In-combination effects	In-combination effects are those effects that may arise from the development proposed in combination with other plans and projects proposed/consented but not yet built and operational.
Landfall	Where the offshore export cables come ashore.
Link boxes	Underground chambers or above ground cabinets next to the cable trench housing electrical earthing links.
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	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. For the purposes of the EIA, two types of mitigation are defined: ▪ 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 effects. Additional mitigation is therefore subsequently adopted by WCOWL 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

Defined Term	Description
	network. From East Yelland substation electricity is transmitted to Alverdiscott where it enters the national transmission network.
Offshore Development Area	The Windfarm Site (including wind turbine generators, substructures, mooring lines, seabed anchors, inter-array cables and Offshore Substation Platform (as applicable)) and Offshore Export Cable Corridor to MHWS at the Landfall. This encompasses the part of the project that is the focus of this application and Environmental Statement and the parts of the project consented under Section 36 of the Electricity Act and the Marine and Coastal Access Act 2009.
Offshore Infrastructure	All of the offshore infrastructure including wind turbine generators, substructures, mooring lines, seabed anchors, Offshore Substation Platform and all cable types (export and inter-array). This encompasses the infrastructure that is the focus of this application and Environmental Statement and the parts of the project consented under Section 36 of the Electricity Act and the Marine and Coastal Access Act 2009.
the Offshore Project	The Offshore Project for the offshore Section 36 and Marine Licence application includes all components offshore of Mean High Water Springs (MHWS). This includes the infrastructure within the windfarm site (e.g. wind turbine generators, substructures, mooring lines, seabed anchors, inter-array cables and Offshore Substation Platform (as applicable)) and all infrastructure associated with the export cable route and landfall (up to MHWS) including the cables and associated cable protection (if required).
Onshore Development Area	The onshore area above MLWS including the underground onshore export cables connecting to the White Cross Onshore Substation and onward to the NG grid connection point at East Yelland. The onshore development area will form part of a separate Planning application to the Local Planning Authority under the Town and Country Planning Act 1990.
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.
Onshore Infrastructure	The combined name for all infrastructure associated with the Project from MLWS at the Landfall to the NG grid connection point at East Yelland. The onshore infrastructure will form part of a separate Planning application to the Local Planning Authority under the Town and Country Planning Act 1990
the Onshore Project	The Onshore Project for the onshore Town and County Planning Act application includes all components 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.
White Cross Offshore Wind Limited	White Cross Offshore Windfarm Ltd (WCOWL) is a joint venture between Cobra Instalaciones Servicios, S.A., and Flotation Energy Ltd
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.
Transition joint bay	Underground structures at the Landfall that house the joints between the offshore export cables and the onshore export cables

Defined Term	Description
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.
Wind Turbine Generators	The wind turbine generators convert wind energy into electrical power. Key components include the rotor blades, nacelle (housing for electrical generator and other electrical and control equipment) and tower. The final selection of project wind turbine model will be made post-consent application
Windfarm Site	The area within which the wind turbines, Offshore Substation Platform and inter-array cables will be present

1. Introduction

1.1 Purpose of this document

1. This document is the Non-Technical Summary (NTS) of the Environmental Statement (ES) for onshore components of the proposed White Cross Offshore Windfarm (hereafter referred to as 'the Onshore Project'). The White Cross Offshore Windfarm is a proposed floating offshore windfarm located in the Celtic Sea with a capacity of up to 100 Megawatts (MW).

2. The Onshore Project is a separate Town and Country Planning Act 1990 application to the Offshore Project components, which have been submitted as a Section 36 (under the Electricity Act 1989) and Marine Licence application to the Marine Management Organisation (MMO) in March 2023.

3. The ES for the Onshore Project describes the potential environmental impacts which may arise from construction, operation, and decommissioning of the Onshore Project. The purpose of the ES is to provide the necessary information and impact assessments undertaken as required under the Town and Country Planning Act 1990 (Environmental Impact Assessment) Regulations 2017.

4. The NTS makes the key issues and findings of the ES accessible and easily understood by the general public. It is available as a stand-alone document. Article 5 of the Environment Impact Assessment (EIA) Directive sets out the core requirements for information that should be included in an NTS. These include:

   - A description of the proposed Onshore Project comprising information on the site, design, size, and other relevant features of the Proposed Development
   - A description of the likely significant effects of the Proposed Development on the environment
   - A description of the features of the Proposed Development and/or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment
   - A description of the reasonable alternatives studied by the developer, which are relevant to the Proposed Development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the Onshore Project on the environment.

1.2 The Project Team

1.2.1 White Cross Offshore Wind Limited

5. The White Cross Offshore Windfarm Project is being developed by White Cross Offshore Wind Ltd (WCOWL), a joint venture between Cobra Instalaciones Servicios, S.A., and Flotation Energy Ltd.

1.2.2 Royal HaskoningDHV

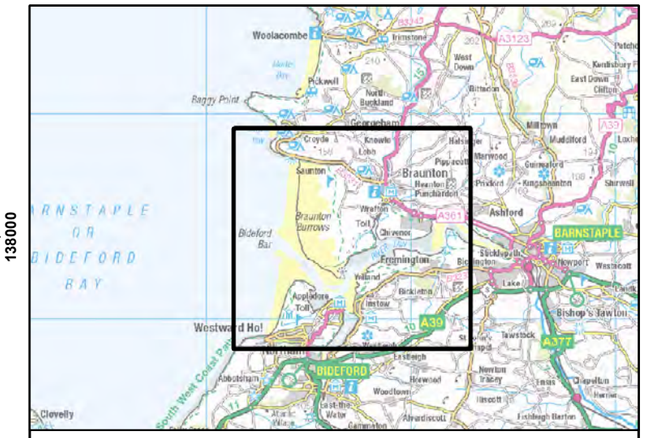
6. Royal HaskoningDHV was commissioned by White Cross Offshore Windfarm Ltd (WCOWL) as the consultant to lead the White Cross EIA. Royal HaskoningDHV is an environmental and engineering consultancy with significant expertise in offshore renewable energy. Royal HaskoningDHV has been supported throughout the EIA process by several sub-consultants who provided specialist technical services.

7. Royal HaskoningDHV is accredited by the Institute of Environmental Management and Assessment under the EIA Quality Mark Scheme. This demonstrates Royal HaskoningDHV's commitment to ensuring the EIA process is delivered to a high quality and in accordance with best practice.

1.3 Project Overview

8. The Onshore Project includes the infrastructure associated with the Landfall at Saunton Sands (to Mean Low Water Springs (MLWS)) where the onshore components connect to the Offshore Project infrastructure. The Onshore Infrastructure includes an Onshore Export Cable, a new Onshore Substation, and an Interconnecting Cable to the grid connection point at the existing East Yelland substation. A connection agreement has been made with the National Grid to connect to the existing substation at East Yelland.

9. The Onshore Project location is shown in **Figure 1.1**.



Legend:

- Onshore Development Area
- Onshore Development Area 1km Study Area
- White Cross Onshore Substation
- 1km Radii
- Onshore Substation 3km Study Area
- Properties Within 100m of Cable Corridor

Client: Offshore Wind Ltd.	Project: White Cross Offshore Windfarm

Title: Aerial Mapping with Onshore Development Area

Figure: 1.1 | Drawing No: PC2978-RHD-ZZ-XX-DR-Z-0743

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Co-ordinate system: British National Grid

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1.4 Purpose of the Project

10. The White Cross Offshore Windfarm has been brought forward through The Crown Estate's Test & Demonstration leasing opportunity, designed to support the development of innovative energy technologies.

2. White Cross Onshore Project Description

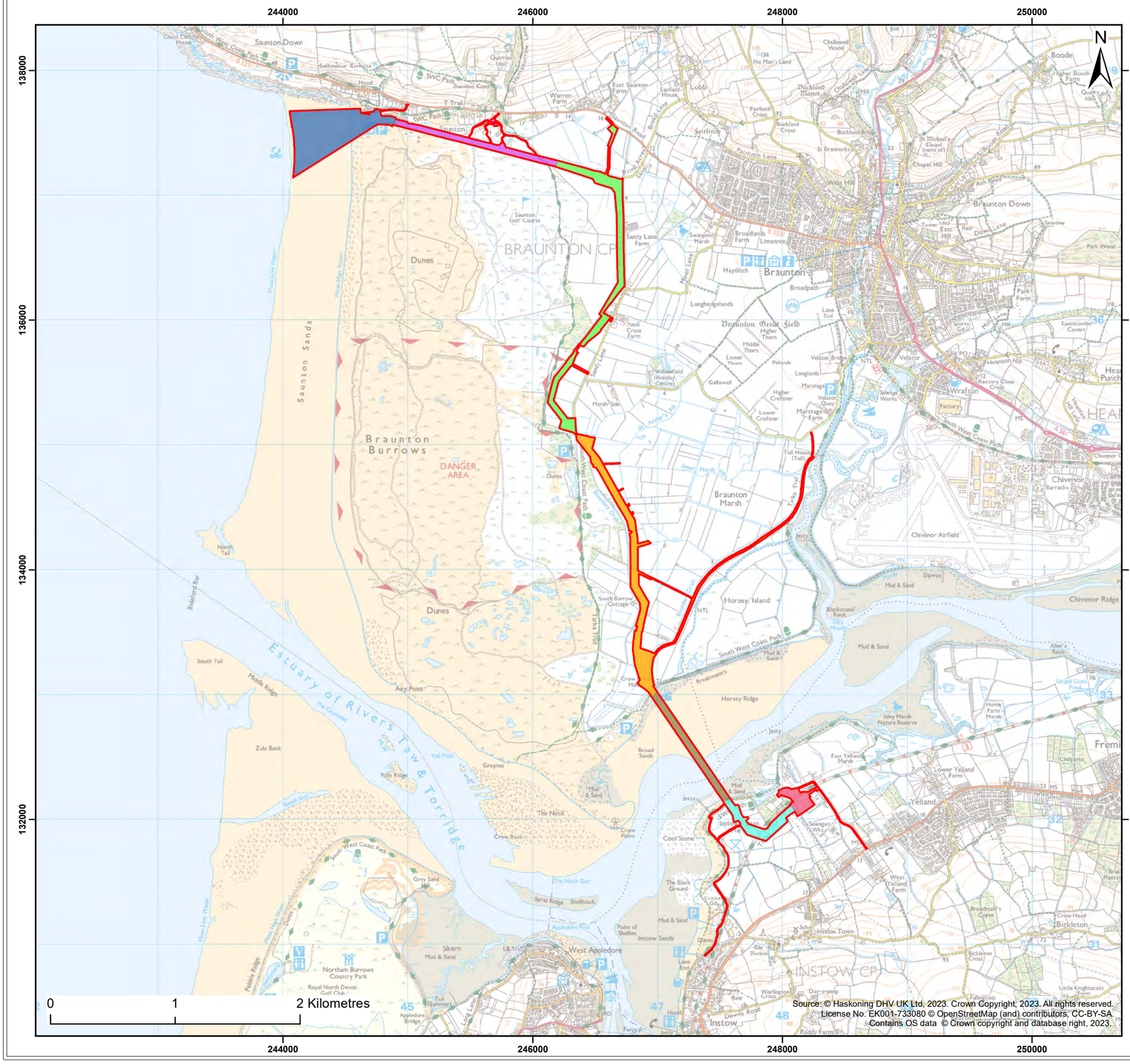
2.1 Onshore works

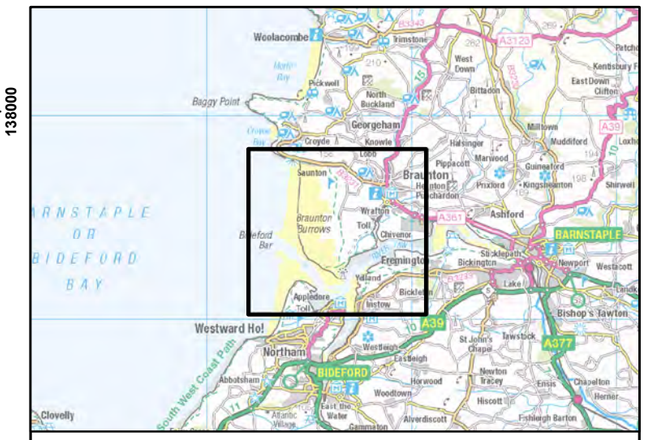
11. The Offshore Export Cable will be connected to the Onshore Export Cable in Saunton Sands Car Park. The Onshore Export Cable travels approximately 8km, at its maximum, inland to the White Cross Onshore Substation. This will include a crossing below the Taw Estuary (between Mean High Water Springs (MHWS) on the northern shore to MHWS on the southern shore) using a trenchless technique. The White Cross Onshore Substation will be constructed to accommodate the connection of the Windfarm Site to the existing East Yelland substation and Grid Point of Connection.

12. The key components of the Onshore Project are:

- Onshore Export Cable, approximately 8km in length (from Landfall to the White Cross Onshore Substation and from the White Cross Onshore Substation to the existing East Yelland substation and the National Grid Point of Connection)
- Transition Joint Bay, joint bays and link boxes installed along the Onshore Export Cable
- Trenchless crossing at certain locations such as sensitive habitats and large watercourse crossings
- Opencut trenching at other less sensitive locations
- One temporary main construction compound and up to four smaller temporary construction compounds
- Temporary access roads and haul roads
- A new White Cross Onshore Substation
- A connection to the National Grid Onshore Substation and grid connection point
- Permanent access to the White Cross Onshore Substation.

13. To aid environmental assessment and design development, the Onshore Export Cable Corridor has been divided into seven sections as illustrated in **Figure 2.1**.





Legend:

- Onshore Development Area

Onshore Export Cable Corridor Sections

- Section 1
- Section 2
- Section 3
- Section 4
- Section 5
- Section 6
- Section 7

Client: Offshore Wind Ltd.	Project: White Cross Offshore Windfarm

Title: Onshore Project Sections

Figure:	Drawing No:
2.1	PC2978-RHD-ZZ-XX-DR-Z-0737

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2.1.1 Section 1 Landfall Area (from MLWS)

14. Section 1 runs from the Landfall (to MLWS) area to the eastern end of the Saunton Sands Car Park. The construction methodology at Landfall along the beach and into the car park will be undertaken using either open trench or a trenchless technique.

15. The car park is the proposed location of the temporary Landfall compound, trenchless installation rig, and the Transition Joint Bay. From there, the cable runs towards Saunton Golf Course and crosses the golf course using a trenchless technique.

Image 2.1 Landfall location at Saunton Sands

2.1.2 Section 2 Saunton Golf Club

16. Section 2 runs southeast crossing the Saunton Golf Club. Access routes required for surveys and for maintenance activities are provided from the existing access to Saunton Golf Club from Saunton Road. Careful environmental and technical consideration will be taken to determine the access route of least impact.

17. The Onshore Export Cable in this section will be installed using trenchless techniques.

Image 2.2: Saunton Golf Club

2.1.3 Section 3 North Fields (north of Sandy Lane Car Park)

18. Section 3 runs southeast and then south from the eastern edge of Saunton Golf Club through arable fields and crossing 11 field boundaries and drainage ditches before extending to Sandy Lane Car Park.

19. The construction methodology within this section is still to be determined but will be undertaken using either open cut or trenchless techniques. Further assessments will ensure the route of least impact is chosen.

20. To the north of Section 3 is a new temporary access route that will be used to provide access to the Onshore Development Area during the cable installation.

Image 2.3: Area to the north of Sandy Lane Car Park

2.1.4 Section 4 South Fields (south of Sandy Lane Car Park)

21. Section 4 passes south extending from the east of Sandy Lane Car Park to the Taw Estuary Crossing. The Onshore Export Cable Corridor will cross from Section 3 to the pastural fields to Braunton Marshes using a trenchless technique to avoid disturbance to vegetation on the boundaries of the Braunton Burrows Special Area of Conservation (SAC) as well as the Greenaways and Freshmarsh, Braunton Site of Special Scientific Interest (SSSI).

Image 2.4: Braunton Marshes

22. The construction methodology within this section is still to be determined but will be undertaken using either open cut or trenchless techniques. Further assessments will ensure a route of least impact is selected.

2.1.5 Section 5 The Taw Estuary Crossing using Trenchless Technology

23. Section 5 contains the Taw Estuary Crossing and extends from the northern edge to the southern edge of the River Taw. The methodology proposed to install the Onshore Export Cable underneath the river will be a trenchless technique which is expected to be Horizontal Directional Drill or Direct Pipe. A temporary construction compound will be required at both ends of this crossing to facilitate the construction works.

Image 2.5 The Taw Estuary

2.1.6 Section 6 Connection to the White Cross Onshore Substation

24. Section 6 runs southeast from the southern edge of the Taw Estuary Crossing towards the White Cross Onshore Substation. The Onshore Export Cable installation method in this section is expected to be a combination of open cut and trenchless technique but is yet to be determined.

25. The crossing of the Tarka Trail and below the existing overhead lines from the East Yelland substation will be via a trenchless technique.

Image 2.6 The Tarka Trail

2.1.7 Section 7 White Cross Onshore Substation to National Grid Connection Point

26. The White Cross Onshore Substation will be located to the west of the Estuary Business Park partly on the site of a former oil storage depot. Cables will exit the White Cross Onshore Substation running east/north for 350m towards the National Grid connection point at East Yelland substation. This section will be installed by a combination of open cut and trenchless techniques, including a crossing of the Tarka Trail using a trenchless technique.

Image 2.7 Proposed Location of White Cross Onshore Substation

2.2 Site Selection and Assessment of Alternatives

27. The Offshore Windfarm Site was established in 2021 through the site selection process associated with the Crown Estate Test and Demonstration leasing opportunity. Several grid connection options close to the Windfarm Site were identified. These options were narrowed down to East Yelland and Alverdiscott.

28. Following an examination of the two options, an application for a grid connection was submitted to Western Power Distribution, now National Grid. The outcome of this application was a connection agreement (secured in November 2021) with National Grid to connect to the existing substation at East Yelland which will use the remaining capacity at this grid connection.

29. The site and route selection process of the Onshore Project followed a staged approach, taking account of environmental, physical, technical, commercial and social considerations and opportunities. Engineering feasibility has also been a key consideration for suitable options and site selection.

30. Following identification of the Offshore Windfarm Site and the location of the National Grid connection point, site selection began to consider potential routes

between the two locations. Stakeholder engagement played a key role in influencing the site selection process. The outcome of the site selection process was the identification of the Landfall, the Onshore Export Cable Corridor and the White Cross Onshore Substation location. Full details are provided in the Short List Report appended to the Environmental Statement **Chapter 4: Site Selection and Assessment of Alternatives**.

2.2.1 Consultation

31. To inform the route selection process, focussed individual consultation has taken place with a range of stakeholders. For further details on the consultation please see **Section 2.4**.

2.2.2 Identification of the Grid Connection Point

32. The Onshore Project examined several different potential grid connection options, the outcome was a connection to East Yelland as opposed to Alverdiscott further to the south. There were several reasons for the Onshore Project connection being at East Yelland. These include:

- East Yelland offers a logical connection to the energy distribution network due to its location adjacent to the shore
- Due to the size of the project, with a capacity of up to 100MW, it is able to use the remaining spare capacity at the East Yelland substation, something that few other energy developments would be able to do, minimising the requirement to undertake further substation development. A route to Alverdiscott would have resulted in a longer cable route which is likely to have resulted in a greater number of environmental, physical, technical, commercial and social constraints for the Onshore Project
- By not connecting into Alverdiscott, the Alverdiscott substation remains available for future projects likely to arise in further leasing rounds in the Celtic Sea. These projects will have much larger capacity requirements. Developing a cable route to Alverdiscott for the Onshore Project would risk sterilising land likely to be required by future larger projects for their cable routes.

2.2.3 Identification of the Landfall location

33. The key drivers for the identification of the landfall Area of Search were the:

- Location of the grid connection point
- Location of the Windfarm Site Agreement for Lease area
- The presence of significant ecological designations along the coast

- The presence of coastal settlements and other coastal development
- Technical and commercial considerations.

34. Three potential landfall zones along the coastline were identified with the potential to accommodate the required infrastructure and were taken forward for consideration:

- North Zone Landfall - Putsborough to Woolacombe (length of frontage is 2.5km)
- Mid Zone Landfall - Instow to Saunton Down (length of frontage is 7.6km)
- South Zone Landfall - Peppercombe to Rock Nose (length of frontage is 6.3km).

35. After further assessment, it was concluded that the North Zone landfall was unsuitable due to transport and access issues; sensitive archaeological assets and the steep slopes would cause engineering complexity.

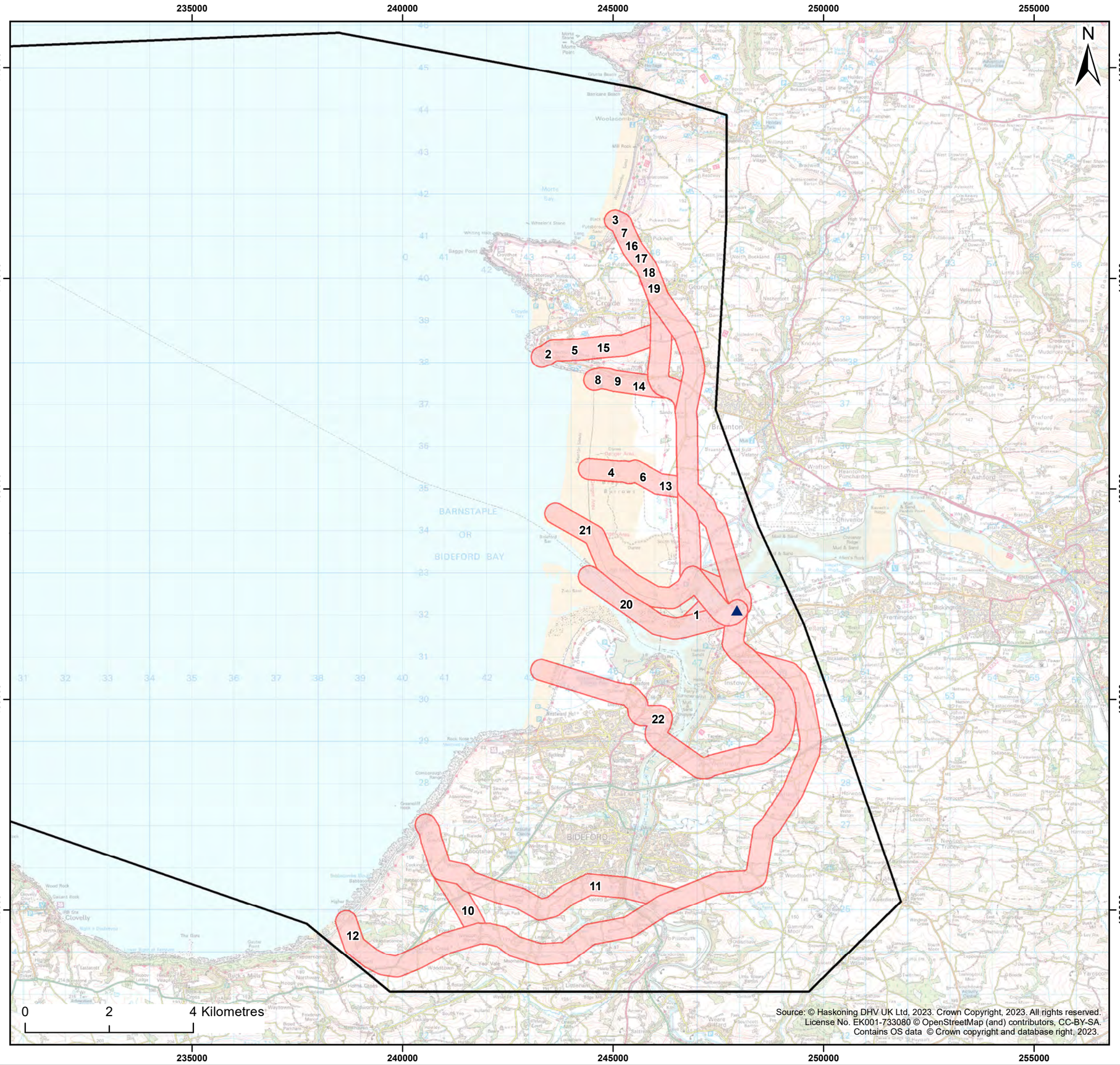
36. Considering onshore components, the Mid Zone landfall is preferred due to engineering, environmental and social considerations. The one key issue at the Mid Zone landfall is the presence of the Braunton Burrows SAC and potential sensitivity to disturbance. However, development of the onshore route, design, and potential construction techniques will prevent any direct long-term impacts to the SAC and its features. The requirement for mitigation, particularly haul roads and temporary access for the South Zone landfall routes would be much more extensive due to its longer length and nature of the landscape that would make access for construction vehicles difficult.

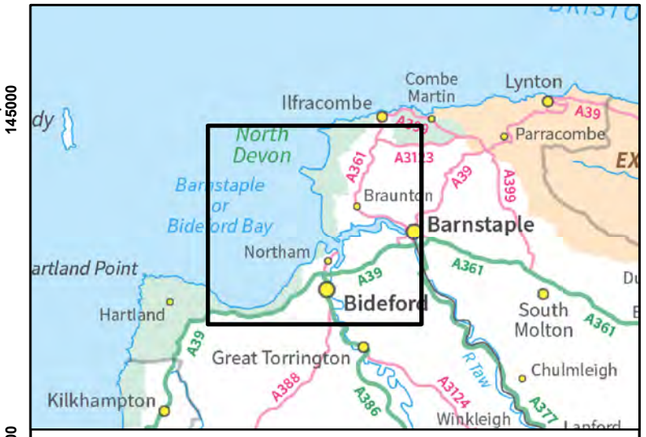
2.2.4 Identification of the Corridor for the Onshore Export Cable

37. Following the identification of the Area of Search, the long list of Onshore Export Cable Corridors was developed linking the short list of landfall locations and the White Cross Onshore Substation at East Yelland. As described in **Section 2.2.3**, the North and South Zone Landfall location options was discounted, therefore, any corridor options linking to these landfall options were no longer considered.

38. After the formation of a long list and further assessments to create a short list of corridors, two corridors were considered further (routes 13 and 14, as seen in **Figure 2.2**). However, after consultation with Natural England (NE) both corridors were considered unsuitable due to the impact on the Braunton Burrows SAC. Therefore, one of the corridor routes (route 14) was altered to avoid the SAC as much as possible. The altered route became the preferred corridor for the Onshore Export Cable, the main reasons for this decision were:

- No long-term impact on the Braunton Burrows SAC and SSSI and Taw-Torridge Estuary SSSI (due to using trenchless techniques)
- Avoids access areas required for Ministry of Defence (MoD) activities
- Avoids disturbance to MoD track infrastructure
- Avoids topographic constraints
- Avoids features of archaeological potential
- Able to avoid residential properties.





Legend:

- Area of Search
- Potential Grid Connection Locations
- Onshore Cable Corridors

Client: Offshore Wind Ltd.	Project: White Cross Offshore Windfarm

Title: Onshore Export Cable Corridor Potential Routes

Figure: 2.2 | Drawing No: PC2978-RHD-ZZ-XX-DR-Z-0738

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2.2.5 Identification of the Onshore Substation location

39. The selected grid connection point is an existing substation at East Yelland. However, a project substation is required alongside the East Yelland substation to 'step up' the required voltage from 33kV to 132kV.

40. The key drivers for the identification of the White Cross Onshore Substation location were the:

- Location of the grid connection point
- The presence of residential properties
- The presence of flood zones
- The presence of significant international and national designated conservation sites
- Technical and commercial considerations.

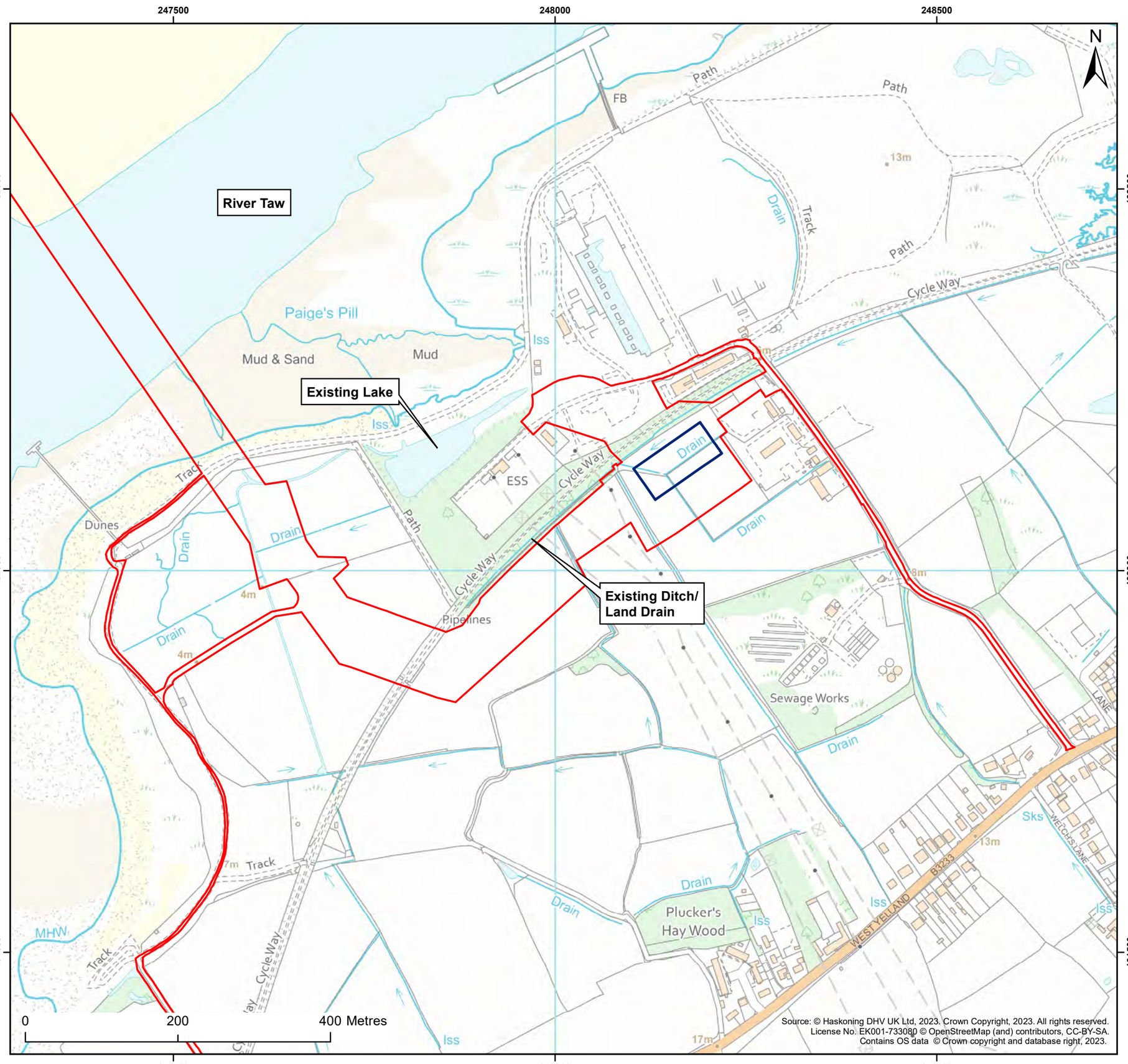
41. Eleven potential zones were considered for the location of the onshore substation. After further assessments, two potential White Cross Onshore Substation zones were identified:

- Zone 2 - located in agricultural fields where some Coastal and Floodplain Grazing Marsh Priority Habitat is present, however locating the substation northwards would avoid this. Some of the zone would be visible from the North Devon Area of Outstanding Natural Beauty, however, the north end of the zone is fairly well screened by the existing woodland surrounding the East Yelland substation. It lies in Flood Zone 2 and 3 (like Zone 3) though it is benefiting from existing (and to be improved) defences
- Zone 3 - located on a major previous development (Yelland Depot) which may contain contaminated land. Additionally, the land is owned by Golden Bay Homes Limited & Waterfront Homes (1998) Limited and is being considered for a planning application submission. It lies in Flood Zone 2 and 3 (like Zone 2) though it is benefiting from existing (and to be improved) defences. Generally, landscape impacts were considered acceptable, and additional mitigation (planting) could be provided around sections of the structure not benefiting from existing trees.

42. The other zones were discounted, as they were either located within sensitive sites (Coastal and Floodplain Grazing Marsh Priority Habitat and Tapeley Park Grade II Historic Park and Garden) or located in close proximity to the North Devon Area of Outstanding Natural Beauty, or had limited road access.

43. After further assessment, it was concluded that the preferred option for the White Cross Onshore Substation location would be Zone 3 and this was therefore taken

forward. Locating the substation within Zone 3 will also use brownfield land. This option will also reduce the potential for landscape and visual impacts compared to siting the substation within Zone 2. **Figure 2.3** shows the proposed White Cross Onshore Substation location.



Legend:

- Onshore Development Area
- White Cross Onshore Substation

Client: Offshore Wind Ltd.	Project: White Cross Offshore Windfarm

Title: White Cross Onshore Substation Location

Figure: 2.3 | Drawing No: PC2978-RHD-ZZ-XX-DR-Z-0739

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2.3 The EIA Process and ES Structure

44. The EIA process includes the collection of data from a variety of desk-based studies and site-specific surveys. This is then used to identify and assess the potential effects of a development. The assessments identify any significant adverse effects and any measures needed to avoid, prevent or reduce significant effects.

45. A number of consultation events, targeted stakeholder engagement and expert topic group meetings have taken place. Within local areas, public engagement events have also been held to answer questions and gain feedback. Feedback from these consultation and engagement events have been taken into consideration and where relevant, used to inform the design development and final design of the Onshore Project. The purpose of the ES is to inform decision-makers, stakeholders and all interested parties of any significant environmental effects that would result from the Onshore Project during its construction, operation and maintenance, and (where relevant) decommissioning phase.

2.4 Scoping Consultation

46. Focussed consultation took place with experts from relevant organisations with a clear statutory role or non-statutory interest in the topics considered within the ES. Scoping stage consultation was targeted at stakeholders considered the highest priority.

47. The purpose of the Scoping Opinion (Case reference: EIA/2022/00002) is to outline what will or will not be included in the EIA, proposed data gathering methods and impact assessment methodology. Following the receipt of the Scoping Opinion from the MMO (received May 2022), working groups were established which met on a regular basis to provide additional expert input into the EIA and Habitat Regulation Assessment process. This allowed a consensus to be reached on the scope and approach to the impacts to be considered within the EIA, and the comprehensiveness and suitability of data used. Consultation details provided here are solely related to the Onshore Project. Meetings were held with the following stakeholders to discuss potential Onshore Export Cable Corridors:

- Torridge District Council
- North Devon District Council Planning (NDDCP)
- Devon County Council (DCC)
- Braunton Parish Council
- Georgeham Parish Council
- Christie Devon Estates

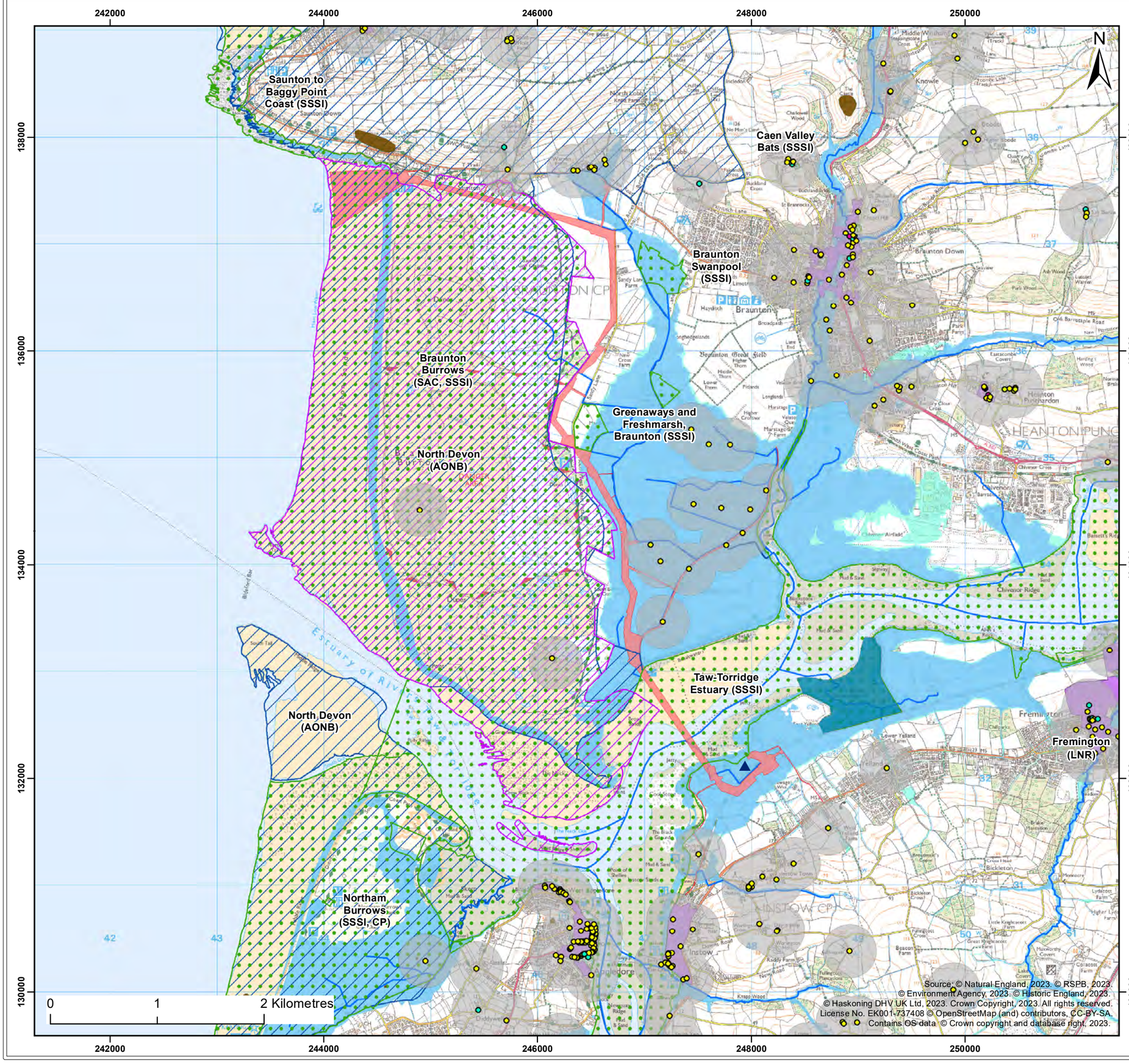
- Devon Wildlife Trust
- NE
- Royal Society for the Protection of Birds
- Joint Nature Conservation Committee
- Historic England
- National Trust
- Ministry of Defence
- Environment Agency.

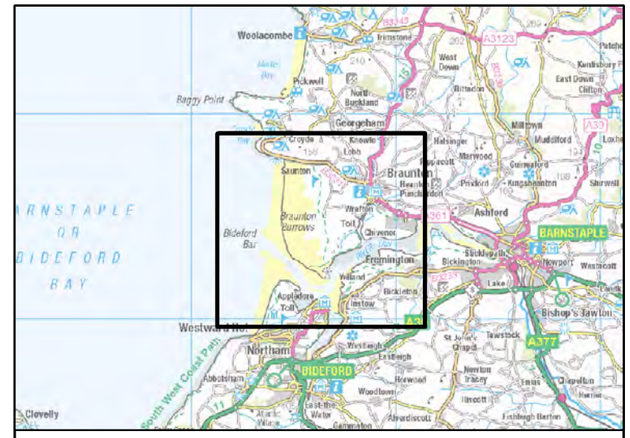
48. Feedback on potential White Cross Onshore Substation locations has been received during meetings with a range of stakeholders. Meetings were held with the following stakeholders to discuss potential White Cross Onshore Substation locations:

- DCC
- NDDCP
- Local Members of Parliament
- South West Business Council
- Environment Agency
- NE.

3. Topics Considered in the ES and Mitigation Measures Proposed

49. The following sections outline the environmental topics that have been considered within the ES. An overview of the main environment constraints is shown in **Figure 3.1.**





Legend:

- Onshore Development Area
- Potential Grid Connection Location
- Special Areas of Conservation (SAC)
- Sites of Special Scientific Interest (SSSI)
- Areas of Outstanding Natural Beauty (AONB)
- RSPB Reserve Boundary
- Scheduled Monuments
- Conservation Areas

Listed Buildings

Grade

- I
- II
- II*
- Listed Buildings 250m Buffer
- Ordinary Watercourse
- Main River
- Flood Zone 3
- Flood Zone 2

Client: Offshore Wind Ltd.	Project: White Cross Offshore Windfarm

Title: Main Environmental Constraints

Figure: 3.1	Drawing No: PC2978-RHD-ZZ-XX-DR-Z-0733

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
P01	14/08/2023	GC	CB	A3	1:35,000

Co-ordinate system: British National Grid

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3.1 Onshore

3.1.1 Ground Conditions and Contamination

50. Ground conditions and contamination assessments have considered potential impacts on human health, controlled waters, geological sites and mineral resources, built environments and agricultural land within the local area.

51. The assessments considered whether sensitive environmental sites and resources could be impacted as a result of disturbance and mobilisation of existing contamination, and also the potential introduction of new sources of contamination. Sterilisation of mineral resources could also occur during each of phase of the Onshore Project.

52. However, the assessment concluded that following the implementation of mitigation measures **no significant effects** are likely. Mitigation will include the preparation of a Construction Environmental Management Plan that will be regularly reviewed and updated. Other mitigation includes following best practice to reduce dust, monitoring of air quality, ensuring the safe storage and disposal of wastewater and being prepared for accidental spillages.

3.1.2 Air Quality

53. The key issues considered for air quality were potential effects arising from the construction works. These included dust, emissions produced from onsite machinery, and emissions produced by road vehicles.

54. The results of the assessments showed that the effects of construction dust and emissions from on-site machinery were **not significant** with the implementation of site-specific mitigation measures, which include a Dust Management Plan. The effects of road traffic emissions on people and ecological sites during construction were also considered **not significant** due to the low number of vehicles and the temporary nature of the construction works.

3.1.3 Water Resources and Flood Risk

55. Potential impacts to water resources and flood risks during construction, operation and decommissioning phases are:

- Disturbance of surface water bodies
- Increased sediment supply
- Supply of contaminants to surface and groundwaters, and
- Changes to surface and groundwater flows and flood risk.

56. The Landfall, Onshore Export Cable Corridor and proposed Onshore Substation do not interact on a large scale with surface or groundwater resources, or areas of flood risk. As such, the magnitude of impact for construction, operation and maintenance, and decommissioning across catchments crossed by the Onshore Project is assessed as **medium** to **negligible**.

57. The residual effects for construction, operation and maintenance and decommissioning activities across all water bodies is **moderate adverse**, although this is precautionary based on a relatively high number of trenched crossings for very minor drainage ditches. The Onshore Project will adopt a Construction Environmental Management Plan to avoid, minimise or mitigate any effects on the environment.

3.1.4 Land Use

58. The land use within the Onshore Development Area primarily comprises of agricultural land, some of which is enrolled in agri-environment schemes. The soils within the study area are mostly loamy and clayey. Clayey soils have few sand grains and a lot of very small particles. Loamy soils have a mix of sand, silt and clay-sized particles.

59. The Onshore Project will interact with 12 recreational routes which include Public Rights of Way (bridleways and footpaths), the Tarka Trail (long distance walkers' route) and the South West Coast Path (National Trail). The Onshore Project also crosses the proposed extension of the England Coastal Path between Combe Martin and Marshland Mouth.

60. The area of agricultural land temporarily affected during construction will be more than 20ha and the significance of effect will be **moderate adverse**. The onshore cables will be buried to an indicative depth of 1.9m. Following completion of construction works and reinstatement, it will be possible to continue normal agricultural activities.

61. A Soil Management Plan outlining the mitigation measures and best practice techniques for handling soil during construction will be prepared. With mitigation, the residual effect on soils impacted during construction will be **minor adverse** which will **not be significant**.

62. Potential interactions with recreational routes will be limited to works along the Onshore Export Cable Corridor and the White Cross Onshore Substation. The Landfall works will not require closures of any recreational routes, although some activities may require brief periods of restricted access. Disruption to any

recreational routes will be appropriately managed to ensure safe access to alternative routes for members of the public, and all efforts will be made to minimise any disruption. There will be no permanent closures of any recreational routes. A Public Rights of Way Strategy describes the mitigation measures for Public Rights of Way. This will ensure there will only be **minor** impacts on Public Rights of Way, the Tarka Trail (and National Cycle Network route), and the National Trail.

63. Permanent land will be required for the White Cross Onshore Substation, including an attenuation pond and landscaping. Private agreements will be sought with the relevant landowners / occupiers regarding any permanent loss of land required.

64. As the Onshore Export Cables will be buried, the residual effects on land use and agri-environmental schemes during operation will be short-term and temporary.

3.1.5 Ecology and Ornithology

65. The onshore ecology and ornithology study area incorporates all of the Onshore Project components, where significant effects are possible during the life of the Onshore Project. The study area has been extended for species that travel greater distances such as birds and bats within the local area.

66. An initial desk study was undertaken to obtain information on onshore ecology and ornithology. Site specific surveys were then undertaken in 2022 and 2023, which included:

- Intertidal survey
- Extended Phase 1 habitat survey
- Supplementary Extended Phase 1 habitat surveys
- Bat activity survey
- Supplementary bat activity survey
- Bat roost surveys
- Water vole and otter survey
- Dormouse survey
- Badger survey
- Breeding bird survey
- Great-crested newt survey
- Reptile survey
- Terrestrial and aquatic invertebrate survey
- Terrestrial vegetation survey
- Aquatic vegetation survey.

67. The routeing and construction methods used for the Onshore Export Cables have been designed to reduce direct effects on designated sites such as Braunton Burrows SAC/SSSI and the Taw-Torridge SSSI. It also been routed to minimise impacts on other key habitats and trees and hedgerows. However, habitat loss due to vegetation clearance works will occur during construction. Construction impacts will include:

- Temporary habitat loss affecting non-statutory designated sites
  - The temporary loss of habitat will be mitigated using trenchless techniques and bridges to avoid the most botanically rich/ diverse grassland and swamp areas. here this is not possible, the removal and reinstatement of turves will be undertaken
- Disturbance to non-roosting bats, temporary loss of bat foraging or commuting habitats
  - The impact of construction on bats will be mitigated by coppicing hedgerows at Saunton Road and Sandy Lane to avoid permanent loss and speed-up re-establishment. Temporary 'fake hedges' (fencing panels covered with netting) will be used for all hedgerow gaps over 20m in width. Construction lighting of bat habitats will also be avoided or minimised.
- Disturbance to over-wintering birds, including loss or damage of over-wintering bird habitats
  - The disturbance to over-wintering birds will be mitigated by restricting the timing of construction activities within 200-300m of the Taw/Torridge Estuary SSSI. Additional mitigation will include managing alternative roost habitat away from the construction works and monitoring of bird assemblages during construction.

68. Following implementation of the mitigation measures described above, effects on onshore ecology and ornithology during operation will be **negligible** for all species and habitats.

3.1.6 Archaeology and Cultural Heritage

69. The potential effects on archaeology and cultural heritage considered impacts on heritage assets and any changes to the settings of heritage assets.

70. There are two Grade II listed heritage assets located within the Onshore Development Area:

- Stile and Flanking Walls 900 Metres South West of The Great Sluice (List Entry – 1310081)

- Stile and Flanking Walls 200 Metres North East of The Great Sluice (List Entry - 1310084).

71. Mitigation measures, including traffic management and speed limits set out in the Project Access Strategy will ensure the two Grade II heritage assets are protected during construction works.

72. **No significant effects** on the setting of heritage assets were identified during construction or operation. Tree and hedgerow planting will be provided around the White Cross Onshore Substation to help integrate the building into the surrounding countryside.

73. A programme of archaeological trial trenching is being undertaken. The first phase commenced in June 2023 and the second phase commenced in August 2023. This will reduce, as far as possible, the potential for impacts on unknown archaeology during construction. In the event of an unexpected discovery, this will be reported using a formal protocol for archaeological discoveries which will establish whether the recovered objects are of archaeological interest and recommend appropriate mitigation measures.

3.1.7 Noise and Vibration

74. Potential noise and vibration impacts considered within the noise and vibration assessments were:

- Construction works at the landfall
- Cable corridor construction works
- White Cross Onshore Substation construction works
- Noise from off-site construction traffic
- Construction vibration
- Operational noise.

75. The results of the noise and vibration assessment show that the effect of construction works will **not be significant** with proposed mitigation measures. These include the implementation of a Construction Noise and Vibration Management Plan, a Construction Traffic Management Plan, and the use of temporary noise screens for specific work activities.

76. During the operational phase the Onshore Substation will emit noise, however these noise emissions are predicted to be of **minor significance**.

77. The assessment of cumulative effects from the Onshore Project and other developments and activities concluded that **no significant** cumulative effects are anticipated.

3.1.8 Traffic and Transport

78. The local traffic and transport network that could be affected by the Onshore Project includes main 'A' roads such as the A361 and A3125; main 'B' roads such as the B3231 and B3233; and single track roads such as Sandy Lane, Blind Acres Lane/Burrows Close Lane and Moor Lane. Several public rights of way and cycle routes will also be crossed by the Onshore Project or be close to the construction traffic route such as:

- Any footways on roads listed above
- An on-road cycleway along sections of the A361
- Sections of the National Cycle Route (NCR) 27
- Sections of the South West Coast Path, and
- Sections of the NCR 3.

79. The effects of construction traffic using the B3231 and B3233 will be **minor**. Mitigation measures, such as reducing the number of Heavy Goods Vehicle (HGV) trips during peak periods, will be included in a Construction Traffic Management Plan to manage the impact of HGV's on the road network.

80. All other potential effects on road connections, public rights of way and cycle routes during construction are expected to be **negligible**.

3.1.9 Landscape and Visual Amenity

81. Landscape planning designations and defined areas within the study area include:

- North Devon Area of Outstanding Natural Beauty
- Registered Park and Gardens – Tapeley Park (II*)
- Heritage Coast: North Devon Heritage Coast.

82. The following settlements lie either wholly, or partly within approximately 1km of the Landfall, the Onshore Export Cable Corridor, or the Onshore Substation, within the landscape and visual amenity study area:

- Saunton
- Braunton
- Appledore
- Yelland

- Instow
- Instow Town.

83. Bickleton and parts of Fremington lie between 2km and 3km from the White Cross Onshore Substation.

84. Visitor locations notable as places of interest for visitors within the White Cross Onshore Substation and Onshore Export Cable Corridor study areas include:

- Beaches at Saunton Sands to Crow Point, Instow Sands, West Appledore, and Grey Sands Hill
- Temporary holiday accommodation at Saunton Beach Cabins
- Saunton Golf Course (Braunton Burrows)
- Braunton Burrows dune system – part of the North Devon Biosphere Reserve
- Braunton Great Field, remnant medieval open strip field system
- Extensive SSSIs which cover much of the Taw-Torridge Estuary, Braunton Burrows and Northam Burrows.

85. Landscape character will be directly impacted by the Onshore Infrastructure. The siting and design of the Onshore Project have, however, aimed to minimise the removal of landscape features. As a result, physical landscape effects will be minimised, ensuring that the landscape character of the local area is retained. Landscape features such as sections of hedgerow that will be lost during the construction process will be replanted.

86. **Major** to **moderate** landscape character effects will occur locally during construction of the White Cross Onshore Substation. During the operation and maintenance phase, effects within the same area will reduce to **moderate significant adverse** as proposed mitigation planting becomes established and provides increased integration and screening. **No significant effects** on landscape character will result from the construction of the Onshore Export Cable Corridor or at the Landfall. Although there will be temporary disruption to the beach area, the key characteristics will remain intact with only a very localised level of disruption. The trenchless crossing of Braunton Burrows will **avoid significant effects** on the character of the valued landscape.

87. There will be **no significant effects** on the Special Qualities of the North Devon Area of Outstanding Natural Beauty, or the North Devon Heritage Coast, arising from the construction of the Onshore Export Cable Corridor, or at the Landfall. The sensitive siting of the White Cross Onshore Substation and screening effect of intervening landscape features will ensure that there will be **no significant effects**

on the North Devon Area of Outstanding Natural Beauty or Heritage Coast during construction or operation.

88. The Onshore Infrastructure may affect existing views experienced by people within the local area. However, sensitive siting, existing vegetation and built features within the surrounding context of the White Cross Onshore Substation will restrict the degree to which it is visible.

89. During construction, **significant** visual effects associated with the Landfall and Onshore Export Cable Corridor will be experienced in some local areas, including:

- A localised section of the South West Coast Path at Saunton Downs and Saunton
- Across approximately 0.8km of the South West Coast Path to the south of the Saunton Sands Hotel
- Saunton Sands beach car park
- On parts of the B3233
- A short section of the South West Coast Path to the north of the River Taw
- Between Broad Sands car park and up to approximately 0.7km to the east of Crow Beach House
- A section of the route to the south of the River Taw across approximately 1km from Instow Cricket Club eastwards to the north of the existing East Yelland substation
- Properties and holiday cabins at Saunton, properties along Burrows Lane / Sandy Lane, and Crow Beach House, largely owing to their very close proximity and / or visibility of temporary construction compounds.

90. **Significant** visual effects due to construction of the Onshore Substation will be experienced by viewpoints at: the Tarka trail/ NCR 3 near Instow; the B3233, east of Instow; and on a footpath north of properties on the B3233. The same viewpoints as well as a viewpoint at Broad Sands Car park, will also experience a **significant** cumulative visual effect due to construction activities from the Onshore Project and other developments. However, visual effects experienced will be short-term and reversible. By year 15, once mitigation planting has matured, there will be **no residual significant effects** on views from any of the representative viewpoints assessed.

91. **Significant** cumulative landscape character effects will be experienced during construction due to the increase in construction activities associated with the Onshore Substation and Onshore Export Cable Corridor, to the south and west of the East Yelland Quay scheme. However, by year 15, once mitigation planting has matured, residual cumulative effects will **not be significant**.

3.2 Marine Environment

92. The following sections summarise findings of assessments that have considered the potential effects of the Onshore Project on the marine environment.

3.2.1 Marine and Coastal Processes

93. Potential effects that could occur during construction include impacts on the shape of the coast and an increase in suspended sediment from cable installation. The potential impact on waves from the physical presence of infrastructure was also assessed.

94. The assessment concluded that any effects on marine and coastal processes will be short-term, as the beach will quickly return to its former profile once the works have been completed. In the intertidal area, the Offshore Export Cable will be buried to a sufficient depth to avoid any impact on waves. Therefore, **no significant** effects on marine and coastal processes are expected as a result of the Project.

3.2.2 Marine Water and Sediment Quality

95. For Marine Water and Sediment Quality assessments, the impacts considered were temporary increases in suspended sediment and disturbance to existing sediments that might be contaminated.

96. The Onshore Project is located within an open coastal area within the Bristol Channel, characterised by low suspended sediment concentrations and sandy sediments. The construction impacts are predicted to be only short-term and temporary. Due to the low suspended sediment concentrations, the impact will be **negligible**. Sediment chemical analysis of samples taken close to the MLWS limit show that the existing sediments do not contain contaminants at levels of concern.

97. **No significant effects** on marine water quality were identified, with all effects assessed as of **negligible** significance.

3.2.3 Benthic and Intertidal Ecology

98. The benthic and intertidal study area at Landfall covers the area between Westward Ho! and Saunton Down. The coast in this area is dominated by the mouth of the Taw-Torridge Estuary and its associated intertidal areas as well as spit and dune systems. Seabed sediments are mainly comprised of sand with small areas of mud and sandy mud or muddy sand. Benthic communities corresponding to these

sediment types were recorded during a survey and are consistent with typical communities found in the Celtic Sea.

99. Assessments considered the effect of temporary habitat loss and disturbance to the seabed. The ecology and habitats within the areas affected were found to have **high** resilience to change and **low** sensitivity. As Saunton Sands beach will return to its former profile, the short-term changes predicted are **not significant**.

100. There is potential for export cables to produce electromagnetic fields which can affect the behaviour of benthic species. However, any potential effect will only occur within a small area surrounding the cable and the biotopes and species found within the area have a **low** sensitivity. Therefore, any effect from electromagnetic fields is expected to be **negligible**.

101. **No significant** effects on benthic and intertidal ecology were identified, with all effects assessed as of **negligible** residual effect.

3.2.4 Marine Mammal and Marine Turtle Ecology

102. **No significant** effects on marine mammals and marine turtle ecology are likely because of the proposed onshore works. All construction works associated with the Onshore Project are above MLWS. There is no evidence of seal haul out at Saunton Sands which is a popular tourist destination.

3.2.5 Socio-Economics (including Tourism and Recreation)

103. The Onshore Project is unlikely to have an impact on the social economy, tourism and recreation of Torridge, North Devon and the United Kingdom (UK).

104. However, activity associated with construction and development and the operation of multiple offshore wind sites could lead to beneficial effects. This is expected to happen through the development of local supply chains facilitated by the existence of a pipeline of offshore wind projects. In the local area, the Onshore Project is expected to provide up to 20 jobs.

105. Overall, **no significant adverse** effects are predicted on socio-economics or recreation in the local area.

3.2.6 Human Health

106. Potential impacts during the construction, operation and maintenance and decommissioning phases considered within the human health assessment have included:

- The effect on open spaces for leisure and play (access)
- Community safety
- Wider societal infrastructure and resources
- Noise
- Air quality
- Journey times and / or reduced access effects.

107. Assessments concluded that there will be **no significant** impacts for human health. Communication and engagement activities will ensure that visitors to Saunton Sands and the recreational routes are aware of the timing and extent of construction activities. During construction, there will be no closures to the beach so access will be maintained. Safety marshals will be provided for the protection of the public in the nearshore/intertidal zone. The need for fencing/hoarding/barriers in the nearshore/intertidal zone to protect swimmers and surfers during construction and/or maintenance works while maintaining access to Saunton Sands will be considered.

108. For recreational routes such as Public Rights of Way, appropriately fenced crossing points, manned crossing points and temporary alternative routes will be provided.

3.2.7 Climate Change

109. Assessments have considered how the Onshore Project will affect climate change through greenhouse gas emissions and the carbon benefits of the Offshore Windfarm as a whole.

110. The greenhouse gas assessment concluded that the White Cross Offshore Windfarm will have a **significant beneficial effect** and will contribute towards the UK meeting its emission reduction targets. The Climate Change Risk Assessment determined the vulnerability rating of the Onshore Project to climate hazards as '**low**'. The effects of climate change on the Onshore Project were assessed to be **not significant**.

3.2.8 Major Accidents and Disasters

111. The potential accident scenarios that could occur during the construction, operation and maintenance phase of the Onshore Project were grouped into the following potential hazards:

- Major fires
- Accidental spills of hazardous material
- Disturbance of unexploded ordnance

- Workplace accident
- Coastal flooding
- River flooding
- Surface water flooding.

112. The assessment identified that there will be **no significant** risks relating to major accidents or disasters during construction, operation or decommissioning phases of the Onshore Project. Mitigation measures to manage these risks include adherence to the Construction Environmental Management Plan, Emergency Response Plan, Pollution Environmental Management Plan, and Surface Water Drainage Strategy.

3.2.9 Inter-relationships

113. The inter-relationships assessment considered whether an accumulation of impacts on a single receptor, such as specific species of wildlife, could occur and the relationship between impacts. **No significant** impacts were identified as a result of inter-relationships.