DOGGER BANK D WIND FARM

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Section One Design Vision Overview



Design Vision Overview 1

Introduction to the Project 1.1

- This section should be read in conjunction with Volume 1, Chapter 1 Introduction and Volume 1, 1.1.1 Chapter 4 Project Description.
- 1.1.2 As part of its third licensing round in 2008, The Crown Estate identified the Dogger Bank Zone as one of the nine offshore wind farm development zones in the UK. In 2015, development consent was granted for four development zones, which became known as Dogger Bank A (DBA), Dogger Bank B (DBB) and Dogger Bank C (DBC).
- 1.1.3 Dogger Bank D (DBD) is the fourth phase of the Dogger Bank Wind Farm, the world's largest offshore wind farm in construction. By harnessing the power of offshore wind, the Project would be capable of exporting up to 1.5GW of renewable electricity, thereby supporting the decarbonisation of the UK energy system as well as contributing to UK energy security.
- 1.1.4 The DBD Array Area covers an area of approximately 262km2 and is located roughly 210km off the Yorkshire coast at its closest point, with its eastern boundary located almost 160m west of the Dutch Exclusive Economic Zone (EEZ).
- 1.1.5 In summary, the project components include:
 - Offshore components (wind turbines, foundation structures, offshore platforms, inter-array and export cables)
 - Onshore components (landfall, transition joint bays and link boxes, onshore export cables, Onshore Converter Station (OCS) and Energy Storage and Balancing Infrastructure (ESBI).
- 1.1.6 The Project is being developed as a radial connection into Birkhill Wood Substation, a proposed new substation north of Hull as identified through the Holistic Network Design process (National Grid ESO, 2024a). Birkhill Wood will serve as the onshore grid connection point for DBD, and will be developed and constructed by National Grid Electricity Transmission (NGET). The development of Birkhill Wood substation does not form part of DBD.

1.2 Purpose of the Design Vision

- 1.2.1 At the pre-consent stage, the design of NSIPs will typically utilise the 'Rochdale Envelope' approach. This is employed where the nature of the Proposed Development means that some details of the whole project have not been confirmed (for instance the precise dimensions of structures) when the application is submitted, and flexibility is sought to address uncertainty. Environmental Impact Assessment (EIA) undertaken at PEIR and DCO stage is therefore based on a 'Worst Case Scenario'. Further details of the project design proposals for the Project will then be subject to conditions of the consent.
- 1.2.2 Nationally Significant Infrastructure Projects: Advice on Good Design (Planning Inspectorate, 2024) recommends that a Design Approach Document (DAD) is prepared to accompany Development Consent Order (DCO) applications for NSIPs. The DAD should outline how 'Good Design' can be achieved, identifying a series of Design Principles that will be used to shape the detailed design proposals. The advice note outlines how the DAD should address the brief, the design process, the design principles, and identify beneficial outcomes.

- 1.2.3 This Design Vision for DBD has been prepared to support the Project's statutory consultation on the Preliminary Environmental Information Report (PEIR). The Design Vision will be updated for the DCO application and will ultimately serve as the DAD.
- 1.2.4 The document outlines how DBD will achieve the objectives for Good Design, as set out in Overarching National Policy Statement for Energy (EN-1) and the Design Principles for National Infrastructure (NIC) (see Section 3).
- 1.2.5 It includes a set of high-level Design Principles, a series of design commitments and standards to inform future evolution of the detailed design, post-DCO approval. The Design Principles will provide a clear benchmark for the Project Design Champion, internal and external design review panels and local stak `eholders to evaluate whether future design proposals meet the established criteria.

Scope of the Design Vision 1.3

- 1.3.1 The Design Vision represents the DAD for the permanent, above ground infrastructure that will be located onshore, which is limited to the OCS and ESBI. These elements will include buildings and electrical structures, therefore will constitute the most visible parts of the onshore infrastructure.
- 1.3.2 The design of the Onshore Export Cable Corridor (ECC) does not form part of the Design Vision. During construction, the route of the ECC would be subject to temporary effects (removal of vegetation, excavation, construction traffic activity), which are managed through the inclusion of embedded mitigation measures (e.g. Construction Management Plan, Outline Landscape Management Plan). At operation stage, the infrastructure would be buried underground and, once replacement planting has established, would not be discernible to visual receptors.

Preliminary Environmental Information Report Scope

- 1.3.3 At PEIR stage, two options (Zone 4 and Zone 8) are being considered for the location of the OCS and ESBI).
- 1.3.4 Selection of the OCS zone for development will be based on ongoing site selection work, including consideration of detailed environmental and engineering factors as well as feedback from landowners, statutory bodies and the local community.
- 1.3.5 At PEIR stage, the Design Vision will act as the key source of design information for the OCS, providing a summary of the Project components, environmental conditions at the two OCS zones and identification of potential design implications for the site arising from these findings.
- 1.3.6 The document starts with a detailed assessment of the Project scope, baseline site(s) conditions and technical requirements, before moving on to an overview of the statutory requirements and relevant Best Practice that will guide and inform the design. A review of the assessment work undertaken for PEIR will consider the opportunities and constraints presented by the site, mitigation requirements and implications for future site and infrastructure design.

1.3.7 The PEIR-stage Design Vision concludes with identification of broad, overarching Design Principles, which can be applied to both zones. Site-specific Design Principles will be developed following the site selection process.

Development Consent Order Scope

- 1.3.8 At DCO submission, the Design Vision will form part of the design information for the OCS and ESBI, along with the Environmental Statement and Design and Access Statement. Following statutory consultation, the Design Vision will be further developed, with consideration of feedback from stakeholders and the selection of the preferred OCS zone.
- 1.3.9 A key part of the post-PEIR process is creating a 'Vision' for the Project. This will be a concise one- line vision statement that captures the ambition for the Project, which should be simple, ambitious yet achievable.
- 1.3.10 The Vision will be evidenced through a set of tangible Design Principles included within the report. These Design Principles will outline the design options available to designers and engineers during the detailed design stage, post-consent. The Design Principles will cover aspects such as layout, buildings and structures, boundary treatments, hard and landscaping treatments, drainage and water. A multi- criteria analysis of each option will be provided to help clearly evaluate the benefits during the decision- making in terms of the NIC Design Principles (People, Climate, Place, Value) and other key criteria such as cost and deliverability.

Iterative Process

1.3.11 It should be emphasised that the Design Vision will develop as an iterative document. It will undergo internal reviews by the onshore technical team, the Applicant and Project Design Champion, as well as independent design review by the Design Council' Design Expert Panel. External review will take place through the Expert Topic Group (ETG) meetings and stakeholder engagement (see Section 7). The document will also continue to develop as missing survey work is completed and more details are gathered about the site constraints, potential effects and mitigation. Changes in statutory, regulatory and planning requirements will also be incorporated into this review process, where applicable.



Design Vision (PEIR stage)



Environmental Impact Assessment

OCS Site(s) Context

Design Parameters / Envelope

Design Vision (DCO stage)

Environmental Impact Assessment

Selected OCS Site Context

Design Parameters / Envelope

Accompanied by:

Outline Landscape & Ecological Management Strategy

Biodiversity Net Gain Strategy

Detailed Design Proposals

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Section Two The Project



Dogger Bank D 2

2.1 **Project Team**

The Applicant

- 2.1.1 DBD is being developed by a 50/50 joint venture between SSE Renewables and Equinor, two of the world's leading companies in the development and operation of offshore wind energy.
- 2.1.2 SSE Renewables is a leading developer, owner and operator of renewable energy projects and assets across the UK and Ireland with a portfolio of around 4.5GW of installed offshore wind, onshore wind and hydro generation capacity. SSE Renewables has a secured future project pipeline of over 16GW and a pipeline of over 12GW of additional prospective sites under development.
- 2.1.3 Equinor has a long track record of developing offshore wind farms in the UK, having already built and commissioned into operation Sheringham Shoal Offshore Wind Farm, Dudgeon Offshore Wind Farm and Hywind Scotland, the world's first floating offshore wind farm. Equinor has been operating in the UK for over 40 years and possesses over 50 years of offshore experience in the North Sea area.

Design Champion

2.1.4 A Design Champion for DBD has been nominated who will retain over-arching responsibility for design quality throughout the Project. This includes maintaining an overview of the Design Vision, ensuring that Design Principles identified within the Vision are cascaded down through the various stages of the design process before implementation on the ground.

Design Team

- 2.1.5 SSE have appointed an experienced design and technical team to assist with development of the proposals for DCO submission.
 - Royal Haskoning DHV Offshore and Onshore Environmental Impact Assessment (EIA) Lead, provision of various technical and design services including Landscape and Visual, Ecology, Heritage
 - Tony Gee Civil Engineering
 - LUC Design Vision lead

2.2 Wider Involvement

Key Stakeholders

- 2.2.1 Key stakeholders the team will engage with to support the development of proposals include:
 - Relevant statutory stakeholders
 - East Riding of Yorkshire Council
 - Local Parish Councils
 - The Local Community
 - Landowners
- 2.2.2 Section 6 provides details of the engagement process with these stakeholders. In summary this includes:
 - Regular Expert Topic Group (ETG) meetings have been held with attendance from East Riding of Yorkshire Council throughout the development process to date.

- A non-statutory public consultation in Autumn 2024
- Regular liaison with Landowners

Independent Design Review Panel

2.2.3 The Applicant has appointed the Design Council's design review panel to provide an independent review of the Design Vision and emerging design proposals. An initial review and site walkover was undertaken in April 2025. A further two reviews are planned prior to submission of the DCO Application. Section 6 provides further details on this process and summarises the feedback received.

2.3 Project Description Summary

- 2.3.1 This section should be read in conjunction with Volume 1, Chapter 4 Project Description.
- 2.3.2 DBD is a proposed new fourth phase of the Dogger Bank Wind Farm and has the potential to export up to 1.5GW of renewable electricity.
- 2.3.3 Development consent for the Dogger Bank Wind Farm was granted in 2015, with a total generation capacity of 3.6GW across three build-out phases Dogger Bank A, B and C. Technological advancements reduced the number of wind turbines needed for Dogger Bank C, leaving the eastern half of the array unused. This area was identified for a fourth phase of development, known as DBD.
- 2.3.4 The key offshore components of the Project comprise the following:
 - Wind turbines;
 - Foundation structures for wind turbines and offshore platforms;
 - Scour and cable protection;
 - Offshore platform(s), including Offshore Converter Station(s) and an Offshore Switching Station (hereafter collectively referred to as offshore platforms unless specified);
 - Inter-array cables; and
 - Offshore export cables.
- 2.3.5 The Project is being developed to connect into Birkhill Wood Substation which will be located to the north of the existing Creyke Beck Substation in East Riding of Yorkshire.
- 2.3.6 The key onshore components of the Project comprise the following:
 - Landfall and associated transition joint bay (TJB) and link box;
 - Onshore export cables and associated jointing bays and link boxes; and
 - OCS and ESBI.

Indicative Project Timescales 2.4

2.4.1 Construction of the Project is expected to begin no earlier than 2029 and based on this date, construction is expected to be completed no later than 2035.

2.5 Project Components

2.5.1 This section should be read in conjunction with Volume 1, Chapter 1 Introduction and Volume 1, **Chapter 4 Project Description.**

Onshore Converter Station

- 2.5.2 The OCS zone will contain the necessary electrical and auxiliary equipment and components for transforming the power from the wind farm to 400kV to meet the UK Grid Code for connection to the transmission grid.
- 2.5.3 The electrical systems required to convert the power could be housed in single or multiple building(s), several containers, in an open yard or a combination of the above within the OCS zone. The realistic worst-case scenario is set out in the PEIR and will be confirmed in the ES (e.g. maximum height, footprint, number and type of buildings). The key indicative construction parameters for the OCS and EBSI known at this stage are set out in Table 01.
- 2.5.4 Construction of infrastructure within the OCS zone will include, but is not limited to the following:
 - Site clearance and installation of advance environmental mitigation requirements;
 - Site preparation / groundworks for the temporary construction compounds, the permanent OCS site and any proposed bunding;
 - Establishing access roads and construction site perimeter fencing;
 - Installation of underground utilities, drainage and foundations for buildings and equipment;
 - Construction of building(s) and installation of electrical equipment;
 - Construction of permanent finishes e.g. internal roads and gravel areas;
 - Installation of permanent perimeter fencing around entire OCS(s) area; and
 - Landscaping to minimise landscape and visual impacts and provide enhancements;
 - Any requirements for Biodiversity Net Gain measures.

Energy Storage Balancing Infrastructure

2.5.5 The OCS zone includes associated infrastructure for a co-located ESBI, such as battery banks.

Site Selection 2.6

- 2.6.1 Volume 1, Chapter 5 Site Selection and Consideration of Alternatives presents an overview of the site selection process and consideration of alternatives undertaken for DBD. These chapters set out the process by which the two OCS zones which are considered in the PEIR were identified. These are Zone 4, to the south of Beverley, and Zone 8, to the southwest of Beverley. The locations are shown in Plate 03 adjacent.
- 2.6.2 The primary locational constraint of the OCS zone is that it must be within 3km of the National Grid connection point.
- 2.6.3 A summary of the criteria used in the constraints mapping exercise, which identified the Zones is:
 - Avoid residential properties, with a 250m buffer applied;
 - Avoid areas with substantial infrastructure or urban land use;
 - Avoid overlaps with Flood Zones 2 and 3 and areas with high-risk surface water flooding;

- landscape features, including ancient woodlands, historic hedgerows, surface and groundwater sources and nature conservation areas (based on the Horlock Rules); and
- Avoid interactions with existing infrastructure (utilities, onshore wind farms, solar farms, battery storage) as far as possible



Plate 02 - Onshore Development Area including Onshore Converter Station Zones.

- Avoid and / or minimise impacts to areas of local amenity value, important existing habitats and



Plate 03 - Example Onshore Converter Station (Source: Dogger Bank C)



Plate 04 - A Battery Storage site under construction in Ferrybridge, West Yorkshire (Source: SSE Renewables)

Indicative Parameter for PEIR

OCS
Maximum number of OCS
Indicative number of OCS buildings
Maximum OCS building height (m)
Maximum OCS outdoor electrical equipment height (m)
Indicative number of OCS temporary construction compound
ESBI
Indicative number of battery block and composition
Indicative battery unit dimensions (m) (length-width-height)
Indicative PCS unit dimensions (m) (length-width-height)
Indicative number of ESBI buildings
Maximum ESBI building height (m)
Maximum ESBI outdoor electrical equipment height (m)
Indicative number of ESBI temporary construction compound
Combined (OCS and E
Maximum developable area for OCS and ESBI . These areas include, but not limited to, the platform footprint, landscaping, access, drainage and attenuation but exclude areas for ecologica mitigation / enhancement.

Indicative access road width (m) (including site access road from the public highway and internal tracks within the site)

Indicative quantity of topsoil excavated during combined construction works (m3)

Indicative quantity of topsoil removed off-site during combined construction works (m3)

Table 01 - Indicative maximum construction parameters for the OCS(s) and EBSI

	Value
	1
	3 (excluding smaller shed structures)
	25
	30
	1
	50 (each block with up to 24 battery units and 2 PCS units)
	20 x 5 x 4
	6.1 x 2.5 x 4
	6 (excluding smaller shed structures)
	20
	25
	1
ESBI)
al	25 hectares
ו	7.3
	100,000
	50,000

Section Three Design Context



Design Context 3

This section should be read in conjunction with Volume 1, Chapter 3 Policy and Legislative Context.

3.1 **Best Practice Guidance**

Nationally Significant Infrastructure Projects: Advice on Good Design (Planning Inspectorate, 2024)

- 3.1.1 This newly developed PINS guidance states, 'Good design is crucial for achieving excellent functionality, sustainability, positive place-making and resilience in NSIPs'. It also notes 'Achieving high quality, good design outcomes requires an effective, intentional, transparent, deliverable process to be planned, followed and secured. Success in good design comes from a combination of securing both good process and good outcomes'.
- 3.1.2 'Annex A Good Design Issues to Consider' sets out the considerations relating to good design which applicants should consider before applying for acceptance under section 55 of the Planning Act. Key topics include defining good design by principles like functionality, durability, and aesthetic appeal, and emphasising a rigorous design process involving stakeholder engagement and environmental impact assessments.
- 3.1.3 The content of this Design Vision is tailored to provide the information identified within Annex A in a clear and coherent format. It provides detail on the design process, identifying where environmental assessment and stakeholder engagement has informed the design response.

National Infrastructure Commissions Design Principles for National Infrastructure (2020)

- 3.1.4 The NIC outlines four key design principles, that should be key considerations throughout the design process of any large infrastructure project to shape a positive future for design in the UK. These are:
 - Climate: Mitigate greenhouse gas emissions and adapt to climate change;
 - People: Reflect what society wants and share benefits widely;
 - Places: Provide a sense of identity and improve our environment; and
 - Value: Achieve multiple benefits and solve problems well.
- 3.1.5 Design Principles developed at PEIR and DCO stage clearly identify where measures contribute to the four NIC themes.

National Infrastructure Strategy (NIS, 2020)

- 3.1.6 The NIS sets out guidance for the delivery, design and funding of infrastructure projects. It sets out several methods for embedding good design, which include:
 - Design Principles and Codes: use of design principles, parameters, and codes to guide the development of projects ensuring they are well-designed, aesthetically pleasing, and fit for purpose.
 - Stakeholder Engagement: effective engagement with stakeholders, including local communities, to gather input and feedback on design aspects.
 - Sustainable Development: create infrastructure that is not only functional, whilst also delivering better environmental and biodiversity outcomes in line with the UK's 25 year Environmental Plan.

- Design Champions: all projects to have a board level design champion in place at either the project, programme or organisational level, supported where appropriate by design panels.
- 3.1.7 The Design Vision embeds good design through the use of clear and achievable Design Principles at PEIR and DCO stage and identifies the role of the appointed Design Champion in the implementation of these principles. The Design Vision also identifies where stakeholder engagement has fed into the design process. It provides a strong focus on sustainable development, including the delivery of environmental and biodiversity outcomes.

3.2 National Planning Policy

National Planning Policy Framework (NPPF, Ministry of Housing, Communities and Local Government, 2025)

- 3.2.1 Paragraph 131 of the NPPF states 'Good design is a key aspect of sustainable development, creates better places in which to live and work and helps make development acceptable to communities'. This can be achieved through clear design expectations, testing approaches and effective engagement.
- 3.2.2 The Design Vision provides a coherent explanation of the design process, identifying any design challenges, in particular any technical constraints imposed on design. The Design Vision also outlines the range of design solutions available, the benefits and implications of each, to facilitate effective engagement with stakeholders.

National Policy Statements for Energy Infrastructure (NPS, 2024)

Overarching NPS for Energy, EN-1 (2024)

3.2.3 Section 4.7 of EN-1 identifies the criteria for 'Good Design' for energy infrastructure:

- 'The visual appearance of a building, structure, or piece of infrastructure, and how it relates to the landscape it sits within, is sometimes considered to be the most important factor in good design. But high quality and inclusive design goes far beyond aesthetic considerations. The functionality of an object... including fitness for purpose and sustainability, is equally important'.
- 'Applying good design to energy projects should produce sustainable infrastructure sensitive to place, including impacts on heritage, efficient in the use of natural resources, including land-use, and energy used in their construction and operation, matched by an appearance that demonstrates good aesthetic as far as possible. It is acknowledged...that the nature of energy infrastructure development will often limit the extent to which it can contribute to the enhancement of the quality of the area'.
- 'Whilst the applicant may not have any or very limited choice in the physical appearance of some energy infrastructure, there may be opportunities for the applicant to demonstrate good design in terms of siting relative to existing landscape character, land form and vegetation'.
- 'Given the benefits of good design in mitigating the adverse impacts of a project, applicants should consider how good design can be applied to a project during the early stages of the project lifecycle'.
- 'Design principles should be established from the outset of the project to guide the development from conception to operation. Applicants should consider how their design principles can be applied postconsent'.
- 'To ensure good design is embedded within the project development, a project board level design

champion could be appointed, and a representative design panel used to maximise the value provided by the infrastructure'.

- 'Applicants should...seek to embed opportunities for nature inclusive design within design process'.
- (Applicants must demonstrate in their application documents how the design process was conducted and how the proposed design evolved. Where a number of different designs were considered, applicants should set out the reasons why the favoured choice has been selected'.
- 'Applicants should also consider taking independent professional advice on the design. In particular, the Design Council can be asked to provide design review for NSIPs'.
- 3.2.4 Design Principles and site strategies developed will seek to achieve a careful balance between meeting the technical requirements of the infrastructure, whilst ensuing that any environmental effects are minimised.

NPS for Renewable Energy Infrastructure, EN-3 (2024)

- 3.2.5 Section 2.5 outlines considerations of good design for energy infrastructure. Paragraph 2.5.2 states 'Proposals for renewable energy infrastructure should demonstrate good design, particularly in respect of landscape and visual amenity, opportunities for co-existence/co-location with other marine uses, and in the design of the project to mitigate impacts such as noise and effects on ecology and heritage.
- 3.2.6 Paragraphs 2.7.60 states 'Good design that is sympathetic and contributes positively to the landscape character and quality of the area will go some way to mitigate adverse landscape and visual effects.'

NPS for Electricity Networks Infrastructure, EN-5 (2024)

- 3.2.7 Paragraph 2.4.3 acknowledges that 'electricity networks infrastructure must in the first instance be safe and secure, and that the functional design constraints of safety and security may limit an applicant's ability to influence the aesthetic appearance of that infrastructure'.
- 3.2.8 As such good design opportunities for such infrastructure should be maximised (including through avoiding/mitigating potential adverse impacts) these should not threaten the functional performance of the infrastructure in respect of security of supply and public and occupational safety.

3.3 Local Planning Policy

The East Riding of Yorkshire Local Plan 2020-2039: Update (2025)

3.3.1 The policies relevant to the project include:

- Policy S3: Focusing on Development focuses on protecting and enhancing the natural environment to deliver sustainable development whilst preserving the area's environmental assets, conserving biodiversity, maintaining landscape character and promoting green infrastructure.
- Policy ENV2: Promoting a high quality landscape focuses on promoting high-quality design and function for new developments through emphasizing the importance of creating environments that contribute positively to local character and distinctiveness and add to the overall quality of the area.
- 3.3.2 Overarching design principles identified in Section 8 identify that reference should be made to local vernacular, in particular relevant baseline sources when developing design proposals for the site.

East Riding Design Code SPD (2025)

- 3.3.3 The Design Code will clarify design expectations and improve the quality of new development. It seeks to ensure that development is responsive to its context, sits comfortably in the landscape and encourages biodiverse, sustainable choices in a rural setting.
- 3.3.4 The overarching Design Vision is for; 'Green, inclusive and distinctive places, which connect landscape, people, place and nature. New development in the East Riding will celebrate the diversity of the built and natural environment and its heritage to create healthy and sustainable places for the communities of today and tomorrow.'
- 3.3.5 Whilst having a strong focus on residential development, several codes apply to other landuses and place types. OCS Zone 4 and Zone 8 will fall within the 'Countryside' and 'Business and Industrial' place types.
- 3.3.6 Relevant aspects of the Vision for the Countryside;
 - New buildings will be integrated into the wider landscape setting.
 - Historic field patterns and boundary features will be retained with hedgerows and tree belts protected and enhanced.
 - Views across the landscape and both to and from settlements will be protected.

3.3.7 Relevant aspects of the Vision for Business and Industrial;

- High quality hard and soft landscaping, especially along boundaries.
- Biodiversity within the landscape environment through the selection of native species, integration of SuDS and creation of diverse habitats.

Hull and East Yorkshire Local Nature Recovery Strategy, Consultation version, May 2025

- 3.3.8 The draft Hull and East Yorkshire Local Nature Recovery Strategy (HEY LNRS) was published on 9th May 2025. The overarching themes for Nature Recovery include;
 - Nature thriving in a productive landscape;
 - Securing a resilient environment and economy;
 - Connecting people and nature (now and for the future);
 - Enable nature's recovery.
- 3.3.9 The project area is divided into six sub-areas, based on National Character Areas (NCAs). The two subareas relevant to the project are River Hull Valley (Zone 4) and Yorkshire Wolds (Zone 8). The document identifies the associated habitats and species for each sub-area. Statements of Environmental Opportunities are also included, these are taken from the NCA guidance. This information will be feed into the Design Principles developed for the selected site post-PEIR.

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Section Four The Site



The Site 4

4.1 **Onshore Converter Station Zone 4**

- 4.1.1 This zone lies on the southern edge of Beverley, 2kms south of Beverley Minster, and 200m south of the A164. To the north of the A164 lies the urban edge of Beverley, including recently constructed housing. The A164 also runs to the west, separated from the site by Woodmansey Farm. A large retail park lies to the opposite side of the A164. The A1709 (Hull to York) lies immediately to the south of the site. To the east of the site lie several further agricultural fields, large farmsteads (Springfield, White Hall and Old Hall) and the Beverley Parks Local Nature Reserve. Shepherd Lane, lies beyond to the east. There are no Public Rights of Way within the site. Woodmansey Bridleway No.35 follows the southern edge of the A164 and Woodmansey Bridleway No.6 follows Park Lane.
- 4.1.2 The zone is situated within an area of Grade 2-3 agricultural land. The site comprises seven irregularshaped fields, bounded by fragmented hedgerows, ditches and timber fences. Small areas of deciduous woodland (Priority Habitat), mixed woodland and traditional orchard (Priority Habitat) are associated with the farmsteads to the east. The land is low-lying, between 12 and 21m AOD and with a gentle slope to the south. The Autherd Drain is of high risk from river and surface water flooding.
- 4.1.3 The land historically formed part of the Beverley Parks; the Archbishop of York's medieval Deer Park. This centred on Old Hall Farm, a Grade II Listed, late C17th, early C18th structure. Other Listed Buildings and structures in the vicinity include:
 - White Hall Grade II Listed, C18th/19th house.
 - Garden walls, barn and gate piers at Low Hall Grade II Listed, early C18th.
- 4.1.4 The site is located within East Riding Landscape Character Area; 16F Beverley Parks Farmland, within Landscape Character Type 16 Sloping Farmland (edge of Wolds). The East Riding Landscape Character Assessment attributes a medium-high level of sensitivity, noting a high-medium level of susceptibility to industrial development.
- 4.1.5 The following key characteristics are noted for LCA 16F:
 - Arable farmland and well-scattered farmsteads, agricultural sheds and commercial buildings
 - Field pattern is irregular and blocks of woodland are present
 - Two areas of ancient woodland including Birkhill Woods (some replanted)
 - Development at southern edge of Beverley encroaching into the rural landscape
 - Drained by man-made and natural watercourses
 - Influence of horticultural industry
 - Land formerly known as Beverley Parks; the Archbishop's medieval Deer Park
 - Largely agricultural and sparsely populated until the late 19th century
 - Development along the A1174 and A614
- 4.1.6 Extensive views of the Minster are attainable within the site due to the absence of development, flat or gently sloping topography and lack of vegetation cover. New residential development at the southern edge of Beverley features prominently within the foreground. Dogger Bank A and B onshore converter stations are visible to the south of the site, together with a large wind turbine south of the A1079 and the overhead electricity transmission line leading to Creycke Beck substation.



Image 07 - Urban edge of Beverley, to the north of the site



Image 08 - Ongoing construction works at the southern edge of Beverley to the north of the site



Beverley Parks to the east of the site

Image 09 - Mature woodland surround to Listed Buildings at Image 12 - Views to Dogger Bank A & B OCS located to the south of the site



Image 11 - Vernacular agricultural buildings to the west of

the site



Image 10 - Public bridleway running adjacent A164 to the north of the site







Plate 06 - Site context plan Zone 4

4.2 Onshore Converter Station Zone 8

- 4.2.1 OCS Zone 8 lies approximately 600m west of the small hamlet of Bentley, 720m south of the village of Walkington, 1.7km from the southern edge of Beverley and 4kms to the southeast of Beverley Minster. There are no Public Rights of Way within the site. Rowley Footpath No.9 runs approximately 50m to the south of the site, linking Coppleflat Lane to Park Lane. Walkington Footpath No.9 lies approximately 250m to the northeast of the site, following Moor Lane. Walkington Footpath No.3 (part of Beverley 20 Long Distance Path) lies approximately 750m to the north of the site.
- 4.2.2 The lies within an area of agricultural land to the west of Coppleflat Lane, used for the growing of cereal crops. The agricultural value is graded as 2 (very good). The site is formed from five irregular-shaped fields, bounded by fragmented hedgerows. There are several areas of plantation woodland in proximity to the site, associated with the site of the former Risby Hall. This includes deciduous woodland (Priority Habitat) and coniferous woodland.
- 4.2.3 The site slopes from the north (50m AOD) and south (47m AOD), creating a valley landform at c. 30m AOD. The land levels out to create a plateau in the vicinity of Risby Hall. The valley is identified as of high risk of flooding from surface water.
- 4.2.4 To the south of the site lies Risby Hall, a Grade II Listed Registered Park and Garden (RPG). These are the remaining formal gardens associated with Risby Hall, built c. 1680 by James Bradshaw. The house was demolished after a fire in the late eighteenth century and the remains of the house and cellar head are a Scheduled Monument. The Folly in Fishponds Wood is a Grade II Listed structure associated with the garden.
- 4.2.5 The site is wholly located within East Riding Landscape Character Area; 13C South Wolds Rolling Farmland, within the Yorkshire Wolds Landscape Character Type (LCT). The East Riding Landscape Character Assessment attributes a high level of sensitivity to this LCT, noting a high level of susceptibility to industrial development.
- 4.2.6 The following key characteristics are noted for LCA 13C;
 - The LCA is dominated by agriculture with wind turbines to the north west near Sancton.
 - Small nucleated villages are dispersed throughout the LCA are linked by minor roads.
 - Fields are generally rectilinear in pattern becoming more piecemeal towards the west. Field size becomes smaller towards the south east.
 - The rolling farmland contains little woodland and tree cover.
 - Wooded shelterbelts are present around farmsteads and three examples of replanted and reinforced ancient woodland lie within the LCA
 - Farmsteads tend to be located on higher ground, are isolated and evenly distributed throughout.
- 4.2.7 The site is also located in the Important Landscape Area (Yorkshire Wolds) 13C South Wolds Rolling Farmland (Open High Rolling Farmland LCT).
- 4.2.8 Views from within the site towards the edge of the red line boundary are generally contained by the undulating topography and the blocks of woodland to the perimeter of the site.



Image 13 - Coniferous woodland to east of the site



Image 14 - Central path through valley bottom



Image 15 - New hedge planting through the valley bottom

ucioni funtivi i ti la seconda s



Image 16 - Undulating landform to the north of the site



Image 17 - Woodland planting associated with Risby Hall

Image 18 - Overhead electricity transmission infrastructure visible to the east of the site





Plate 07 - Site context plan Zone 8

4.3 Cumulative Sites

4.3.1 There are several developments in the vicinity, including other NSIP projects.

4.4 Operational & Constructed Projects

Dogger Bank A & B

- 4.4.1 Dogger Bank A and B Onshore Converter Stations form part of the Dogger Bank Wind Farms. The two onshore converter stations are sited 400m from the southernmost extent of the Zone 4, adjacent the A1709. They are visible in views from within the site and the A164 and residential edge to the north.
- 4.4.2 The maximum height of the on-site buildings is 25m. Coloured cladding and fencing of the Onshore Converter Station uses neutral and natural tones. The landscape proposals use a planting mix of native tree and shrub species to create visual buffers and increase biodiversity. These are currently being planted. Earthwork bunds using site won spoil provide additional visual mitigation.

Creycke Beck BESS

- 4.4.3 Creyke Beck BESS is a battery storage project developed by Statera Energy. The site is located approximately 1.5km from the southernmost extent of the Zone 4 and covers approximately 3 hectares. The battery storage is connected to the existing Creyke Beck substation.
- 4.4.4 The development uses dark and light grey tones for the colour of structures within the site. There is also selective tree and hedgerow planting to provide screening, with attenuation ponds and areas of wildflower grassland to promote biodiversity.

Creyke Beck Substation

- 4.4.5 Creyke Beck Substation operates at 400 kV / 275 kV and connects to the UK National Grid. Recent expansions aim to accommodate new renewable projects, provide battery storage and improve the overall energy network.
- 4.4.6 The site is located approximately 1km from the southernmost edge of Zone 4. It covers approximately 8 hectares. A link road is being built from the A1079 to service this site and proposed extensions.
- 4.4.7 The cladding used as part of the original Creyke Beck scheme is light grey. Some hedgerows and trees have been planted around the site boundary.



Plate 08 - Cumulative time line showing project stages for other NSIPs in the area.

Plate 09 - Cumulative developments within the area



Key:

Dogger Bank D - Zone 4
Dogger Bank D - Zone 8
Proposed development under examination
Consented proposed developments
Proposed developments within planning process
Operational developments
Developments' status TBC
Existing O/H Lines

4.5 Consented Projects

Hornsea 4

- 4.5.1 Hornsea Project Four is an offshore wind farm being developed by Ørsted. The proposed Onshore Substation would be located approximately 1km from the southernmost edge of Zone 4, covering an area of 15.5 hectares. It would connect to the National Grid at Creyke Beck.
- 4.5.2 The maximum height of any on-site building would be 25m. A Design Vision was produced to accompany the DCO application. This identifies the use of colour tones from within the surrounding landscape to integrate cladding and fencing into the visual setting. Landscape proposals include use of bunds, planting of native tree and shrub species to create visual buffers and promote biodiversity.

4.6 Projects currently within the Planning System

Dogger Bank South, East and West

- 4.6.1 Two Onshore Converter Stations are proposed to the north of Bentley. These would lie approximately 300m from the easternmost edge of Zone 8, covering an area of 6.4 hectares. These two projects may be developed in conjunction or may come forward separately.
- 4.6.2 The maximum height of any on-site building will be 25m. The colour selection for cladding and fences will be confirmed during the detailed design phase post planning approval. Landscape proposals include use of bunds, planting of native tree and shrub species to create visual buffers and promote biodiversity. These build on the existing woodland blocks around the site. Hedgerows are also proposed to reflect the rural context of the site.

Wanlass Beck (also known as Creyke Beck) Substation extension

- 4.6.3 The Wanlass Beck Substation Extension will connect the Hornsea Project Four Offshore Wind Farm and local solar and battery storage projects to the National Grid. This involves extending the existing Creyke Beck 400 kV Substation, constructing a new access road off the A1079 and diverting part of National Cycle Route 1.
- 4.6.4 The site is located approximately 1km from the southernmost edge of Zone 4. The substation will be a Gas Insulated Substation with maximum height of 14.3m. The colour selection for cladding and fences will be determined post planning approval. The landscape proposals include hedgerow and woodland reinstatement and additional woodland block and hedgerow planting to reinforce the landscape.

Birkhill Wood Substation

- 4.6.5 The Birkhill Wood Substation is part of National Grid's upgrade to the UK's electricity transmission network and will support the connection of new offshore wind farms and other renewable energy sources. The project is expected to be completed by 2030.
- 4.6.6 The project is located approximately 600m from the southernmost edge of Zone 4. It will include the installation of new high voltage electricity cables and the construction of associated infrastructure.

White Hall Solar Farm & Battery Energy Storage System

- 4.6.7 The White Hall Solar Farm and BESS project, proposed by Econergy. The solar farm is expected to generate up to 25 MW of electricity, supplemented by a BESS capable of storing up to 30 MW. It is currently in the planning phase, with construction expected to begin once approval is obtained.
- 4.6.8 The project is adjacent to the northeastern extent of the Zone 4 red line boundary. The Onshore development for the White Hall project includes solar panels, the BESS, and associated infrastructure such as access roads and cabling. The site will span approximately 34 hectares.

4.7 Other Developments

- 15/04027/EIASCR Land South East Of Bramble Hill Farm Victoria Road Beverley East Riding Of Yorkshire HU17 8PW, EIA Screening Opinion - Proposed Anaerobic Digestion Plant
- 14/03089/EIASCO Land Surrounding Bramble Hill Farm Victoria Road Beverley East Riding Of Yorkshire HU17 8PW, EIA Scoping Opinion Request for a residential development

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Section Five Design Process



Design Process 5

Overarching Design Process 5.1

- 5.1.1 The design process for DBD is closely aligned with the 'Double Diamond' developed by the Design Council in 2003, which aims to identify specific steps required in any design project. Four design stages are identified;
 - Discover; this stage helps people understand what the problem is.
 - Define; insight gathered from the discovery phase can help define the challenge in a different way.
 - Develop; this stage encourages different answers to the defined problem, through co-design.
 - Deliver.
- 5.1.2 The broad design process timeline for the project is set out in the diagram below. This shows how the four design stages identified in the 'Double Diamond' relate to four stages of the project. Within each diamond, the key tasks carried out during that stage are identified. The diagram also shows where

meaningful consultation will be undertaken to influence design outcomes. It also highlights the design overview provided by the identified Design Champion.

5.2 **Design Process in Detail**

- 5.2.1 The four stages of the design process are set out in more detail overleaf. Tasks within each stage have been highlighted to identify the main purpose of the task. These encompass five different actions;
- Identify; understand the issues and potential range of solutions 1.
- Assess; assess the implications, highlight design challenges, identify mitigations 2.
- Design; prepare design options or solutions 3.
- Consult; seek opinion on the options 4.
- 5. Review; review feedback received, consider and/or develop suitable responses



Plate 10 - DBD broad design process timeline



Plate 11 - DBD detailed design process timeline



5.3 Environmental Assessment

- 5.3.1 Initial assessment work has been undertaken to establish the potential environmental effects arising from the development of both the offshore and onshore elements of the Project.
- 5.3.2 At PEIR stage, the environmental assessment considers the potential effects for both OCS zones 4 and8. Reference should be made to the following documents for details of potential environmental effects pertinent to the design:
 - Chapter 27 Landscape and Visual
 - Chapter 24 Onshore Archaeology and Cultural Heritage
 - Chapter 23 Ecology and Ornithology
 - Chapter 21 Water Resources and Flood Risk
 - Chapter 25 Noise and Vibration
- 5.3.3 Following site selection, only one OCS zone will be taken forward. This will then be subject to further survey, analysis and concept design to support more detailed environmental assessments that will be undertaken prior to DCO submission. The findings from these assessments will also feed into the iterative design process and will be fed back as part of the engagement process with key stakeholders and the independent design review panel. Findings will be summarised in subsequent iterations of the Design Vision, to provide transparency around design decisions and the formation of detailed design principles.
- 5.3.4 At both PEIR and DCO stage the assessments are based on a realistic worst-case scenario derived from the parameters set out in the Project Design Envelope.

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Section Six Consultation Process



Consultation Process 6

Consultation Feedback 6.1

This section summarises the consultation undertaken to date. It should be read in conjunction with the 611 design process diagrams in Section 6.2.

6.2 Expert Topic Group Meetings

- 6.2.1 Expert Topic Group (ETG) meetings were initiated to gain focussed feedback on specific topics from key relevant stakeholders. The first round of meetings were held during 2023 and second round of meetings were held between Autumn 2024 and Winter 2024. Further meetings will be undertaken in Autumn 2025 and Winter 2025/2026.
- 6.2.2 The key ETG's of relevance to the Design Vision are listed below;
 - ETG6 (Onshore Ecology, Ornithology and Land Use)
 - ETG7 (Onshore Archaeology)
 - ETG8 (Traffic and Transport)
 - ETG9 (Landscape and Visual)
 - ETG10 (Water Resources, Flood Risk, Geology and Ground Conditions)
 - ETG11 (Air Quality, Noise and Vibration, Socio-Economics, Tourism and Recreation)
- 6.2.3 ETG9 (Landscape and Visual) is of greatest relevance to the preparation of the Design Vision. ETG9 Meeting 1 was held in September 2024; attended by the client and their design team, the Inspector of Ancient Monuments (Northeast and Yorkshire Region), the East Riding of Yorkshire Council Planning Officer and Building Conservation Officer and the Principal Town Planner from Hull City Council.
- 6.2.4 The meeting provided an update on project scope, identifying the potential options for the onshore converter station zone arising from the site selection process. The Zone of Theoretical Visibility (ZTV) for the two OCS zones 4 & 8 were presented to show the worst-case visibility of the above-ground infrastructure. The following issues were raised;
 - Potential impacts on existing tree belts and avoidance measures
 - Scope for co-ordination of landscape mitigation with Dogger Bank South and other local developers
 - Addition of more viewpoints to the LVIA, particularly concerning heritage views
 - Views towards Beverley Minster (to be considered within Heritage setting assessment)
 - Use of 'maximum parameters' to show worst-case scenario at PEIR stage, with more detailed representations shown in the ES
- 6.2.5 The scope of subsequent ETG9 meetings remains subject to agreement, however it is intended that the Design Vision will form part of the agenda for subsequent meetings.

6.3 Non-Statutory Public Consultation

6.3.1 Non-Statutory Public Consultation was undertaken between 10th September – 22nd October 2024. This comprised eight in-person events attended by over 500 people, the display of consultation materials at seven locally accessible venues and a Q&A webinar held on the 2nd October 2024.

6.4 Statutory Consultation

6.4.1 Statutory consultation will be undertaken between June and August 2025 as part of the PEIR process. Feedback from this process will be considered within the next version of the Design Vision.

6.5 Independent Design Review

- 6.5.1 DBD appointed the Design Council 'Design Review Panel' to undertake an independent review of the design proposals, as captured within the Design Vision. The multi-disciplinary panel will comprise specialists with expertise in master planning, landscape design, ecology, heritage and sustainability. It will be chaired by an expert with considerable experience of the DCO Process.
- 6.5.2 Three independent reviews have been identified at key points within the project design timescale;
 - PEIR stage review; undertaken once the baseline stage of the Design Vision has been completed. The review will incorporate a visit to the two zone site options and subsequent review to discuss the opportunities and constraints of each site and associated design implications. The session will also consider the overarching 'Vision' for the project and how this might be exemplified through project design principles.
 - DCO stage 1; undertaken following PEIR and once a preferred OCS site is selected. The review will consider the further design and assessment work that has been undertaken for the site, the emerging Outline Landscape Plan and Design Principles.
 - DCO stage 2; undertaken once the draft DCO stage Design Vision has been prepared. This will consider whether the proposals

Independent Review #1 - PEIR Stage Review

- 6.5.3 The first review with the Design Council was held 8th April 2025. Six members of the Design Expert Panel attended a site visit to review conditions at the two potential OCS Zones, along with Design Council staff and members of the project team. Following the site visit, the group reconvened at a local venue to discuss the Design Panels' response to the sites and to the project as a whole.
- 6.5.4 A Design Advice Letter was issued on the 14th April 2025. The contents of the letter have been summarised in the adjacent table, along with an initial response from the project team. This advice will now feed into future iterations of the Design Vision and the development of the selected Zone, post PEIR.

Subject	Feedback	Response	Subject
Design Vision and Narrative	"Theproject is of national importance in securing energy resilience for the country and these benefits should be celebrated and communicated through the project vision and narrative"	DBD agree that the project is of national importance in this regard and will consider this when developing the Vision post-PEIR.	Sustainabilit Built Form and Massing
Design Principles	"We encourage you to evolve spatially implicative detailed principles using clear and unambiguous wording such as 'must', 'should' and 'could' to establish a clear expectation on delivery of the principles".	Detailed Design Principles to be developed post PEIR, following site selection. The Principles will provide clear 'Commitments', where possible and be clear on the areas where technical requirements must govern the design, whilst identifying where optionality exists.	
Consultation and Collaboration	"The panel strongly encourages proactive co-ordination with neighbouring developments".	Throughout the PEIR stage the project team have been pursuing, and will continue to pursue, opportunities to engage with other parties involved in the delivery of neighbouring NSIPs. The PEIR stage Design Vision identifies the potential interactions with these projects. Ongoing collaboration will feed into the design principles development post PEIR.	
Contextual Design	"The site selection process should therefore consider how these pieces of infrastructure can be sensitively integrated into, and enhance, the natural landscape over the long term".	A thorough site selection process has been followed to arrive at the two Zones being considered at PEIR stage. Both sites have been subject to detailed assessment, including consideration of landscape and visual, heritage and ecology impacts, amongst others. Early concept design was undertaken at PEIR stage, this was subject to a multidisciplinary review, identifying potential effects and ways to remedy through good design.	

ıbject	Feedback	
ustainability	"Clearly defined targets or KPIs will help embed green ambitions into the design process moving forward".	There is a clear wish act sustainability within the impacts in relation to C of the PEIR process and be submitted with the D
uilt Form nd Massing	"The design of the buildings will play a crucial role in shaping the visual and emotional experience of the scheme and should be seen as an integral part of the overall project vision".	The project team agree essential part of the vis colour and materiality w which the scheme is per Further comments sugg the landscape, integrati London precedent exam about this approach, be Zones and relative inacce it is felt that a more sub successful and palatab

Table 03 - Adjacent: Main feedback points from the Design Council and project team response.

Response

cross the project team to embed he project. An assessment of the potential Climate Change has been undertaken as part nd an Outline Carbon Management Plan will DCO application.

e that consideration of the built form is an vision, particularly aspects such as form, which can fundamentally affect the way in perceived by local visual receptors.

ggested creating buildings as landmarks in ating public art or interpretative features, with amples given. The project team is cautious bearing in mind the rural location of the two accessibility of the buildings. In this context, abtle, landscape-led approach could be more able to the local community. This page is kept intentionally blank

Section Seven Vision



7 Vision

Next Steps: The overall Vision for DBD will be developed for the DCO stage

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Section Eight Design Principles



Design Principles 8

Hierarchy of Design Principles 8.1

- 8.1.1 A hierarchy of design principles has been established. These include:
 - Overarching Design Principles; these identify how DBD will align with the four NIC Design Principles of Climate, People, Places and Value and deliver the fundamental requirement for 'Good Design'.
 - High-level Site Design Principles; these set out the overall approach to the design of the OCS site, in particular identifying aspects which may be governed by fixed technical parameters. These parameters will be clearly stated, where applicable.
 - Detailed Design Principles; these reflect the specific site opportunities and constraints, acknowledging any mitigation requirements.
- 8.1.2 At PEIR, the first two sets of Principles will be outlined. Detailed design principles will then be developed following site selection, informed through additional survey work, environmental assessment and input from the multi-disciplinary design team. The scope and range of these principles will also be subject to review from key stakeholders and the independent design review panel.

8.2 Overarching Design Principles

Climate

- 8.2.1 Carbon reduction measures will be targeted as part of DBD's wider sustainability ambitions and to provide mitigation of any identified effects. These are outlined in Table 7, Section 5.
- 8.2.2 A response to the future climate change scenarios will be incorporated into design solutions for the site. Designs will recognise and respond to specific site challenges (i.e. flood zones, micro-climate etc). Solutions may include use of Sustainable Urban Drainage Systems (SuDs), use of resilient plant species, specific materials and sustainable building design.

People

- 8.2.3 A Design Champion will provide design leadership for DBD and will uphold standards of Good Design, from concept design through to implementation.
- 8.2.4 An Independent Design Review Panel will benchmark the design process and provide considered feedback at key points during the Project's development.
- 8.2.5 Continued engagement with stakeholders will be maintained throughout the design process. Feedback on the design optioneering will be stated clearly within the Design Vision and appropriate responses identified.

Place

- 8.2.6 Following site selection, a Vision for the site will be developed, to ensure that the intrinsic value of the site is not lost and placemaking opportunities are exploited. Close attention will be paid to the intrinsic character and qualities of the site. Opportunities to enhance and strengthen the 'sense of place' will be sought, wherever possible.
- 8.2.7 Cognisance will be paid to the recommendations set out in the following documents of relevance to local character. Design responses for the site should incorporate suggested measures, where feasible and appropriate;
 - Landscape strategy principles for the corresponding LCA, as set out in the East Riding of Yorkshire Landscape Character Assessment;
 - Statements of Environmental Opportunity, as set out in National Character Area Profile 40 Holderness;
 - Relevant codes within the East Riding Design Code SPD; and
 - Priorities and measures within the emerging Hull and East Yorkshire Local Nature Recovery Strategy.
- 8.2.8 Other sources of local design guidance will be considered, where relevant.

Value

- 8.2.9 Project design processes and outcomes should align with the tenets of 'Good Design', as ingrained within National Energy Policy and guidance from the Planning Inspectorate.
- 8.2.10 Where possible, identify Key Performance Indicators to assess whether the project is meeting its objectives.





8.3 High-level Site Design Principles

- 8.3.1 The following high-level site design principles represent a set of broad, best-practice guidelines that will be applied to the chosen OCS zone.
- 8.3.2 Some of these high-level site design principles are captured in the draft Commitments Register (see Volume 2, Appendix 6.3 Commitments Register) which identifies all embedded and additional mitigation, monitoring and enhancement measures (collectively referred to as 'commitments'). The commitments have been identified through the Environmental Impact Assessment (EIA) process, development of the project design and stakeholder engagement. The Commitments Register, together with the Design Vision, will be maintained and updated throughout the pre-application phase and the Development Consent Order (DCO) application process. This will ensure it remains responsive to ongoing stakeholder input and the incorporation of emerging environmental and design information.

Existing Site Features

8.3.3 Where possible, existing landscape features (trees, hedges, ponds etc.) will be retained on site through micro-siting and use of trenchless installation techniques. Such features may make a valuable contribution to the landscape character, visual amenity or sense of place, increase biodiversity, support climate resilience of the site and provide green or blue infrastructure connections.

OCS Zone

OCS Layout

8.3.4 The configuration/layout of the electrical infrastructure will be primarily governed by operational, constructional and technical requirements. This may require buildings and electrical equipment to be placed in a certain sequence or with pre-determined spacings. Where reasonably practicable, efforts will be made to produce an efficient layout in order to reduce the overall land take and integrate them into the surrounding landscape.



Image 37 - Avoid unnecessary illumination, protecting nesting and nocturnal species



Image 38 - Retaining existing landscape features

ESBI Layout

8.3.5 The configuration/layout of the storage infrastructure will also be governed by operational, construction and technical requirements including reducing the scale of the components thus providing greater flexibility in the siting and layout requirements.

Access

- 8.3.6 One or more access points from the public highway will be required to provide the permanent, operational access to the OCS and ESBI compounds. The access point will be primarily determined by highways safety requirements.
- 8.3.7 The following principles will also apply:
 - Alignment of the road will seek to minimise direct, corridor views to substation infrastructure from public viewpoints;
 - The site access will be designed to minimise the impact of highways infrastructure and any signage or lighting;
 - Selectively screening the site entrance where appropriate and technically feasible, to limit the visual impact for local receptors;
 - Considering the local vernacular, colour and materials when developing detailed proposals for site access control and boundary treatments; and
 - Appropriate security infrastructure to promote a safe, secure site.
- 8.3.8 Within the OCS zone, a circulatory route is required to access compound buildings and electrical equipment for inspection, maintenance, replacement and emergency purposes. The specification of the route will be governed by determined by the loading of the largest vehicle required. Where possible, the extent of the route will be rationalised to minimise land take and the extent of hard surfacing.



Image 39 - Native species planting to enhance biodiversity and sense of place. Image source: Paul Wray



Image 36 - Tree planting to mitigate visual impacts. Image source: Kay Atherton

Built Form

- 8.3.9 A range of buildings will be required within the site. This includes larger structures such as the OCS (required to house complex electrical equipment), control buildings (which may be staffed on an intermittent basis) and storage buildings.
- 8.3.10 The location, size, height of the OCS is primarily governed by the technical function it performs within the overall electrical process. At the next stage of design, detailed principles will consider optionality for materials and the application of colour to minimise environmental effects.
- 8.3.11 The placement of smaller buildings may be determined by such factors as; available space within the overall layout, proximity to the site access and infrastructure. Where possible, this may offer some flexibility in positioning within the site.
- 8.3.12 Where buildings do not house complex electrical equipment, detailed principles will consider optionality for materials, form, roof type, and the application of colour to minimise environmental effects.

Materiality and Colour

- 8.3.13 Following site selection, vernacular studies and an Environmental Colour Assessment will be undertaken to inform detailed design principles developed for buildings, structures and boundary treatments.
- 8.3.14 Detailed design principles will also assess optionality for use of materials with low-embodied carbon, wherever possible

Lighting

- 8.3.15 Lighting commitments are set out in Volume 2, Appendix 6.3 Commitments Register.
- 8.3.16 Operational lighting (with the exception of low-level, motion-sensor security lighting) at the OCS zone will only operate when required for operation and maintenance (O&M) activities during low light conditions.
- 8.3.17 Light levels and light spill will be minimised, wherever possible.

Drainage

- 8.3.18 Drainage commitments are set out in Volume 2, Appendix 6.3 Commitments Register.
- 8.3.19 Drainage proposals and hard surfacing proposals for the site will consider the adoption of SuDS, which provide additional benefits in terms of biodiversity, amenity and green blue infrastructure.

Boundaries

8.3.20 The range and type of boundary treatments at the site will be governed by technical and security requirements. They may include security fencing, acoustic fencing and other types of boundary delineation.

8.3.21 Where high-level boundary treatments are proposed, the findings of the Environmental Colour Assessment will be taken into consideration to determine a suitable colour palette to minimise environmental effects. This will be reflected within the detailed design principles.

Landscaping

8.3.22 Landscaping may be used at the site to provide the following measures;

- Visual mitigation, through screening of the development;
- Landscape mitigation, through the replacement or creation of landscape features and elements;
- Ecological mitigation, through the replacement or creation of habitats;
- 8.3.23 Where possible, cognisance should be taken of local requirements (see 8.2.7) to ensure measures are locally appropriate. Use of locally native and resilient species and liaison with local experts will support this approach.

Enhancement

8.3.24 Enhancement measures will be explored to maximise positive outcomes for both the environment and local communities. Where required under emerging regulatory requirements, the Project will develop a Biodiversity Net Gain (BNG) Strategy to deliver at least 10% BNG. This Strategy will assess onshore impacts, set out the approach to achieving measurable biodiversity gains, and detail how enhancement measures will be secured, managed, and monitored over a minimum period of 30 years.





Glossary

Term	Definition
Birkhill Wood Substation	The onshore grid connection point for DBD identified through the Holistic Network Design process. Birkhill Wood Substation which is being developed by National Grid Electricity Transmission and does not form part of the Project.
Array Area	The area within which the wind turbines, inter-array cables and offshore platform(s) will be located.
Development Consent Order (DCO)	A consent required under Section 37 of the Planning Act 2008 to authorise the development of a Nationally Significant Infrastructure Project, which is granted by the relevant Secretary of State following an application to the Planning Inspectorate.
Energy Storage and Balancing Infrastructure (ESBI)	A range of technologies such as battery banks to be co-located with the Onshore Converter Station, which provide valuable services to the electrical grid such as storing energy to meet periods of peak demand and improving overall reliability.
Environmental Impact Assessment (EIA)	A process by which certain planned projects must be assessed before a formal decision to proceed can be made. It involves the collection and consideration of environmental information and includes the publication of an Environmental Statement.
Grid Connection	The offshore and onshore electricity transmission network connection to Birkhill Wood Substation.
Haul Roads	Temporary tracks set aside to facilitate transport access during onshore construction works.
Jointing Bays	Underground structures constructed at regular intervals along the onshore export cable corridor to facilitate the joining of discrete lengths of the installation of cables.
Landfall	The area on the coastline, south-east of Skipsea, at which the offshore export cables are brought ashore, connecting to the onshore export cables at the transition joint bay above Mean High Water Springs.
Link Boxes	Structures housing electrical equipment located alongside the jointing bays in the onshore export cable corridor and the transition joint bay at the landfall, which could be located above or below ground.
Onshore Converter Station (OCS) Zone	The area within which the Onshore Converter Station and Energy Storage and Balancing Infrastructure will be located in vicinity of Birkhill Wood Substation.
Onshore Converter Station - OCS	A compound containing electrical equipment required to stabilise and convert electricity generated by the wind turbines and transmitted by the export cables into a more suitable voltage for grid connection into Birkhill Wood Sustation.

Torm	Dofi
Onshore Development Area	The area in which all onshore infrastructur located, including any temporary works ar permanent land required for mitigation an landward of Mean Low Water Springs. The Development Area in the intertidal zone.
Onshore Export Cable Corridor (ECC)	The area within which the onshore export of the landfall to the Onshore Converter Stat Substation.
Onshore Export Cables	Cables which bring electricity from the tra Converter Station zone (HVDC cables) and onwards to Birkhill Wood Substation (HVA
Project Design Envelope	A range of design parameters defined whe and assessment of likely significant effect scenario.
	The Project Design Envelope incorporates DCO application and will be further refined
Temporary Construction Compounds	Areas set aside to facilitate the constructi which include the landfall construction co construction compounds for onshore expo construction compounds.
The Applicant	SSE Renewables and Equinor acting throu 4 Projco Limited'.
The Project	Dogger Bank D (DBD) Wind Farm Project, a
Trenching	Open cut method for cable or duct installa
Trenchless Techniques	Trenchless cable or duct installation meth ashore at landfall, facilitate crossing majo and watercourses and where trenching ma
	Trenchless techniques included in the Pro Directional Drilling (HDD), auger boring, m Direct Pipe.
Wind Turbines	Power generating devices located within the energy from wind into electricity.

finition

ure associated with the Project will be area required during construction and nd enhancement areas, which extends ere is an overlap with the Offshore

t cables will be located, extending from ation zone and onwards to Birkhill Wood

ransition joint bay at landfall to the Onshore nd from the Onshore Converter Station zone AC cables).

ere appropriate to enable the identification cts arising from a project's worst-case

s flexibility and addresses uncertainty in the ed during the EIA process.

tion works for the onshore infrastructure, compound, main and intermediate port cable works and OCS and ESBI

ugh 'Doggerbank Offshore wind Farm Project

, also referred to as DBD in this PEIR.

lation.

thods used to bring offshore export cables for onshore obstacles such as roads, railways nay not be suitable.

oject Design Envelope include Horizontal micro-tunnelling, pipe jacking / ramming and

the DBD Array Area that convert kinetic

