

DOGGER BANK D WIND FARM

Preliminary Environmental Information Report

Volume 1 Chapter 22 Soils and Land Use

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Appendix 22.1	Consultation Responses for Soils and Land Use

Glossary

Term	Definition
Additional Mitigation	<p>Measures identified through the EIA process that are required as further action to avoid, prevent, reduce or, if possible, offset likely significant adverse effects to acceptable levels (also known as secondary (foreseeable) mitigation).</p> <p>All additional mitigation measures adopted by the Project are provided in the Commitments Register.</p>
Agricultural Land Classification	<p>Agricultural Land Classification is a grading system used to assess and compare the quality of agricultural land in England and Wales. A combination of climate, topography and soil characteristics and their unique interaction determines the grade of the land. The grades range from 1 to 5. Grade 1 being excellent, Grade 2 very good, Grade 3a and 3b good to moderate, Grade 4 poor and Grade 5 very poor.</p>
Birkhill Wood Substation	<p>The onshore grid connection point for DBD identified through the Holistic Network Design process. Birkhill Wood Substation is being developed by National Grid Electricity Transmission and does not form part of the Project.</p>
Commitment	<p>Refers to any embedded mitigation and additional mitigation, enhancement or monitoring measures identified through the EIA process and those identified outside the EIA process such as through stakeholder engagement and design evolution.</p> <p>All commitments adopted by the Project are provided in the Commitments Register.</p>
Design	<p>All of the decisions that shape a development throughout its design and pre-construction, construction / commissioning, operation and, where relevant, decommissioning phases.</p>
Development Consent Order (DCO)	<p>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.</p>
Effect	<p>An effect is the consequence of an impact when considered in combination with the receptor’s sensitivity / value / importance, defined in terms of significance.</p>
Embedded Mitigation	<p>Embedded mitigation includes:</p> <ul style="list-style-type: none">Measures that form an inherent part of the project design evolution such as modifications to the location or design of the development made during the pre-application phase (also known as primary (inherent) mitigation); andMeasures that will occur regardless of the EIA process as they are imposed by other existing legislative requirements or are considered as standard or best practice to manage commonly occurring environmental impacts (also known as tertiary (inexorable) mitigation). <p>All embedded mitigation measures adopted by the Project are provided in the Commitments Register.</p>

Term	Definition
Energy Storage and Balancing Infrastructure (ESBI)	<p>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.</p>
Enhancement	<p>Measures committed to by the Project to create or enhance positive benefits to the environment or communities, as a result of the Project.</p> <p>All enhancement measures adopted by the Project are provided in the Commitments Register.</p>
Environmental Impact Assessment (EIA)	<p>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.</p>
Environmental Statement (ES)	<p>A document reporting the findings of the EIA which describes the measures proposed to mitigate any likely significant effects.</p>
Evidence Plan Process (EPP)	<p>A voluntary consultation process with technical stakeholders which includes a Steering Group and Expert Topic Group (ETG) meetings to encourage upfront agreement on the nature, volume and range of supporting evidence required to inform the EIA and HRA process.</p>
Expert Topic Group (ETG)	<p>A forum for targeted technical engagement with relevant stakeholders through the EPP.</p>
Grid Connection	<p>The offshore and onshore electricity transmission network connection to Birkhill Wood Substation.</p>
Haul Roads	<p>Temporary tracks set aside to facilitate transport access during onshore construction works.</p>
Impact	<p>A change resulting from an activity associated with the Project, defined in terms of magnitude.</p>
Jointing Bays	<p>Underground structures constructed at regular intervals along the onshore export cable corridor to facilitate the joining of discrete lengths of the installation of cables.</p>
Landfall	<p>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.</p>
Link Boxes	<p>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.</p>
Mean High Water Spring	<p>MHWS is the average of the heights of two successive high waters during a 24-hour period.</p>

Term	Definition
Mitigation	<p>Any action or process designed to avoid, prevent, reduce or, if possible, offset potentially significant adverse effects of a development.</p> <p>All mitigation measures adopted by the Project are provided in the Commitments Register.</p>
Mitigation Hierarchy	<p>A systematic approach to guide decision-making and prioritise mitigation design. The hierarchy comprises four stages in order of preference and effectiveness: avoid, prevent, reduce and offset.</p>
Monitoring	<p>Measures to ensure the systematic and ongoing collection, analysis and evaluation of data related to the implementation and performance of a development. Monitoring can be undertaken to monitor conditions in the future to verify any environmental effects identified by the EIA, the effectiveness of mitigation or enhancement measures or ensure remedial action are taken should adverse effects above a set threshold occur.</p> <p>All monitoring measures adopted by the Project are provided in the Commitments Register.</p>
Nationally Significant Infrastructure Project	<p>Under The Planning Act 2008, these are large scale projects falling into five general categories (Energy; Transport; Water; Waste Water and Waste).</p>
Onshore Converter Station (OCS)	<p>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 Substation.</p>
Onshore Converter Station (OCS) Zone	<p>The area within which the Onshore Converter Station and Energy Storage and Balancing Infrastructure will be located in vicinity of Birkhill Wood Substation.</p>
Onshore Development Area	<p>The area in which all onshore infrastructure associated with the Project will be located, including any temporary works area required during construction and permanent land required for mitigation and enhancement areas, which extends landward of Mean Low Water Springs. There is an overlap with the Offshore Development Area in the intertidal zone.</p>
Onshore Export Cable Corridor (ECC)	<p>The area within which the onshore export cables will be located, extending from the landfall to the Onshore Converter Station zone and onwards to Birkhill Wood Substation.</p>
Onshore Export Cables	<p>Cables which bring electricity from the transition joint bay at landfall to the Onshore Converter Station zone (HVDC cables) and from the Onshore Converter Station zone onwards to Birkhill Wood Substation (HVAC cables).</p>
Preliminary Environmental Information Report (PEIR)	<p>The PEIR provides a draft environmental assessment and information to support and inform the statutory consultation process in the pre-application phase. The PEIR will be updated to produce the Project's ES that will accompany the DCO application.</p>

Term	Definition
Project Design Envelope	<p>A range of design parameters defined where appropriate to enable the identification and assessment of likely significant effects arising from a project's worst-case scenario.</p> <p>The Project Design Envelope incorporates flexibility and addresses uncertainty in the DCO application and will be further refined during the EIA process.</p>
Scoping Opinion	<p>A written opinion issued by the Planning Inspectorate on behalf of the Secretary of State regarding the scope and level of detail of the information to be provided in the Applicant's Environmental Statement.</p> <p>The Scoping Opinion for the Project was adopted by the Secretary of State on 02 August 2024.</p>
Scoping Report	<p>A request by the Applicant made to the Planning Inspectorate for a Scoping Opinion on behalf of the Secretary of State.</p> <p>The Scoping Report for the Project was submitted to the Secretary of State on 24 June 2024.</p>
Study Areas	<p>A geographical area and / or temporal limit defined for each EIA topic to identify sensitive receptors and assess the relevant likely significant effects.</p>
Temporary Construction Compounds	<p>Areas set aside to facilitate the construction works for the onshore infrastructure, which include the landfall construction compound, main and intermediate construction compounds for onshore export cable works and OCS and ESBI construction compounds.</p>
The Applicant	<p>SSE Renewables and Equinor acting through 'Doggerbank Offshore Wind Farm Project 4 Projco Limited.</p>
The Project	<p>Dogger Bank D Offshore Wind Farm Project, also referred to as DBD in this PEIR.</p>
Transition Joint Bay (TJB)	<p>An underground structure at the landfall that houses the joints between the offshore and onshore export cables.</p>
Trenching	<p>Open cut method for cable or duct installation.</p>
Trenchless Techniques	<p>Trenchless cable or duct installation methods used to bring offshore export cables ashore at landfall, facilitate crossing major onshore obstacles such as roads, railways and watercourses and where trenching may not be suitable.</p> <p>Trenchless techniques included in the Project Design Envelope include Horizontal Directional Drilling (HDD), auger boring, micro-tunnelling, pipe jacking / ramming and Direct Pipe.</p>

22 Soils and Land Use

22.1 Introduction

1. This chapter of the Preliminary Environmental Information Report (PEIR) presents the preliminary results of the Environmental Impact Assessment (EIA) of the Dogger Bank D Offshore Wind Farm Project (hereafter ‘the Project’ or ‘DBD’) on soils and land use.
2. **Chapter 4 Project Description** provides a description of the key infrastructure components which form part of the Project and the associated construction, operation and maintenance (O&M) and decommissioning activities.
3. The primary purpose of the PEIR is to support the statutory consultation activities required for a Development Consent Order (DCO) application under the Planning Act 2008. The information presented in this PEIR chapter is based on the baseline characterisation and assessment work undertaken to date. The feedback from the statutory consultation will be used where appropriate to inform the final design for consent, presented in an Environmental Statement (ES), which will be submitted with the DCO application.
4. This PEIR chapter:
 - Describes the baseline environment relating to soils and land use;
 - Presents an assessment of the likely significant effects on soils and land use during the construction, O&M and decommissioning phases of the Project;
 - Identifies any assumptions and limitations encountered in compiling the environmental information; and
 - Sets out proposed mitigation measures to avoid, prevent, reduce or, if possible, offset potential significant adverse environmental effects identified during the EIA process and, where relevant, monitoring measures or enhancement measures to create or enhance positive effects.
5. This soils and land use chapter describes the impacts of any temporary or permanent land take that is required to implement the Project relating to the following receptors:
 - Agriculture: including agricultural land cover, agricultural drainage and soil types; and
 - Land use: including environmental stewardship and land management schemes, designated areas (e.g. Sites of Special Scientific Interest), site allocations, Public Rights of Way (PRoW), cycle routes, coastal paths and utilities.

6. This chapter should be read in conjunction with the following related chapters. Inter-relationships are discussed further in **Section 22.9.1**:

- **Chapter 19 Geology and Ground Conditions;**
- **Chapter 21 Water Resources and Flood Risk;**
- **Chapter 23 Onshore Ecology and Ornithology;**
- **Chapter 26 Traffic and Transport;**
- **Chapter 27 Landscape and Visual Impact Assessment;**
- **Chapter 29 Human Health; and**
- **Chapter 30 Socio-Economics, Tourism and Recreation.**

7. Additional information to support the soils and land use assessment includes:

- **Volume 2, Appendix 22.1 Consultation Responses for Soils and Land Use.**

22.2 Policy and Legislation

22.2.1 National Policy Statements

8. Planning policy on energy Nationally Significant Infrastructure Projects (NSIP) is set out in the National Policy Statements (NPS). The following NPS are relevant to the soils and land use assessment:
 - Overarching NPS for Energy (EN-1) (DESNZ, 2023a);
 - NPS for Renewable Energy Infrastructure (EN-3) (DESNZ, 2023b); and
 - NPS for Electricity Networks Infrastructure (EN-5) (DESNZ, 2023c).
9. The soils and land use chapter has been prepared with reference to specific requirements in the above NPS. The relevant parts of the NPS are summarised in **Table 22-1**, along with how and where they have been considered in this PEIR chapter.

Table 22-1 Summary of Relevant National Policy Statement Requirements for Soils and Land Use

NPS Reference and Requirement	How and Where Considered in the PEIR
NPS for Energy (EN-1)	
<p>Paragraph 5.11.4:</p> <p>“Development of land will affect soil resources, including physical loss of and damage to soil resources, through land contamination and structural damage. Indirect impacts may also arise from changes in the local water regime, organic matter content, soil biodiversity and soil process.”</p>	<p>The baseline environment in relation to soil resources present within the Onshore Development Area are discussed in Section 22.6. Potential impacts, and mitigation measures, in relation to loss and damage to soil resources during construction are discussed in Section 22.7.1.3.</p> <p>Impacts associated with the potential contamination of soils during construction and operation are discussed in Chapter 19 Geology and Ground Conditions.</p> <p>Impacts associated with potential changes to the local water regime during construction and operation are discussed in Chapter 21 Water Resources and Flood Risk.</p>
<p>Paragraph 5.11.8:</p> <p>“The ES (see section 4.3) should identify existing and proposed land uses near the project, any effects of replacing an existing development or use of the site with the proposed project or preventing a development or use on a neighbouring site from continuing. Applicants should also assess any effects of precluding a new development or use proposed in the development plan. The assessment should be proportionate to the scale of the preferred scheme and its likely impacts on such receptors. For developments on previously developed land, the applicant should ensure that they have considered the risk posed by land contamination and how it is proposed to address this.”</p>	<p>Existing land uses within the Onshore Development Area are discussed in Section 22.6. Existing land uses, and potential impacts associated with changes as a result of the Project are also discussed in Chapter 30 Socio-economics, Tourism and Recreation.</p> <p>Potential impacts with regards to changes in traffic volumes as a result of the Project are discussed in Chapter 26 Traffic and Transport.</p> <p>Potential impacts associated with changes to landscape and their visual amenity are discussed in Chapter 27 Landscape and Visual Assessment.</p> <p>Impacts associated with development on previously developed land in relation to potential contamination are discussed in Chapter 19 Geology and Ground Conditions.</p>
<p>Paragraph 5.11.11:</p> <p>“During any pre-application discussions with the applicant the LPA should identify any concerns it has about the impacts of the application on land use, having regard to the development plan and relevant applications and including, where relevant, whether it agrees with any independent assessment that the land is surplus to requirements.”</p>	<p>Project wide pre-application discussions are ongoing with the local authority (East Riding of Yorkshire Council) and other relevant stakeholders through the Evidence Plan Process (EPP). Statutory consultation on the Project has also been undertaken via the Scoping Report consultation process. Details of all consultation responses relevant to soils and land use are included in Volume 2, Appendix 22.1 Consultation Responses for Soils and Land Use.</p>
<p>Paragraph 5.11.12:</p> <p>“Applicants should seek to minimise impacts on the best and most versatile agricultural land (defined as land in grades 1, 2 and 3a of the Agricultural Land Classification) and preferably use land in areas of poorer quality (grades 3b, 4 and 5).”</p>	<p>Construction impacts on the Best and Most Versatile (BMV) agricultural land and soil quality are assessed in Sections 121 and 22.7.1.3. Impacts associated with the O&M phase of the project on BMV agricultural land are assessed in Section 22.7.2.2, noting that potential impacts to soil quality during operation have been scoped out of assessment. The predominant land cover between the landfall and Onshore Converter Station (OCS) zone is classed as BMV agricultural land; therefore, the feasibility of avoiding the use of BMV agricultural land would be extremely limited. Minimisation of impacts to BMV agricultural land would be undertaken where possible.</p> <p>More widely, impacts due to any existing contaminated land are discussed in Chapter 19 Geology and Ground Conditions.</p>
<p>Paragraph 5.11.13:</p> <p>“Applicants should also identify any effects and seek to minimise impacts on soil health and protect and improve soil quality taking into account any mitigation measures proposed.”</p>	<p>The baseline environment in relation to soil resources present within the Onshore Development Area are discussed in Section 22.1.1.1.1. Potential impacts, and mitigation measures, in relation to loss and damage to soil resources during construction are discussed in Section 22.7.1.3.</p>

NPS Reference and Requirement	How and Where Considered in the PEIR
<p>Paragraph 5.11.14:</p> <p>“Applicants are encouraged to develop and implement a Soil Management Plan which could help minimise potential land contamination. The sustainable reuse of soils needs to be carefully considered in line with good practice guidance where large quantities of soils are surplus to requirements or are affected by contamination.”</p>	<p>The baseline environment in relation to soil resources present within the Onshore Development Area are discussed in Section 22.1.1.1.1.</p> <p>A Soil Management Plan (SMP), which will form an appendix to the Code of Construction Practice (CoCP) post-consent, will contain mitigation measures and best practice techniques in order to reduce potential impacts on soil resources. A draft version of the Outline Code of Construction Practice (document reference: 8.9) is provided with the PEIR and sets out measures to be included in the SMP.</p> <p>Potential impacts, and mitigation measures, associated with contamination are discussed in Chapter 19 Geology and Ground Conditions.</p>
<p>Paragraph 5.11.19:</p> <p>“Applicants should safeguard any mineral resources on the proposed site as far as possible, taking into account the long-term potential of the land use after any future decommissioning has taken place.”</p>	<p>Sterilisation of future mineral resources has been assessed, as discussed in Chapter 19 Geology and Ground Conditions.</p>
<p>Paragraph 5.11.20:</p> <p>“The general policies controlling development in the countryside apply with equal force in Green Belts but there is, in addition, a general presumption against inappropriate development within them. Such development should not be approved except in very special circumstances. Applicants should therefore determine whether their proposal, or any part of it, is within an established Green Belt and if it is, whether their proposal may be inappropriate development within the meaning of Green Belt policy (see paragraph 5.11.36 below).”</p>	<p>No designated areas of Green Belt would be affected by the Project. The closest designated green belt (around the city of York) is located approximately 27km at its nearest point from any part of the Onshore Development Area.</p>
<p>Paragraph 5.11.21:</p> <p>“However, infilling or redevelopment of major developed sites in the Green Belt, if identified as such by the local planning authority, may be suitable for energy infrastructure. It may help to secure jobs and prosperity without further prejudicing the Green Belt or offer the opportunity for environmental improvement. Applicants should refer to relevant criteria on such developments in Green Belts.”</p>	
<p>Paragraph 5.11.22:</p> <p>“Moreover an applicant may be able to demonstrate that particular energy infrastructure, such as an underground pipeline, may be considered an “engineering operation” and regarded as not inappropriate in Green Belt. This is provided it preserves the openness of the Green Belt and does not conflict with the purposes of Green Belt designation. It may also be possible for an applicant to show that the physical characteristics of a proposed overhead line in a particular location would not have so harmful an impact as to conflict with the purposes of Green Belt designation, or with other protections of rural landscape.”</p>	
<p>Paragraph 5.11.23:</p> <p>“Although in the case of most energy infrastructure there may be little that can be done to mitigate the direct effects of an energy project on the existing use of the proposed site (assuming that some of that use can still be retained post project construction) applicants should nevertheless seek to minimise these effects and the effects on existing or planned uses near the site by the application of good design principles, Including the layout of the project and the protection of soils during construction.”</p>	<p>Impacts on the existing land use would be minimised through reinstating working areas to pre-existing conditions in line with the latest guidance (see Table 22-5).</p> <p>The majority of land traversed by the onshore export cable corridor (ECC) is agricultural. Following construction and reinstatement the expectation is that normal farming practices would be able to continue above the buried cable.</p> <p>The configuration, routeing and layout of the Project takes into account multiple environmental criteria including land use (see Chapter 5 Site Selection and Consideration of Alternatives).</p>

NPS Reference and Requirement	How and Where Considered in the PEIR
<p>Paragraph 5.11.24:</p> <p>“Where green infrastructure is affected, the Secretary of State should consider imposing requirements to ensure the functionality and connectivity of the green infrastructure network is maintained in the vicinity of the development and that any necessary works are undertaken, where possible, to mitigate any adverse impact and, where appropriate, to improve that network and other areas of open space including appropriate access to National Trails and other public rights of way and new coastal access routes.”</p>	<p>The baseline environment in relation to PRow and cycle routes is discussed in Section 22.6.1.2.3. Impacts to these features, and potential mitigation measures, during construction and operation are discussed in Sections 22.7.1.6 and 22.7.2.4 respectively. A draft Outline Public Rights of Way Management Plan has been developed and included as an appendix to the draft Outline Code of Construction Practice (document reference: 8.9) which accompanies this PEIR.</p>
<p>Paragraph 5.11.30:</p> <p>“Public Rights of way, National Trails, and other rights of access to land are important recreational facilities for example for walkers, cyclists and horse riders. The Secretary of State should expect applicants to take appropriate mitigation measures to address adverse effects on coastal access, National Trails, other rights of way and open access land and, where appropriate, to consider what opportunities there may be to improve or create new access. In considering revisions to an existing right of way, consideration should be given to the use, character, attractiveness, and convenience of the right of way.”</p>	
<p>Paragraph 5.11.34:</p> <p>“The Secretary of State should ensure that applicants do not site their scheme on the best and most versatile agricultural land without justification. Where schemes are to be sited on best and most versatile agricultural land the Secretary of State should take into account the economic and other benefits of that land. Where development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality.”</p>	
NPS for Electricity Networks Infrastructure (EN-5)	
<p>Paragraph 2.9.25:</p> <p>“In such cases the Secretary of State should only grant development consent for underground or subsea sections of a proposed line over an overhead alternative if they are satisfied that the benefits accruing from the former proposal clearly outweigh any extra economic, social, or environmental impacts that it presents, the mitigation hierarchy has been followed, and that any technical obstacles associated with it are surmountable. In this context it should consider:</p> <p>...the applicant’s commitment, as set out in their ES, to mitigate the potential detrimental effects of undergrounding works on any relevant agricultural land and soils (including peat soils), particularly regarding Best and Most Versatile land, including development and implementation of a Soil Resources and Management Plan. Such a commitment must guarantee appropriate handling of soil, backfilling, and return of the land to the baseline Agricultural Land Classification (ALC), thus ensuring no loss or degradation of agricultural land. Such a commitment should be based on soil and ALC surveys in line with the 1988 ALC criteria and due consideration of the Defra Construction Code of Practice for Sustainable Use of Soils on Construction Sites.”</p>	<p>Construction phase impacts to BMV agricultural land and soil quality, and any additional mitigation measures that may be required, are assessed in Sections 22.7.1.2 and 22.7.1.3. Impacts associated with the O&M phase of the project on BMV agricultural land are assessed in Section 22.7.2.2, noting that potential impacts to soil quality during operation have been scoped out of assessment.</p> <p>Embedded mitigation measures to reduce the potential impacts on BMV agricultural land and soil quality are included within Section 22.4.3.</p> <p>A Soil Management Plan (SMP), which will form an appendix to the Code of Construction Practice (CoCP) post-consent, will contain mitigation measures and best practice techniques in order to reduce potential impacts on soil resources. A draft version of the Outline Code of Construction Practice (document reference: 8.9) is provided with the PEIR and sets out measures to be included in the SMP.</p>
<p>Paragraph 2.9.58:</p> <p>“There is little evidence that exposure of crops, farm animals or natural ecosystems to transmission line EMFs has any agriculturally significant consequences.”</p>	<p>Potential impacts associated with electric and magnetic fields (EMF) on land use and agriculture have been scoped out of assessment as it is deemed unlikely for significant impacts to occur as a result of the Project.</p> <p>For impacts associated with human health, please refer to Chapter 29 Human Health.</p>

22.2.2 Other Policy and Legislation

10. Other policy and legislation relevant to the soils and land use assessment is summarised in the following sections.

22.2.2.1 National

22.2.2.1.1 Countryside and Rights of Way Act 2000 (CRoW)

11. The CRoW Act 2000 makes provision for public access to the countryside, including on foot, by amending the law relating to Public Rights of Way (PRoW). The Act allows Natural England to designate areas which are not National Parks as Areas of Outstanding Natural Beauty following consultation with local authorities. These aim to conserve and enhance the natural beauty of an area.
12. The Act is relevant to soils and land use as it will assist in determining the sensitivity of recreation routes that interact with the Onshore Development Area.

22.2.2.1.2 The Environmental Stewardship (England) Regulations 2005

13. The Environmental Stewardship (England) Regulations 2005 established the regulations under which the Secretary of State may make grants for the management of land. The regulations require those in receipt of the grant to comply with an agreed set of conditions associated with the Environmental Stewardship Scheme.
14. The Act is relevant to soils and land use as the Onshore Development Area interacts with a number of stewardship and land management schemes.

22.2.2.1.3 The Commons Act 2006

15. The Commons Act makes provisions required for access to common land, town and village greens by members of the public for the purposes of open-air recreation pursuant to any right of access. The Act also defines the term public interest as the protection of public rights of access to any area of land.
16. The Act is relevant to soils and land use as the Onshore Development Area interacts with a number of areas, recreational routes, that are used by members of the public.

22.2.2.1.4 Planning Act 2008

17. The Planning Act established the legal framework for the application, examination and determination of applications for NSIP. The Act sets thresholds above which certain types of infrastructure development are nationally significant and require a DCO application.

18. The Act is relevant soils and land use as it provides the provisions for carrying out surveys and collection of soil samples, including subsoils, for analysis.

22.2.2.1.5 Natural Environment White Paper 2011

19. The Natural Environment White Paper establishes how the value of the natural environment can be mainstreamed by facilitating local action, strengthening connections between people and nature as well as creating a green economy. The paper contains 92 commitments for action. Those relevant to soils and land use include:

- Getting the best value from agricultural land (Commitment IDs CO17 – CO20);
- Diverse and living landscapes (Commitment IDs CO23 – CO24);
- Safeguarding our soils (Commitment IDs CO25 – CO26); and
- Connecting by improving access to coast and countryside (Commitment IDs CO72 – CO73).

22.2.2.1.6 National Planning Policy Framework (NPPF) 2024

20. The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how they are applied. The NPPF does not contain specific policies for NSIP, which are determined in accordance with the Planning Act 2008 and relevant NPS, but may still be considered as a relevant matter in decision making.
21. The NPPF outlines a series of core principles based sustainable development including building a strong and competitive economy, promoting healthy and safe communities and conserving and enhancing the natural environment.
22. Principles of the NPPF which are relevant to soils and land use are displayed in **Table 22-2**.

Table 22-2 National Planning Policy Framework Guidance Relevant to Soils and Land Use

Principle	NPPF Advice
Promoting healthy and safe communities (8)	Paragraph 105: “Planning policies and decisions should protect and enhance public rights of way and access, including taking opportunities to provide better facilities for users, for example by adding links to existing rights of way networks including National Trails.”
Conserving and enhancing the natural environment (15)	Paragraph 187: “Planning policies and decisions should contribute to and enhance the natural and local environment by: a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan); b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland; c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate; d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures and incorporating features which support priority or threatened species such as swifts, bats and hedgehogs; e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.”

22.2.2.1.7 Environment Improvement Plan 2023

23. The Environment Improvement Plan set into law the commitment to refresh the 25 Year Environment Plan every five years. The 2023 document represented the first revision of the 25-year plan and sets out a plan to deliver the ten goals set out in the original 25 Year Environment Plan.
24. The Plan is relevant to soils and land use as it sets out provisions and aims for the protection of soil resources and management of agricultural land.

22.2.2.2 Local

25. NPS EN-1 states that the Planning Inspectorate will also consider Development Plan Documents or other documents in the Local Plan Framework to be relevant to its decision making. The Local Plan relevant to this chapter is:

- East Riding Local Plan Update 2025 – 2039 (East Riding of Yorkshire Council, 2025).

22.2.2.2.1 East Riding Local Plan Update 2025 – 2039

26. The East Riding Local Plan has been reviewed and the following policies and objectives are considered relevant to soils and land use.

27. EC5: Supporting the renewable and low carbon energy sector:

“A. Proposals for the development of the energy sector, excluding mineral extraction, but including all other types of development will be supported where any significant adverse impacts are addressed satisfactorily, and the residual harm is outweighed by the wider benefits of the proposal. Developments and their associated infrastructure should be acceptable in terms of:

1. The cumulative impact of the proposal with other existing and proposed energy sector developments;

2. The character and sensitivity of landscapes to accommodate energy development, with particular consideration to the identified Important Landscape Areas, as shown on Figure 13, and for onshore wind energy developments, the Wind Energy Landscape Sensitivity Strategy shown in Figure 11.

3. The effects of development on:

i. local amenity, including noise, air and water quality, traffic, vibration, dust, light (including reflection, glint, glare and shadow flicker), and visual impact;

ii. biodiversity, geodiversity and nature, particularly in relation to designations, displacement, disturbance and collision and the impact of emissions/contamination;

iii. the historic environment, including individual and groups of heritage assets above and below ground;

iv. telecommunications and other networks; including the need for additional cabling to connect to the National Grid, electromagnetic production and interference, and aeronautical impacts such as on radar systems;

- v. transport, including the opportunity to use waterways and rail for transportation of materials and fuel, and the capacity of the road network to accommodate development; vi. increasing the risk of flooding; and
- vii. the land, including land stability, contamination, best and most versatile agricultural land and soil resources.

B. Where appropriate, proposals should include provision for decommissioning at the end of their operational life. Where decommissioning is necessary, the site should be restored, with minimal adverse impact on amenity, landscape and biodiversity, and opportunities taken for enhancement of these features.”

28. Policy C3: Providing public open space for leisure and recreation states that:

“D. Existing and proposed open spaces are shown on the Policies Map Update. Proposals resulting in the loss of an existing open space, sports and recreational buildings and land, will only be supported where:

1. Assessments of existing provision against local standards demonstrate the land is surplus to requirements for all of the functions that open space can perform; or

2. Replacement open space to an equivalent standard or better, in terms of quantity, quality and accessibility, is provided; or

3. The development is for alternative sports and recreation provision, for which there is a deficit; and

4. The loss of open space would not have an unacceptable detrimental impact on the amenity or character of the area.”
29. Policy S8: Connecting people and places states:

“H. Provision of new and improved walking, cycling and public transport facilities will be supported. Existing and disused public transport, cycling and footpath networks and facilities, including public rights of way, will be enhanced and/or protected, particularly within and linking to the Major Haltemprice Settlements, Principal Towns, and Towns as well as existing and proposed blue / green infrastructure corridors.”

22.3 Consultation

30. Topic-specific consultation in relation to soils and land use has been undertaken in line with the process set out in **Chapter 7 Consultation**. A Scoping Opinion from the Planning Inspectorate was received on 2nd August 2024, which has informed the scope of the assessment presented within this chapter (as outlined in **Section 22.4.2**).
31. Feedback received through the ongoing EPP in relation to Expert Topic Group (ETG) meetings and wider technical consultation meetings with relevant stakeholders has also been considered in the preparation of this chapter. Details of technical consultation undertaken to date on soils and land use are provided in **Table 22-3**.

Table 22-3 Technical Consultation Undertaken to Date on Soils and Land Use

Meeting	Stakeholder(s)	Date(s) of Meeting / Frequency	Purpose of Meeting
ETG Meetings			
ETG6 (Onshore Ecology, Ornithology and Land Use) Meeting 02	ERYC, Royal Society for the Protection of Birds, Environment Agency and Natural England (Yorkshire Wildlife Trusts not in attendance)	2 nd October 2024	To present the approach to data collection for the baseline environment and impact assessment.
Other Technical Consultation			
Monthly calls with Natural England	Natural England	11 th September 2024	To discuss approach to data collection and timings of Agricultural Land Classification surveys.

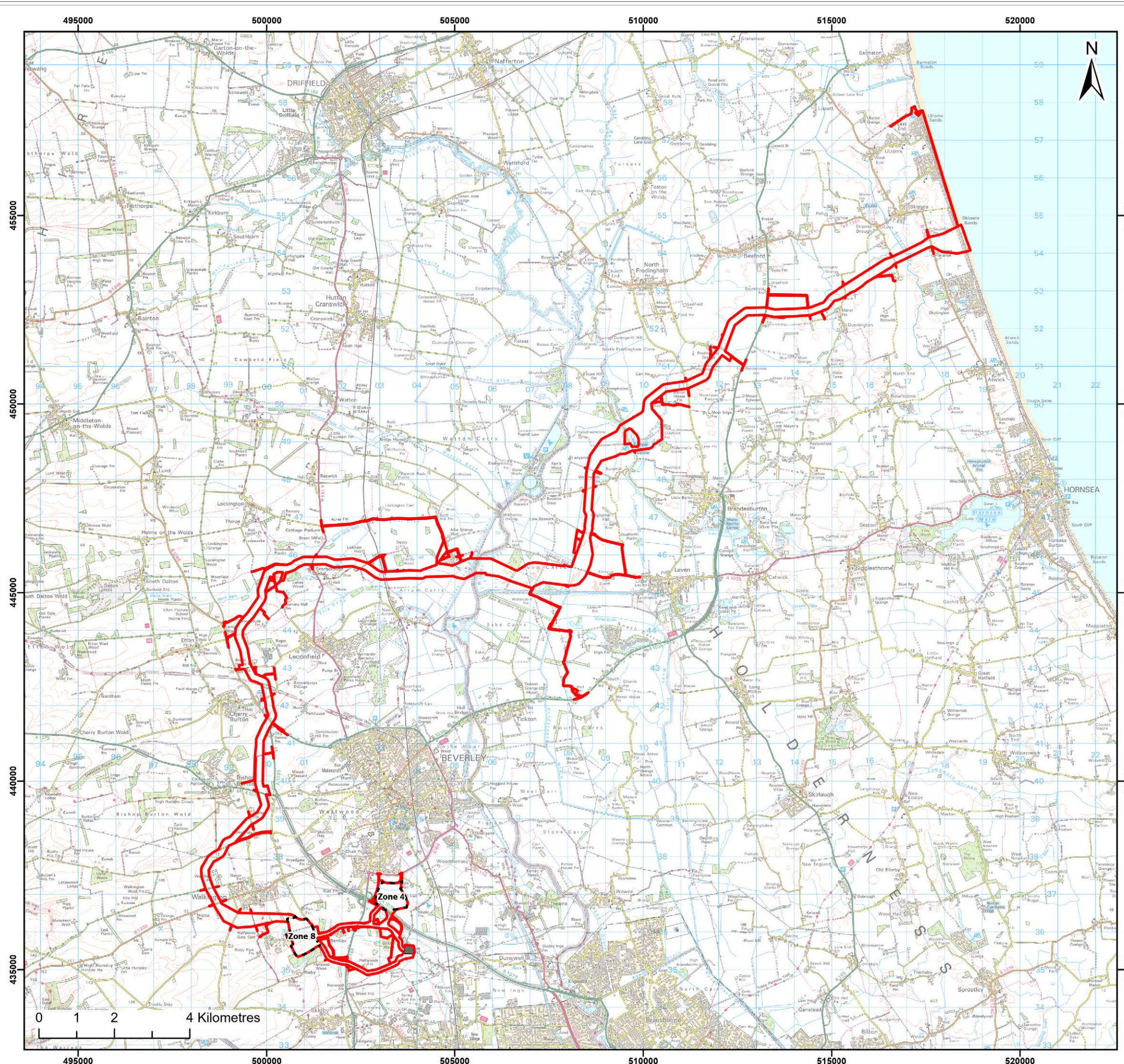
32. **Volume 2, Appendix 22.1 Consultation Responses for Soils and Land Use** summarises how consultation responses received to date are addressed in this chapter.
33. This chapter will be updated based on refinements made to the Project Design Envelope and to consider, where appropriate, stakeholder feedback on the PEIR. The updated chapter will form part of the ES to be submitted with the DCO application.

22.4 Basis of the Assessment

34. The following sections establish the basis of the assessment of likely significant effects, which is defined by the Study Area, assessment scope, and realistic worst-case scenarios. This section should be read in conjunction with **Volume 2, Appendix 1.2 Guide to PEIR, Volume 2, Appendix 6.2 Impacts Register** and **Volume 2, Appendix 6.3 Commitments Register**.

22.4.1 Study Area

35. The Soils and Land Use Study Area has been defined on the basis of anticipated direct impacts. The Soils and Land Use Study Area includes the land within the Onshore Development Area. **Figure 22-1** illustrates the Soils and Land Use Study Area.
36. The infrastructure included within the Onshore Development Area, and therefore within the Soils and Land Use Study Area, includes:
- Landfall:
 - Transition joint bay, which houses the joints between the offshore and onshore export cables and associated underground link box;
 - Onshore ECC:
 - Onshore export cables from the landfall to the OCS zone and onwards to the grid connection point at Birkhill Wood Substation;
 - Buried jointing bays and above-ground and underground link boxes installed in regular intervals along the onshore export cables;
 - OCS zone:
 - OCS and Energy Storage and Balancing Infrastructure (ESBI).
37. For a more detailed overview of the infrastructure located within the Onshore Development Area, see **Chapter 4 Project Description**.



Legend:

- Onshore Development Area
- Onshore Converter Station Zone Options
- Indicative Birkhill Wood Substation Location

Source: © Haskoning DHV UK Ltd, 2025.
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Project:

Dogger Bank D
Offshore Wind Farm

Title:

Soils and Land Use Study Area

Figure: 22-1

Drawing No: PC6250-RHD-XX-ON-DR-GS-0091

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
01	06/11/2024	JH	AB	A3	1:100,000

Co-ordinate system:

British National Grid

sse
Renewables

equinor

22.4.2 Scope of the Assessment

38. A number of impacts have been scoped out of the soils and land use assessment. These impacts are outlined in **Volume 2, Appendix 6.2 Impacts Register**, along with supporting justification and are in line with the Scoping Opinion (discussed in **Section 22.3**) and the project description outlined in **Chapter 4 Project Description**.
39. Impacts scoped into the assessment relating to soils and land use are outlined in **Table 22-4** and discussed further in **Section 22.7**.
40. A full list of impacts scoped in / out of the soils and land use assessment is summarised in **Volume 2, Appendix 6.2 Impacts Register**. A description of how the Impacts Register should be used alongside the PEIR chapter is provided in **Volume 2, Appendix 1.2 Guide to PEIR** and **Chapter 6 Environmental Impact Assessment Methodology**.

Table 22-4 Soils and Land Use – Impacts Scoped into the Assessment

Impact ID	Impact and Project Activity	Rationale
Construction		
SLU-C-01	Impacts to agricultural drainage – excavation works and other construction activities	Construction works have the potential to temporarily impact upon natural and artificial drainage systems within the Onshore Development Area as a result of excavation works (such as for onshore export cable installation) disrupting their ability to, for example, reduce the risks associated with surface water flooding to the surrounding environment. Poor reinstatement of agricultural drainage following construction may also impact both the natural and artificial drainage systems.
SLU-C-02	Disruptions to farming practices (in general) – temporary loss of agricultural land due to construction activities	The majority of the Onshore Development Area is located within areas currently associated with agricultural production. There is potential for adverse impacts on farming and other land use practices through the temporary loss of land availability, restricted access and disruption caused by working areas and construction traffic.

Impact ID	Impact and Project Activity	Rationale
SLU-C-04	Soil degradation and erosion – excavation works and other construction activities (e.g. movement of heavy machinery and storage of excavated materials	There is potential for adverse impacts to soil structure and future agricultural productivity of soils impacted during the construction phase through the use of heavy machinery and disturbance associated with ground works.
SLU-C-05	Impacts to stewardship and land management schemes – temporary loss of land available due to construction activities	There is potential for ecological and financial impacts to environmental stewardship and land management schemes to occur as a result of construction activities. These impacts may be associated with landowner / occupier being unable to meet the terms of their agreement during the construction phase.
SLU-C-06	Impacts to existing utilities - excavation works and other construction activities	During the construction phase, activities such as onshore export cable installation works have the potential to impact on telecommunications, water, power and gas infrastructure through intrusive excavation works or associated disruption.
SLU-C-07	Impacts to Public Rights of Way, Countryside Rights of Way and cycle routes – temporary closures / restricted access / diversions due to construction activities and haul roads	Temporary impacts on PRow, CRoW, the King Charles III England Coast Path and National Cycle Network (NCN) routes may occur due to construction activities, notably where construction works directly overlap such routes, due to any temporary measures that need to be implemented to ensure the safety of the users of the routes and construction personnel (e.g. manned crossings of haul roads).
Operation and Maintenance		
SLU-O-01	Impacts to agricultural drainage – presence of permanent infrastructure	Permanent infrastructure and hardstanding within the OCS zone, above-ground link boxes and other underground infrastructure has the potential to permanently impact upon land drainage.
SLU-O-02	Disruptions to farming practices (in general) – permanent loss of agricultural land due to the presence of permanent infrastructure and easements	The presence of long term above ground infrastructure within the OCS zone, above-ground link boxes and associated operational easements along the onshore ECC will potentially result in the long-term loss of land, including agricultural land, and therefore also a loss in the productivity of these areas.

Impact ID	Impact and Project Activity	Rationale
SLU-O-05	Impacts to stewardship and land management schemes – permanent loss of land due to presence of permanent infrastructure	There is the potential for land associated with existing / future environmental stewardship and land management schemes within the footprint of the OCS zone to be permanently taken out of use during the O&M phase.
SLU-O-07	Impacts to Public Rights of Way, Countryside Rights of Way and cycle routes – potential permanent diversion due to presence of permanent infrastructure	There is also the potential for long term diversions to PRoW and NCN in areas associated with the OCS zone during the lifetime of the Project.
Decommissioning		
SLU-D-01	Impacts to agricultural drainage –decommissioning activities not yet defined	Decommissioning impacts are scoped in; however, details of onshore decommissioning activities are not known at this stage. As discussed in Section 22.7.3 , decommissioning impacts will be assessed in detail through the Onshore Decommissioning Plan (see Table 22-5 , Commitment ID CO56) where relevant, which will be developed prior to the commencement of onshore decommissioning works. In this assessment, it is assumed that most decommissioning activities would be the reverse of their construction counterparts, and that their impacts would be of similar nature to, and no worse than, those identified during the construction phase.
SLU-D-02	Disruptions to farming practices (in general) – decommissioning activities not yet defined	
SLU-D-04	Soil degradation and erosion – decommissioning activities not yet defined	
SLU-D-05	Impacts to stewardship and land management schemes – decommissioning activities not yet defined	
SLU-D-06	Impacts to existing utilities - decommissioning activities not yet defined	
SLU-D-07	Impacts to Public Rights of Way, Countryside Rights of Way and cycle routes – decommissioning activities not yet defined	
SLU-D-07	Impacts to Public Rights of Way, Countryside Rights of Way and cycle routes – decommissioning activities not yet defined	

22.4.3 Embedded Mitigation Measures

41. The Project has made several commitments to avoid, prevent, reduce or, if possible, offset potential adverse environmental effects through mitigation measures embedded into the evolution of the Project Design Envelope. These embedded mitigation measures include actions that will be undertaken to meet other existing legislative requirements and those considered to be standard or best practice to manage commonly occurring environmental effects.
42. The assessment of likely significant effects has therefore been undertaken on the assumption that these measures are adopted during the construction, O&M and decommissioning phases. **Table 22-5** identifies proposed embedded mitigation measures that are relevant to the soils and land use assessment.
43. Full details of all commitments made by the Project are provided within the Commitments Register in **Volume 2, Appendix 6.3 Commitments Register**. A description of how the Commitments Register should be used alongside the PEIR chapter is provided in **Volume 2, Appendix 1.2 Guide to PEIR** and **Chapter 6 Environmental Impact Assessment Methodology**. In addition, a list of draft outline management plans which are submitted with the PEIR for consultation is provided in **Section 1.10 of Chapter 1 Introduction**. These documents will be further refined and submitted along with the DCO application. See **Volume 2, Appendix 1.2 Guide to PEIR** for a list of all PEIR documents.
44. The Commitments Register is provided at PEIR stage to provide stakeholders with an early opportunity to review and comment on the proposed commitments. Proposed commitments may evolve during the pre-application phase as the EIA progresses and in response to refinements to the Project Design Envelope and stakeholder feedback. The final commitments will be confirmed in the Commitments Register submitted along with the DCO application.

Table 22-5 Embedded Mitigation Measures Relevant to Soils and Land Use

Commitment ID	Proposed Embedded Mitigation	How the Embedded Mitigation will be Secured	Relevance To Soils and Land Use Assessment	Relevance to Impact ID
CO39	A Code of Construction Practice (CoCP) will be provided in accordance with the Outline CoCP. The CoCP will enable effective planning, monitoring and management of onshore construction works to mitigate potential impacts on the environment and communities and ensure compliance with the latest relevant regulatory requirements and best practice.	DCO Requirement - Code of Construction Practice	Limits the potential impacts to soils and land use receptors as a result of construction activities.	SLU-C-01 SLU-C-02 SLU-C-04 SLU-C-05 SLU-C-06 SLU-C-07
CO43	A Construction Surface Water Drainage Plan will be provided as part of the Code of Construction Practice (CoCP) and will be developed in accordance with the Outline CoCP. The Construction Surface Water Drainage Plan will detail measures to minimise water within the temporary works area, to ensure the required ongoing drainage of surrounding land (including appropriate climate change allowances) and that the existing land drainage system is not adversely compromised by construction works. Site-specific construction drainage measures and post-construction drainage reinstatement and maintenance requirements will be detailed in the Construction Surface Water Drainage Plan based on land drainage survey undertaken by a suitably qualified expert prior to construction and in consultation with landowners.	DCO Requirement - Code of Construction Practice	Limits the potential impacts to agricultural drainage systems as a result of construction activities.	SLU-C-01
CO44	An Operational Drainage Strategy will be provided for permanent infrastructure in the Onshore Converter Station (OCS) zone in accordance with the Outline Operational Drainage Strategy. The Operational Drainage Strategy will include measures to ensure that existing land drainage is reinstated and / or maintained, discharge rates are limited and flows are attenuated to maintain greenfield run-off rates.	DCO Requirement - Operational Drainage Strategy	Limits the potential impacts to agricultural drainage systems during the O&M phase.	SLU-O-01
CO46	A Soil Management Plan (SMP) will be provided as part of the Code of Construction Practice (CoCP). The SMP will be developed in accordance with the Outline CoCP and will detail the soil stripping, excavation, storage, reinstatement, cropping and aftercare measures to safeguard soil resources and drainage during the construction works. The SMP will be informed by Agricultural Land Classification (ALC) and soil condition surveys which will be undertaken post-consent and prior to construction.	DCO Requirement - Code of Construction Practice	Limit the potential impacts on soil resources, agricultural drainage and agricultural productivity.	SLU-C-02 SLU-C-04
CO47	Made ground, topsoil and subsoil will be stored in separate stockpiles, and any suspected or confirmed contaminated soils will be appropriately separated, contained and tested before removal (if required). The stockpile area will be cordoned off, if required, with secure fencing to prevent any disturbance or contamination by other construction activities. The stockpiled material will be sealed to prevent water ingress and erosion / wash out of the material into the surrounding environment. Where the soil is to be stockpiled for more than six months, the surface of the stockpiles will be seeded with grass / clover mix or covered to minimise erosion. This will be done in accordance with the Soil Management Plan (SMP).	DCO Requirement - Code of Construction Practice	Ensures compliance with soil handling guidance and limits the potential impacts on soil resources.	SLU-C-02 SLU-C-04
CO51	A Materials Management Plan (MMP) will be provided as part of the Code of Construction Practice (CoCP). The MMP will be developed in accordance with the Outline CoCP and will set out measures to ensure the sourcing, handling, re-use and disposal of soils (in particular and may be limited to Made Ground soils) are undertaken in a sustainable manner and in line with the latest relevant guidance.	DCO Requirement - Code of Construction Practice	Ensures compliance with soil handling guidance and limits the potential impacts on soil resources.	SLU-C-02 SLU-C-04

Commitment ID	Proposed Embedded Mitigation	How the Embedded Mitigation will be Secured	Relevance To Soils and Land Use Assessment	Relevance to Impact ID
CO56	An Onshore Decommissioning Plan will be developed prior to commencement of onshore decommissioning works based on the relevant available guidance and legislative requirements. The scope and methodology of onshore decommissioning works and appropriate mitigation measures will be detailed in the plan.	DCO Requirement - Onshore Decommissioning Plan	Limits the potential impacts to soils and land use receptors as a result of decommissioning activities.	SLU-D-01 SLU-D-02 SLU-D-04 SLU-D-05 SLU-D-06 SLU-D-07
CO57	<p>Where reasonably practicable, Public Rights of Way (PRoW) and cycle route closures during construction will be avoided. Where temporary closures cannot be avoided, disturbance will be minimised, and the affected routes will be reinstated as soon as reasonably practicable. Where permanent closure is required for construction within the Onshore Converter Station (OCS) zone, a suitable permanent diversion will be provided.</p> <p>A PRoW Management Plan will be provided as part of the Code of Construction Practice (CoCP) and developed in accordance with the Outline PRoW Management Plan. The PRoW Management Plan will include details of temporary and permanent closures and diversions and will set out measures to minimise disturbance and ensure equivalent access where possible to PRoW and cycle route users. Diversions will be advertised in advance, and appropriate way finding information will be provided to recreational users and the local community such as signposting.</p> <p>Pre-construction and post-construction PRoW surveys will be undertaken by a suitably qualified expert to record conditions and inform the reinstatement of routes temporarily affected by construction.</p>	DCO Requirement - Code of Construction Practice	Limits the potential impacts on users of recreational routes and ensures appropriate safety measures are adhered to.	SLU-C-07 SLU-O-07
CO58	Crossings of and construction in proximity to third-party assets will be undertaken in line with the latest relevant guidance. The crossing / construction methodology will be agreed with the relevant asset owner / operator prior to the commencement of the relevant construction works. Crossing and proximity agreements with existing pipeline and cables owner / operators will be sought.	DCO Requirement - Code of Construction Practice	Limits the potential impacts to pre-existing utilities that interact with the Onshore Development Area.	SLU-C-06
CO60	All onshore export cables will be buried underground for the entire length of the cable corridor. No overhead pylons will be installed as part of the consented works.	DCO Works	Limits the potential impacts to soils and land use receptors as a result of construction and O&M activities.	SLU-C-01 SLU-C-02 SLU-C-04 SLU-C-05 SLU-C-06 SLU-C-07 SLU-O-01 SLU-O-02 SLU-O-05 SLU-O-07

Commitment ID	Proposed Embedded Mitigation	How the Embedded Mitigation will be Secured	Relevance To Soils and Land Use Assessment	Relevance to Impact ID
CO61	Jointing bays along the onshore export cable corridor and the transition joint bay (TJB) at landfall will be buried underground, with the land above reinstated, except where access will be required to underground link boxes via manhole cover at ground level and where link boxes in proximity to jointing bays are installed above-ground.	DCO Requirement - Detailed Design (Onshore)		SLU-C-01 SLU-C-02 SLU-C-04 SLU-C-05 SLU-C-06 SLU-C-07 SLU-O-01 SLU-O-02 SLU-O-05 SLU-O-07
CO77	To avoid disruption to transport users of road and rail infrastructure from the installation of cable ducts during construction, trenchless installation techniques will be used for all A and B roads, the Hull-Scarborough railway line and the following local roads: Dunnington Lane, Grange Road, Frodingham Road, Hempholme Lane, Scarborough Lane, Leconfield Road, Finchcroft Lane, Little Weighton Road, Walkington Heads and Risby Lane.	DCO Works DCO Requirement - Construction Traffic Management Plan DCO Requirement - Code of Construction Practice	Limits the potential impacts on users of recreational routes and ensures appropriate safety measures are adhered to.	SLU-C-07
CO78	Temporary road diversions will be established to provide safe and available access during onshore export cable construction works. Public road diversions will be undertaken through agreed routes via the public highway network and existing private tracks, and where required, constructed temporary access tracks within the Onshore Development Area.	DCO Requirement - Construction Traffic Management Plan		SLU-C-07
CO81	An Ecological Management Plan (EcoMP) will be developed in accordance with the Outline EcoMP. The EcoMP will set out mitigation and monitoring measures required in advance of construction commencing on-site, during construction and post-construction for habitats and relevant ecological receptors, including but not limited to, hedgerows, trees, birds, bats, badgers, otters, water voles, reptiles, great crested newts, terrestrial invertebrates and other protected and notable species where relevant. The EcoMP will also detail any long-term mitigation and management measures to ensure the establishment of reinstated hedgerows and habitats and include biosecurity measures to prevent the transfer and spread of invasive non-native species.	DCO Requirement - Ecological Management Plan	Limits the potential impacts on stewardship and land management schemes as a result of construction activities.	SLU-C-05
CO100	All areas of land temporarily disturbed during construction in the Onshore Development Area, including any temporary construction compounds and haul roads, will be reinstated to pre-existing conditions as far as reasonably practicable. Reinstatement will commence as soon as practicable following completion of the relevant works in the area. In areas of agricultural cropland where temporary loss or disturbance is required, soils will be reinstated within no more than 24 months, wherever practicable and unless otherwise requested by the relevant landowners.	DCO Requirement - Landscape Management Plan DCO Requirement - Ecological Management Plan DCO Requirement - Code of Construction Practice	Limits the potential impacts to soils and land use receptors as a result of construction and O&M activities.	SLU-C-01 SLU-C-02 SLU-C-04 SLU-C-05 SLU-C-06 SLU-C-07

Commitment ID	Proposed Embedded Mitigation	How the Embedded Mitigation will be Secured	Relevance To Soils and Land Use Assessment	Relevance to Impact ID
CO101	Reinstatement of cable trenches, haul roads and other land temporarily disturbed within the onshore export cable corridor will commence as soon as reasonably practicable following the completion of duct installation works in each section. Where access is required to be retained for cable pull-in, jointing and commissioning works, land will be reinstated following the completion of all onshore export cable construction activities.	DCO Requirement - Landscape Management Plan DCO Requirement - Ecological Management Plan DCO Requirement - Code of Construction Practice		SLU-C-01 SLU-C-02 SLU-C-04 SLU-C-05 SLU-C-06 SLU-C-07
CO110	Where agreed with the relevant landowners and subject to detailed design and construction requirements, link boxes along the onshore export cable corridor and at the landfall will be located at or as close to field boundaries as reasonably practicable.	DCO Requirement - Detailed Design (Onshore)	Limits the potential impacts to soils and land use receptors as a result of construction and O&M activities.	SLU-C-01 SLU-C-02 SLU-C-04 SLU-C-05 SLU-O-01 SLU-O-02 SLU-O-05

45. A draft version of the **Outline Code of Construction Practice** (and associated **Outline Public Rights of Way Management Plan**) (document reference 8.9) accompanies the PEIR for consultation, which will be further developed post-PEIR and submitted with the DCO application. The Outline CoCP details measures relevant to soils and land use and will inform the CoCP, which will be developed post-consent and secured by a DCO requirement.
46. Indicative embedded mitigation measures included in the Outline CoCP are set out in **Table 22-6**.

Table 22-6 Indicative Embedded Mitigation Measures Included in the Outline Code of Construction Practice

Outline CoCP: Embedded Mitigation Measures for Soils and Land Use
<p>Soil Management Plan (SMP) (part of CoCP developed post-consent)</p> <p>Prior to the commencement of the relevant construction works, ALC and soil condition survey(s) of the works area will be undertaken by a suitably qualified soil expert. The survey(s) will be undertaken at a standard density of 100m intervals, and intrusive soil pits will be undertaken at appropriate locations. The ALC and soil condition survey(s) will provide the following information on the soil characteristics:</p> <ul style="list-style-type: none">• ALC grade of the affected land;• Soil depths for topsoil and subsoil horizons;• Soil textures of all horizons;• Soil colour;• Soil analysis to identify existing soil nutrients and contaminants;• Level of compaction; and• Stone contents. <p>An SMP for the specific stage of construction works will be included in the CoCP. The SMP will be developed in accordance with the results of the ALC and soil condition survey(s) and Defra’s Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (2009), IES’ Sustainable, Health and Resilient: Practice-Based Approaches to Land and Soil Management (2020) and other latest available guidance.</p> <p>The SMP will provide site-specific results of ALC and soil condition survey(s) undertaken for the works and the proposed methodology for soil stripping, excavation, storage and reinstatement and appropriate management and monitoring measures to protect and conserve soil resources during construction. The SMP will also set out cropping and aftercare measures to retain soil function after reinstatement through an appropriate scheme of management.</p> <p>The SMP will include the following measures:</p> <ul style="list-style-type: none">• Adherence to the soil handling, storage and reinstatement measures outlined in Defra’s Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (2009);• Storing soils appropriately by:• Storing topsoil adjacent to where it is stripped, wherever practicable;

Outline CoCP: Embedded Mitigation Measures for Soils and Land Use
<ul style="list-style-type: none">• Storing excavated subsoil separately from topsoil, with sufficient separation to ensure segregation• Cordoning off stockpile areas, if required, with secure fencing to prevent any disturbance or contamination by other construction activities;• Seal soil stockpiles to prevent water ingress and erosion / washout of materials into the surrounding environment;• If the soils are to be stockpiled for more than six months, the surface of the stockpiles will be seeded with grass / clover mix or covered to minimise soil loss and fix nutrients;• Minimising the duration of soil storage in stockpiles where practicable;• Monitoring weather conditions on site and undertake works as and when appropriate for the soil type (e.g. not working in an area of poorly draining soils following a period of heavy rain, limited mechanised soil handling in areas where soils are highly vulnerable to compaction during wet weather);• Soils should be handled in the driest conditions as practicable;• Handling of soils according to their characteristics;• Undertaking field testing of soil moisture and consistency prior to the commencement of works to ensure suitability for handling where required;• Restricting movements of heavy plant and equipment and vehicles to specified routes to avoid compaction and damage to the soil resource;• Minimising the footprint of excavation works as much as reasonably practicable;• Implementing appropriate working practices to limit the risk for the spread of animal and plant diseases (further details on the control of invasive non-native species and biosecurity measures will be provided in the Outline EcoMP (Commitment ID CO81) to be prepared at ES stage for the DCO application);• Installation of temporary land drainage channels in the working area to reduce the potential for wet areas to form during construction, thereby reducing adverse effects on soil structure and fertility;• Ensuring effective land drainage systems are used during construction; and• Implementing appropriate soil reinstatement methodology.
<p>Agricultural Land Drainage, Irrigation and Operations</p> <p>The Agricultural Liaison Officer(s) (ALO) and Land Drainage Expert(s) (LDE) appointed by the Undertaker will be responsible for ongoing engagement with each individual landowner, occupier and / or their land agents. The ALO and LDE will gather relevant site-specific information on agricultural operations and requirements to inform the detailed design, where practicable. In addition, the ALO will provide information on the Project’s construction and serve as a point of contact for complaints and queries regarding the Project’s impacts.</p> <p>The ALO will be contactable to landowners, occupiers and / or their agents during the Project’s core working hours, and an out-of-hours contact will be provided for use in the event of emergencies. Contact details of the ALO will be included in the CoCP.</p> <p>During construction, the ALO will undertake site inspections to monitor working practices (e.g. soil handling activities) adopted by the Principal Contractor(s) and ensure that reasonable requirements from relevant landowners and / or occupiers are fulfilled as agreed. The ALO will also oversee the reinstatement of agricultural land and any aftercare requirements post-construction.</p>

Outline CoCP: Embedded Mitigation Measures for Soils and Land Use

Prior to the commencement of the relevant construction works, the ALO and LDE will gather details on each land holding which may be affected by the works to inform the management of agricultural land drainage and operations during construction. The information to be collected by the ALO and LDE will include the following:

- Location and details of agricultural operations such as crop regimes, livestock and timing of agricultural activities;
- Soil and land conditions;
- Location and condition of farm accesses and field boundaries;
- Location of boreholes and private water supplies used by each farmer;
- Irrigation or impoundment licence granted by the Environment Agency; and
- The type of irrigation system used and the location of irrigation network for each field.

Landowners, occupiers and / or their land agents will be consulted and informed of the design of any construction land drainage works required for the site. The information to be provided by the ALO and LDE will include the pipe layout, falls, outfalls (if required) and their dimensions.

Land drainage impacted by the works will be reinstated by the Principal Contractor(s) following the completion of relevant construction works to the previous condition, taking into account site-specific conditions, best practice on field drainage installations and the requirements of landowners, occupiers and / or their land agents.

As-built records of any construction land drainage installed will be maintained by the Undertaker with copies provided to the relevant landowners, occupiers and / or their land agents following the completion of relevant construction works.

The measures described in this section will inform the site-specific approach to managing impacts to agricultural land drainage and soils and their reinstatement as outlined in the Construction Surface Water Drainage Plan and the SMP respectively.

Public Rights of Way (PRoW) Management Plan (part of CoCP developed post-consent)

The PRoW Management Plan will include the following information:

- Locations and characteristics of PRoW and cycle routes temporarily affected by the works, informed by site-specific surveys where relevant;
- Temporary measures (e.g. temporary closure, manned / unmanned crossings, temporary diversion, no management required) proposed for each affected PRoW / cycle route to manage disturbance during construction and ensure their reinstatement post-construction;
- Measures to ensure maintenance of appropriate safety standards during construction through provision of appropriate signage, fencing and gating; and
- Any requirements for permanent closures and / or diversions (and the proposed design and signage for diverted routes).

Where a recreational route requires temporary management measures, any temporary diversions will be clearly signposted. Notification of any temporary stopping-up of a recreational route will be provided to relevant parties, including land agents and / or persons with an interest in the land, within a reasonable period of time. A notice describing the temporary closure would be published in the press a minimum of two weeks in advance of the closure.

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Consideration will also be given to the mechanism through which the Principal Contractor(s) would confirm the routes/diversions are fit for public use, e.g. publishing the temporary closures via additional alternative methods such as websites and parish newsletters.

Advanced site notices (i.e. notices to members of the public warning of diversions ahead) would be posted at appropriate places to minimise the likelihood of unnecessary aborted journeys. Measures may include:

- Site notices erected in visible locations on site approximately one to two weeks in advance of temporary management measures being in place;
- Provision of a map showing the extent of the temporary closure and information on any alternative routes / diversion; and
- Confirmation that the temporary diversion across land in the Undertaker’s control is safe and suitable for public use.

Third-Party Assets

Construction Method Statement(s) for the specific stage of construction works will be developed by the Principal Contractor(s) and included in the CoCP. The Construction Method Statement(s) will provide details of the construction techniques to be employed, construction parameters, plant and equipment requirements and the timing, sequence and duration of works. The Construction Method Statement(s) will be supported by Crossing Method Statement(s) where required.

In addition to the requirement for a Crossing Method Statement to be prepared for each crossing of a third party asset, where construction works are in close proximity to or have potential to affect existing third party assets (e.g. pipelines, cables, drains, sewers or chambers), relevant asset owner or operator will be consulted, as required, prior to the commencement of the relevant construction works.

Construction works will be undertaken in line HSE’s *Guidance Note GS6: Avoidance of Danger from Overhead Lines* (2013), *Guidance Note HSG47: Avoiding Danger from Underground Services* (2014) and other latest available guidance.

22.4.4 Realistic Worst-Case Scenarios

47. To provide a precautionary, but robust, assessment at this stage of the Project's development process, a realistic worst-case scenario has been defined in **Table 22-7** for each impact scoped into the assessment (as outlined in **Section 22.4.2**). The realistic worst-case scenarios are derived from the range of parameters included in the Project Design Envelope. They ensure that the assessment of likely significant effects is based on the maximum potential impact on the environment. Should an alternative development scenario be taken forward in the final design of the Project, the resulting effects would not be greater in effect significance. Further details on the Project Design Envelope are provided in **Chapter 6 Environmental Impact Assessment Methodology**.
48. The realistic worst-case scenarios used to assess impacts on soils and land use are defined in **Table 22-7**. Following the PEIR publication, further design refinements will be made based on ongoing engineering studies and considerations of the EIA and stakeholder feedback. Therefore, realistic worst-case scenarios presented in the PEIR may be updated in the ES. The Project Design Envelope will be refined where possible to retain design flexibility only where it is needed.

22.4.5 Development Scenarios

49. Consideration is also given to the different development scenarios with respect to the Onshore Converter Station (OCS) zones. At this stage, two OCS zone options remain within the Project Design Envelope (see **Chapter 4 Project Description** for further details) noting that only one option will be developed. The two development scenarios are:
 - Infrastructure located in OCS Zone 4; or
 - Infrastructure located in OCS Zone 8.
50. With respect to the soils and land use assessment, there is potential for the assessment of likely significant effects for the OCS zone infrastructure to differ between the two development scenarios. Where relevant, the assessment outcomes presented in **Section 22.7** are reported separately. Where realistic worst-case scenarios are likely to differ, these have also been set out separately in **Table 22-7**.

Table 22-7 Realistic Worst-Case Scenarios for Impacts on Soils and Land Use

Impact ID	Impact and Project Activity	Realistic Worst-Case Scenario	Rationale
Construction			
SLU-C-01	Impacts to agricultural drainage – excavation works and other construction activities	Landfall <ul style="list-style-type: none"> Maximum number of Transition Joint Bay (TJB) at landfall: 1 Maximum number of underground link box at landfall: 1 Maximum TJB and underground link box burial depth: 3m Maximum number of landfall cable ducts: 3 (including 1 spare) Indicative temporary landfall construction compound area: 12,500m² (including construction footprint of TJB and underground link box) Maximum number of landfall construction compound: 1 Maximum horizontal length of trenchless installation: 2,000m Indicative haul road width at landfall: 7m Anticipated duration of landfall construction works: approximately three years (including one year of trenchless installation works) 	<p>These parameters represent the maximum footprint and duration of disturbance of works within the Onshore Development Area.</p> <p>Duration includes site preparation works, temporary construction compounds, accesses and haul roads establishment, trenchless installation works, open cut trenching for cable duct installation, cable pull-in and jointing operations, construction of jointing bays, the TJB and associated link boxes, OCS and ESBI construction and reinstatement works.</p>
SLU-C-02	Disruptions to farming practices (in general) – temporary loss of agricultural land due to construction activities	Onshore ECC <ul style="list-style-type: none"> Maximum length of HVDC export cable corridor: 50km Maximum length of HVAC export cable corridor: 5km Maximum number of trenches of HVDC onshore export cables: 2 Maximum number of trenches of HVAC onshore export cables: 4 Indicative width of cable trench at surface: 3m Target minimum cable burial depth using open cut trenching: 1.2m Target minimum cable burial depth using trenchless installation techniques: 3.5m Target maximum cable burial depth using trenchless installation techniques: 20m 	
SLU-C-04	Soil degradation and erosion – excavation works and other construction activities (e.g. movement of heavy machinery and storage of excavated materials)	<ul style="list-style-type: none"> Indicative temporary construction corridor width for HVDC onshore export cables: 32m (50m at trenchless crossing locations) Indicative temporary construction corridor width for HVAC onshore export cables: 55m (60m at trenchless crossing locations) Indicative number of jointing bay locations along onshore ECC: 62 Indicative number of link box locations along onshore ECC: 56 (for the purposes of the PEIR assessment, it is assumed that at approximately 20 link box locations for the HVDC export cables and all link box locations for the HVAC export cables will involve the use of above-ground link boxes) 	

Impact ID	Impact and Project Activity	Realistic Worst-Case Scenario	Rationale
SLU-C-05	Impacts to stewardship and land management schemes – temporary loss of land available due to construction activities	<ul style="list-style-type: none"> Maximum jointing bay burial depth: 2.5m Maximum underground link box burial depth / above-ground link box height: 2m <ul style="list-style-type: none"> Maximum jointing bay and link box temporary construction area for HVDC export cables: 660m² (per location) Maximum jointing bay and link box temporary construction area for HVAC export cables: 1,040m² (per location) Indicative number of main construction compounds for onshore export cable works: 4 Indicative number of intermediate construction compounds for onshore export cable works: 8 Indicative number of trenchless crossing locations: 70 	
SLU-C-06	Impacts to existing utilities - excavation works and other construction activities	<ul style="list-style-type: none"> Indicative main construction compound area: 20,000m² (per compound) Indicative intermediate construction compound area: 5,625m² (per compound) Indicative trenchless installation compound area for HVDC export cables: 300m² (5,625m² for non-HDD techniques) (per compound) Indicative trenchless installation compound dimensions for HVAC export cables: 800m² (5,625m² for non-HDD techniques) (per compound) Trenchless installation techniques under consideration include HDD, auger boring, micro-tunnelling, pipe jacking / ramming and Direct Pipe Anticipated duration of onshore export cable construction works: approximately four years Maximum land area temporarily disturbed during construction: 1,700,000m² <p>OCS Zone (OCS and ESBI)</p>	
SLU-C-07	Impacts to Public Rights of Way (PRoW) (including footpaths and bridleways), cycle routes and Countryside and Rights of Way (CRoW) – temporary closures / restricted access / diversions due to construction activities and haul roads	<ul style="list-style-type: none"> Indicative quantity of topsoil excavated within OCS zone: 100,000m³ (assumed 50% of topsoil to be removed off-site – 50,000m³) <ul style="list-style-type: none"> Indicative access road width (including site access road from the public highway and internal tracks within the site): 7.3m Maximum developable area for OCS and ESBI: 25ha (including but not limited to platform footprint, landscaping, access, drainage and attenuation but exclude areas for ecological mitigation / enhancement) Total permanent area: 20.5ha (including but not limited to platform footprint, landscaping, access, drainage and attenuation but exclude areas for ecological mitigation / enhancement) Total temporary area: 4.5ha (including 2 temporary construction compounds for the OCS and ESBI) Anticipated duration of OCS and ESBI construction works: approximately five years 	

Impact ID	Impact and Project Activity	Realistic Worst-Case Scenario	Rationale
Operation and Maintenance			
SLU-O-01	Impacts to agricultural drainage – presence of permanent infrastructure	<p>Anticipated duration of O&M phase: approximately 35 years</p> <p>Landfall</p> <ul style="list-style-type: none">Maximum permanent underground link box area: 10m²Underground link box will be installed with a manhole cover for O&M access at ground level and typically marked / protected by bollards, fences or similar of approximately 1.2 to 2m in height (where required and agreed with the relevant landowners).Maximum permanent TJB area: 30m²Maximum TJB and underground link box burial depth: 3m	These parameters represent the maximum footprint of the Project that would interact with the baseline environment.
SLU-O-02	Disruptions to farming practices (in general) – permanent loss of agricultural land due to the presence of permanent infrastructure and easements	<p>Onshore ECC</p> <ul style="list-style-type: none">Indicative width of operational easement for HVDC export cables: 20mIndicative width of operational easement for HVAC export cables: 25mMaximum number of trenches of HVDC onshore export cables: 2Maximum number of trenches of HVAC onshore export cables: 4Target minimum cable burial depth using open cut trenching: 1.2mTarget minimum cable burial depth using trenchless installation techniques: 3.5mTarget maximum cable burial depth using trenchless installation techniques: 20mIndicative number of jointing bay locations along onshore ECC: 62	
SLU-O-05	Impacts to stewardship and land management schemes – permanent loss of land due to presence of permanent infrastructure	<ul style="list-style-type: none">Indicative number of link box locations along onshore ECC: 56 (for the purposes of the PEIR assessment, it is assumed that at approximately 20 link box locations for the HVDC export cables and all link box locations for the HVAC export cables will involve the use of above-ground link boxes)Maximum jointing bay burial depth: 2.5mMaximum underground link box burial depth / above-ground link box height: 2mMaximum permanent jointing bay area: 30m² (per jointing bay)Maximum permanent underground link box area: 4m² (per link box)Maximum permanent above-ground link box area: 3m² (per link box)	

Impact ID	Impact and Project Activity	Realistic Worst-Case Scenario	Rationale
SLU-O-07	Impacts to Public Rights of Way (PRoW), cycle routes and Countryside and Rights of Way (CRoW) – potential permanent diversion due to presence of permanent infrastructure	<ul style="list-style-type: none"> Underground link boxes will be installed with a manhole cover for O&M access at ground level. Above-ground link boxes will be installed as kiosks on concrete pads. Link boxes are typically marked / protected by bollards, fences or similar of approximately 1.2m to 2m in height (where required and agreed with the relevant landowners). Small marker posts of approximately 1m to 1.2m height will be installed along the operational easement to demark the location of the installed onshore export cables. Marker posts will, at a minimum, be required at field boundaries, on either side of obstacle crossings such as roads and watercourses and where there are significant directional changes in the cable route. <p>OCS Zone (OCS and ESBI)</p> <ul style="list-style-type: none"> Maximum developable area for OCS and ESBI: 25ha (including but not limited to platform footprint, landscaping, access, drainage and attenuation but exclude areas for ecological mitigation / enhancement) Total permanent area: 20.5ha (including but not limited to platform footprint, landscaping, access, drainage and attenuation but exclude areas for ecological mitigation / enhancement) 	
Decommissioning			
SLU-D-01	Impacts to agricultural drainage – decommissioning activities not yet defined	<p>The final decommissioning strategy of the Project’s onshore infrastructure has not yet been decided. For a description of potential onshore decommissioning works, refer to Chapter 4 Project Description.</p> <p>It is recognised that regulatory requirements and industry best practice change over time. Therefore, the details and scope of onshore decommissioning works will be determined by the relevant regulations and guidance at the time of decommissioning. Specific arrangements will be detailed in an Onshore Decommissioning Plan (see Table 22-5, Commitment ID CO56), which will be submitted and agreed with the relevant authorities prior to the commencement of onshore decommissioning works.</p> <p>For this assessment, it is assumed that decommissioning is likely to operate within the parameters identified for construction (i.e. any activities are likely to occur within the temporary construction working areas and require no greater amount or duration of activity than assessed for construction). The decommissioning sequence will generally be the reverse of the construction sequence. It is therefore assumed that decommissioning impacts would likely be of similar nature to, and no worse than, those identified during the construction phase.</p>	
SLU-D-02	Disruptions to farming practices (in general) – decommissioning activities not yet defined		
SLU-D-04	Soil degradation and erosion – decommissioning activities not yet defined		
SLU-D-05	Impacts to stewardship and land management schemes – decommissioning activities not yet defined		

Impact ID	Impact and Project Activity	Realistic Worst-Case Scenario	Rationale
SLU-D-06	Impacts to existing utilities - decommissioning activities not yet defined		
SLU-D-07	Impacts to Public Rights of Way (PRoW) (including footpaths and bridleways), cycle routes and Countryside and Rights of Way (CRoW) – decommissioning activities not yet defined		

22.5 Assessment Methodology

22.5.1 Guidance Documents

51. The following guidance documents have been used to inform the baseline characterisation, assessment methodology and mitigation design for soils and land use:

- Ministry of Agriculture, Fisheries and Food (MAFF) (1988) Agricultural Land Classification of England and Wales Guidelines and Criteria for Grading the Quality of Agricultural Land (Revised Guidelines);
- MAFF (2000) Good Practice Guide for Handling Soils;
- Department for Communities and Local Government (2002) Planning Policy Guidance 17: Planning for Open Space, Sport and Recreation;
- Department for Environment, Food and Rural Affairs (Defra) (2009) Construction Code of Practice for the Sustainable Use of Soils on Construction Sites;
- Environment Agency (2010) Managing Invasive Non-Native Plants;
- Department for Environment, Food and Rural Affairs (Defra) (2011) Safeguarding our Soils, A Strategy for England;
- Natural England (2012) Agricultural Land Classification: Protecting the Best and Most Versatile Agricultural Land;
- A Green Future: Our 25 Year Plan to Improve the Environment 2018;
- Highways Agency (2019) Design Manual for Roads and Bridges (DMRB) LA 109 (Geology and Soils) and LA 112 (Population and human health);
- Institution of Environmental Sciences (IES) (2020) Sustainable, Healthy, and Resilient: Practice Based Approaches to Land and Soil Management;
- British Society of Soil Science (2021) Guidance Document 3 Working with Soil Guidance Note: Benefitting from Soil Management in Development and Construction;
- Natural England (2021) Guide to Assessing Development Proposals on Agricultural Land;
- Society for the Environment (SocEnv) (2021) Soils and Stones Report;
- The Institute of Quarrying (IQ) (2021) Good Practice Guide for Handling Soils in Mineral Workings; and
- Institute of Environmental Management and Assessment (IEMA) (2022) A New Perspective on Land and Soil in Environmental Impact Assessment.

22.5.2 Data and Information Sources

22.5.2.1 Desk Study

52. A desk study has been undertaken to compile baseline information for the Study Area (see **Section 22.4.1**) using the sources of information set out in **Table 22-8**.

Table 22-8 Desk-Based Sources for Soils and Land Use Data

Data Source	Spatial Coverage	Year(s)	Summary of Data Contents
National Soil Resources Institute, Cranfield University	England and Wales	2024	Soil types (https://www.landis.org.uk/soilscapes/)
Defra	England	2023	Datasets on the structure of the agricultural industry
East Riding of Yorkshire Council	East Riding of Yorkshire	2024	Public Rights of Way
Natural England	England and Wales	2024	Agricultural Land Classifications, common land and stewardship and land management schemes (https://magic.defra.gov.uk/magicmap.aspx).
Ordnance Survey	United Kingdom	2024	Road maps, railway lines and urban areas.
Sustrans	United Kingdom	2024	National Cycle Network (https://www.sustrans.org.uk/national-cycle-network/)
Atkins Limited Utility Search Report and Maps undertaken in 2024	Onshore Development Area	2024	Telecoms, sewerage, water, power (electricity and gas).

22.5.2.2 Site-Specific Surveys

53. No site-specific surveys were undertaken for the soils and land use assessment to inform this assessment.
54. Site-specific surveys, specifically ALC and soil condition surveys, will be undertaken post-consent (Commitment ID CO46). As such, the results will not be available to inform the soils and land use assessment at PEIR or ES stage.

22.5.3 Impact Assessment Methodology

55. **Chapter 6 Environmental Impact Assessment Methodology** sets out the overarching approach to the impact assessment methodology. The topic-specific methodology for the soils and land use assessment is described further in this section.

22.5.3.1 Impact Assessment Criteria

22.5.3.1.1 Definitions

56. For each potential impact, the assessment identifies receptors sensitive to that impact and implements a systematic approach to understanding the impact pathways and the level of impacts (i.e. magnitude) on given receptors. The definitions of sensitivity and magnitude for the purpose of the soils and land use assessment are provided in **Table 22-9** and **Table 22-11**.

22.5.3.1.2 Receptor Sensitivity

57. Receptor sensitivity is based on the capacity of receptors to tolerate change and is used to determine if the degree of change would be acceptable in terms of the current legislation and guidance (see **Section 22.5.1**).
58. With reference to the ALC classifications discussed in **Table 22-9**, further details for each classification are provided in **Table 22-10**. It should be noted that the sensitivity bandings for ALC within **Table 22-9** are defined based on the loss (temporary or permanent) of agricultural land from production. This differs from the sensitivity bandings discussed in **Chapter 19 Geology and Ground Conditions** which have been determined with respect to contamination of agricultural land rather than its loss.

Table 22-9 Definition of Sensitivity for a Soils and Land Use Receptor

Sensitivity	Definition	
	Land Use	Agriculture
High	Receptor has no or very limited capacity to accommodate changes such as loss of recreational features, loss of land area, soil degradation, agricultural land drainage etc.	
	<ul style="list-style-type: none"> Planning policy areas designated at national and international scale; Higher level Environmental Stewardship Schemes (ESS)/ higher tier Countryside Stewardship Schemes (CSS); Future large scale planning use applications; Regionally distinctive and rare land uses that cannot be replaced or adapted; National trails or coastal paths; or National Site Network. 	<ul style="list-style-type: none"> Land at ALC Grade 1,2 or 3a (BMV land); Land with Notifiable Weeds or Notifiable Scheduled Diseases that are at high risk of spreading; Soil which is susceptible to structural damage and erosion; or Unrecoverable or unadaptable soil.
Medium	Receptor has limited capacity to accommodate changes, such as, loss of recreational features, loss of land area, soil degradation, agricultural land drainage etc.	
	<ul style="list-style-type: none"> Locally designated planning policy areas; Entry level plus higher level ESS / mid tier CSS; Land used for specific and regionally important agriculture or horticulture; PRoW e.g. footpaths, bridleways and byways; or Stewardship bridleways (a public footpath that has been granted bridleway status under a stewardship scheme, courtesy of the landowners. 	<ul style="list-style-type: none"> Land at ALC Grade 3b (non-BMV land); or Soil which is vulnerable to seasonal structural damage or erosion.
Low	Receptor has moderate capacity to accommodate changes such as loss of recreational features, loss of land area, soil degradation, agricultural drainage etc.	
	<ul style="list-style-type: none"> No impact on designated planning policy areas; Entry level ESS; 	<ul style="list-style-type: none"> Land at ALC Grade 4 (non-BMV land); Arable or pasture grassland; or

Sensitivity	Definition	
	Land Use	Agriculture
	<ul style="list-style-type: none">Large agricultural holdings;Land used for ordinary agriculture or horticulture;Local permissive pathways; orOpen access land.	<ul style="list-style-type: none">Medium to coarse soil with some resistance to structural damage.
Negligible	Receptor generally tolerant of changes such as loss of recreational features, loss of land area, soil degradation, agricultural land drainage etc.	
	<ul style="list-style-type: none">No stewardship and land management schemes.	<ul style="list-style-type: none">Land at ALC Grade 5 or Urban (non-BMV land);Land which is not agricultural, arable or pasture grassland; orSoil with a greater resistance to structural damage.

59. The ALC grades and descriptions following the MAFF (1988) Agricultural Land Classification of England and Wales: Guidelines and Criteria for Grading the Quality of Agricultural Land (Revised Guidelines) are shown in **Table 22-10**.
60. The ALC ranks land according to the extent to which its physical or chemical characteristics impose long-term limitations on agricultural use. It provides a method for assessing the quality of farmland to enable informed choices to be made about its future use within the planning system, and in turn, underpinning the principles of sustainable development. The ALC system classifies land into the five grades outlined in **Table 22-10**. Grade 3 land can be subdivided into 3a (good) and 3b (moderate).
61. BMV land is the land which is most flexible, productive and efficient which can best deliver future crops for food and non-food uses such as biomass, fibres and pharmaceuticals. It is defined as Grades 1, 2 and 3a by policy guidance. However, national datasets no longer subdivide Grade 3 land. For the purposes of this assessment, and taking into consideration a worst-case scenario, all Grade 3 land subject to permanent land take will be classified as BMV.

Table 22-10 ALC Grades and Descriptions (MAFF, 1988)

Grade	Description
Grade 1: Excellent quality agricultural land	Land with little or no limitations to agricultural use. Land can support a very wide range of agricultural and horticultural crops with consistently high yields. Crops commonly include top fruit, soft fruit, salad crops and winter harvested vegetables.
Grade 2: Very good quality agricultural land	Land with minor limitations which can affect crop yields, cultivations or harvesting. This land can support a wide range of agricultural and horticultural crops. Reduced flexibility can lead to difficulties in the production of more demanding crops such as winter harvested vegetables and arable root crops. Whilst the yield is high, it may be lower or more variable than Grade 1 land.
Grade 3a: Good quality agricultural land	Land capable of consistently producing moderate to high yields of a narrow range of arable crops, especially cereals or moderate yields of crops including grass, oilseed rape, potatoes, sugar beet and less demanding horticultural crops.
Grade 3b: Moderate quality agricultural land	Land capable of producing moderate yields of a narrow range of crops, principally cereals, lower yields of wider range of crops and high yields of grass which can be grazed or harvested over most of the year.
Grade 4: Poor quality agricultural land	Land with significant limitations that considerably restrict the type and yield of crops that can be grown. Grass with occasional arable crops (e.g. cereals and forage crops) are predominantly suited to this land and produce variable yields.
Grade 5: Very poor quality agricultural land	Land with very severe limitations, restricting use to permanent pasture or rough grazing, with the exception of occasional pioneer forage crops.
Urban	Built-up urban areas with 'hard' uses such as housing, industry, commerce, education etc. with little potential to restore land after use.
Non-agricultural	'Soft' use areas such as golf courses, private parkland, public open spaces and sports fields that can be returned to agriculture relatively easily.

22.5.3.1.3 Impact Magnitude

62. The magnitude of impact on a receptor is defined based on the spatial extent, duration, frequency and severity of the impact. The potential effects may be adverse, beneficial or neutral.
63. Magnitude of impact is assessed according to the criteria defined in **Table 22-11**. In relation to agricultural land and soils, the magnitude of impact presented have been adopted from the IEMA A New Perspective on Land and Soil in Environmental Impact Assessment (2022) guidance.

Table 22-11 Definition of Magnitude of Impacts

Magnitude	Definition	
	Land Use	Agriculture
High	<ul style="list-style-type: none"> Permanent (>10 years) / irreversible changes, over the whole receptor, affecting usability, risk, value over a wide area, or certain to affect regulatory compliance; Existing land use would not be able to continue on >5ha of land or the entire landowner / occupiers available land (where smaller) where the land would be rendered unviable for agricultural purposes or permanent changes to land management would be required; or Permanent closure of a PRoW, National Trail or cycleway. 	<ul style="list-style-type: none"> High degree of disruption to cultivation patterns and with high risk of permanent change in land use; Permanent loss of >20ha of agricultural land (based on IEMA, 2022 and Highways England, 2019); Permanent impacts to agricultural land drainage systems; or Full land recovery in excess of 10 years.
Medium	<ul style="list-style-type: none"> Moderate, permanent or long-term (5-10 years) reversible changes, over the majority of the receptor, affecting usability, risk, value over the local area, possibly affecting regulatory compliance; Existing land use would not be able to continue on <5ha of land; Noticeable changes to the existing land use; or Temporary closure to a PRoW, National Trail or cycleway. 	<ul style="list-style-type: none"> Moderate degree of disruption to cultivation patterns with moderate risk of change in land use; Permanent loss of between 5 and 20ha agricultural land; Temporary impacts to agricultural drainage systems over 20ha area; Full land recovery expected within 5-10 years; or >20ha of soil is temporarily unsuitable for agriculture.
Low	<ul style="list-style-type: none"> Temporary change affecting usability, risk or value over the short-term (<5 years); 	<ul style="list-style-type: none"> Minimal degree of disruption to cultivation patterns and low risk of change in land use;

Magnitude	Definition	
	Land Use	Agriculture
	<ul style="list-style-type: none"> Temporary change affecting usability within the site boundary; Measurable permanent change with minimal effect on usability, risk or value, no effect on regulatory compliance; or Temporary disruption via diversions to PRoW, National Trail or cycleway. 	<ul style="list-style-type: none"> Permanent loss of <5ha of agricultural land; Full land recovery expected within 5 years; Temporary impacts to agricultural drainage systems over <20ha area; or <20ha of soil is temporarily unsuitable for agriculture.
Negligible	<ul style="list-style-type: none"> Minor permanent or temporary change, undiscernible over the medium to short-term, with no effect on usability, risk or value; or No direct impact to PRoW, National Trail or cycleway. 	<ul style="list-style-type: none"> Minimal or no disruption to cultivation patterns and very low risk of change in land use; Minimal or no disruption to agricultural land drainage systems; Minimal or no identifiable material changes to the soil resource; or Small areas <0.1ha is permanently lost from agriculture.

22.5.3.1.4 Effect Significance

64. The assessment of significance of an effect is informed by the sensitivity of the receptor and the magnitude of the impact (see **Chapter 6 Environmental Impact Assessment Methodology**). The determination of significance is guided by the use of a soils and land use significance of effect matrix, as shown in **Table 22-12**. Definitions of each level of significance are provided in **Table 22-13**.
65. For the purpose of this assessment, any effect that is of major or moderate significance is considered to be significant in EIA terms, whether this be adverse or beneficial. Any effect that has a significance of minor or negligible is not significant.

Table 22-12 Soils and Land Use Significance of Effect Matrix

		Adverse Magnitude				Beneficial Magnitude			
		High	Medium	Low	Negligible	Negligible	Low	Medium	High
Receptor Sensitivity	High	Major	Major	Moderate	Minor	Minor	Moderate	Major	Major
	Medium	Major	Moderate	Minor	Minor	Minor	Minor	Moderate	Major
	Low	Moderate	Minor	Minor	Negligible	Negligible	Minor	Minor	Moderate
	Negligible	Minor	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Minor

Table 22-13 Definition of Effect Significance

Significance	Definition
Major	Very large or large change in receptor condition, which is likely to be important considerations at a regional or district level because they contribute to achieving national, regional or local objectives, or could result in exceedance of statutory objectives and / or breaches of legislation.
Moderate	Intermediate change in receptor condition, which is likely to be important considerations at a local level.
Minor	Small changes in receptor condition, which may be raised as local issues but are unlikely to be important in the decision-making process.
Negligible	No discernible change in receptor condition.
No change	No impact, therefore, no change in receptor condition.

22.5.4 Cumulative Effects Assessment Methodology

66. The cumulative effects assessment (CEA) considers other plans and projects that may act collectively with the Project to give rise to cumulative effects on commercial fisheries receptors. The general approach to the CEA for commercial fisheries involves screening for potential cumulative effects, identifying a short list of plans and projects for consideration and evaluating the significance of cumulative effects. **Chapter 6 Environmental Impact Assessment Methodology** and **Volume 2, Appendix 6.5 Cumulative Effects Screening Report - Onshore** provides further details on the general framework and approach to the CEA.

22.5.5 Assumptions and Limitations

67. This chapter provides a preliminary assessment of the likely significant effects of the Project in relation to soils and land use using information available at the time of drafting as described in **Chapter 6 Environmental Impact Assessment Methodology**. This assessment will be refined where relevant and presented in the ES to be submitted with the DCO application.
68. Potential effects to assets are based on a quantitative assessment where possible in order to predict the effect on land use and agricultural activities, particularly during the construction phase. It is however, accepted that the perceptions, particularly for receptor sensitivity, may differ between individuals. Therefore, the most likely perception is chosen where possible, and it is assumed that differences in opinion would balance on average.
69. The baseline environment in terms of agricultural land cover, includes ALC grade, crops grown, and agricultural practices adopted where these are known. It should be noted that this assessment is not based on site-specific surveys but high level datasets which are only accurate at the time of data collection, and therefore should only be considered indicative of the land uses found within the Study Area.
70. Impacts on soil resources are not predicted to extend beyond the direct Study Area. Therefore, any impacts to the wider area are not discussed here. The published soil data used to undertake this assessment only provides a general characteristic of the area and are only indicative of the soil type present. The specific characteristics may differ on the ground and vary between individual fields.

22.6 Baseline Environment

22.6.1 Existing Baseline

71. The information presented in this section has drawn on the findings obtained during the desk-based data collection exercise. To aid the characterisation of the baseline environment, a description of the baseline has been made using the following classifications:

- Agriculture:
 - Identifies the agricultural land cover and where applicable describes the crop being grown. This baseline also includes details of ALC which provides a description of the grades of land found within the Project's Onshore Development Area in the context of its versatility and suitability for growing crops; and
 - Soil types and distribution identifies the soil found within the Project's Onshore Development Area, including texture, type and fertility.
- Land use:
 - Identifies high level land use within the Project's Onshore Development Area;
 - PRoW, National Trails and cycle routes - identifies all such designated routes within the Project's Onshore Development Area;
 - Environmental Stewardship schemes - identifies and describes any stewardship and land management schemes present within the Project's Onshore Development Area; and
 - Utilities - identifies and describes (at a high level) utilities present within the Project's Onshore Development Area.

72. The description of the baseline environment provided within the subsequent sections includes a summary of the landfall, onshore ECC and OCS Zone 4 and 8.

22.6.1.1 Agriculture

22.6.1.1.1 Agricultural Land Cover

73. Agriculture in the Yorkshire and Humber region is primarily arable (including arable crops, permanent and temporary grassland). The average farm size of 92.5ha is slightly greater than the English average of 87.1ha. Cereal farming dominates, with wheat, barley and oil seed rape as common crops. Alongside cereal farming, root crops, potatoes and field vegetables are also grown. Some livestock farming is also present in the region, principally cattle, pigs and poultry (Defra, 2024).

74. Agricultural land in England and Wales has been defined according to the ALC which measures the quality and versatility of soil in a grading system, and is based on factors including climate, nature of the soil and site-based factors (MAFF, 1988). The grading system is described in **Table 22-10**.

75. The BMV agricultural land are classified as Grades 1, 2 and 3a. These comprise land that is most flexible, productive and efficient in response to inputs and can best deliver future crops for food and non-food uses such as biomass, fibres and pharmaceuticals. ALC Grades 3b, 4 and 5 are considered less productive, although land designated as such may hold value in relation to nature conservation and landscape interests.

76. The ALC underpins the principles of sustainable development, and is used by Defra, and others, for determining the quality of farmland and providing advice to local authorities, developers and the public if a development is proposed on agricultural land or other 'greenfield' sites that could grow crops.

77. **Figure 22-2** shows the location of ALC grades within the Onshore Development Area, using data from Natural England. No differentiation is made within this dataset between ALC Grades 3a and 3b within the provisional ALC data.

78. The Onshore Development Area is characterised by a series of ALC grades. The assessment presented in this chapter focuses only on direct effects to ALC land within the Onshore Development Area.

79. The percentage of land of different ALC grades for each element of the Onshore Development Area, which is based on Natural England data, is presented in **Table 22-14**.

Table 22-14 Provisional ALC Grades within the Onshore Development Area

ALC Grade	Areas within Landfall (ha)	Area within Onshore ECC (ha)	Area within OCS Zones (ha)	Area within Onshore Development Area (ha)	% ALC Grade land within Onshore Development Area
1	0	0	0	0	0
2	18.49	559.03	108.86	686.38	56
3	30.50	479.52	0	510.02	41
4	0	39.76	0	39.76	3
5	0	0	0	0	0
Total	48.99	1,078.31	108.86	1,236.16	N/A

ALC Grade	Areas within Landfall (ha)	Area within Onshore ECC (ha)	Area within OCS Zones (ha)	Area within Onshore Development Area (ha)	% ALC Grade land within Onshore Development Area
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**Note: The grey shaded rows (ALC Grades 1 – 3) denote the BMV agricultural land with an assumption that all Grade 3 land is 3a and not 3b. This is a highly conservative and protective approach which over-estimates the area of BMV land.*

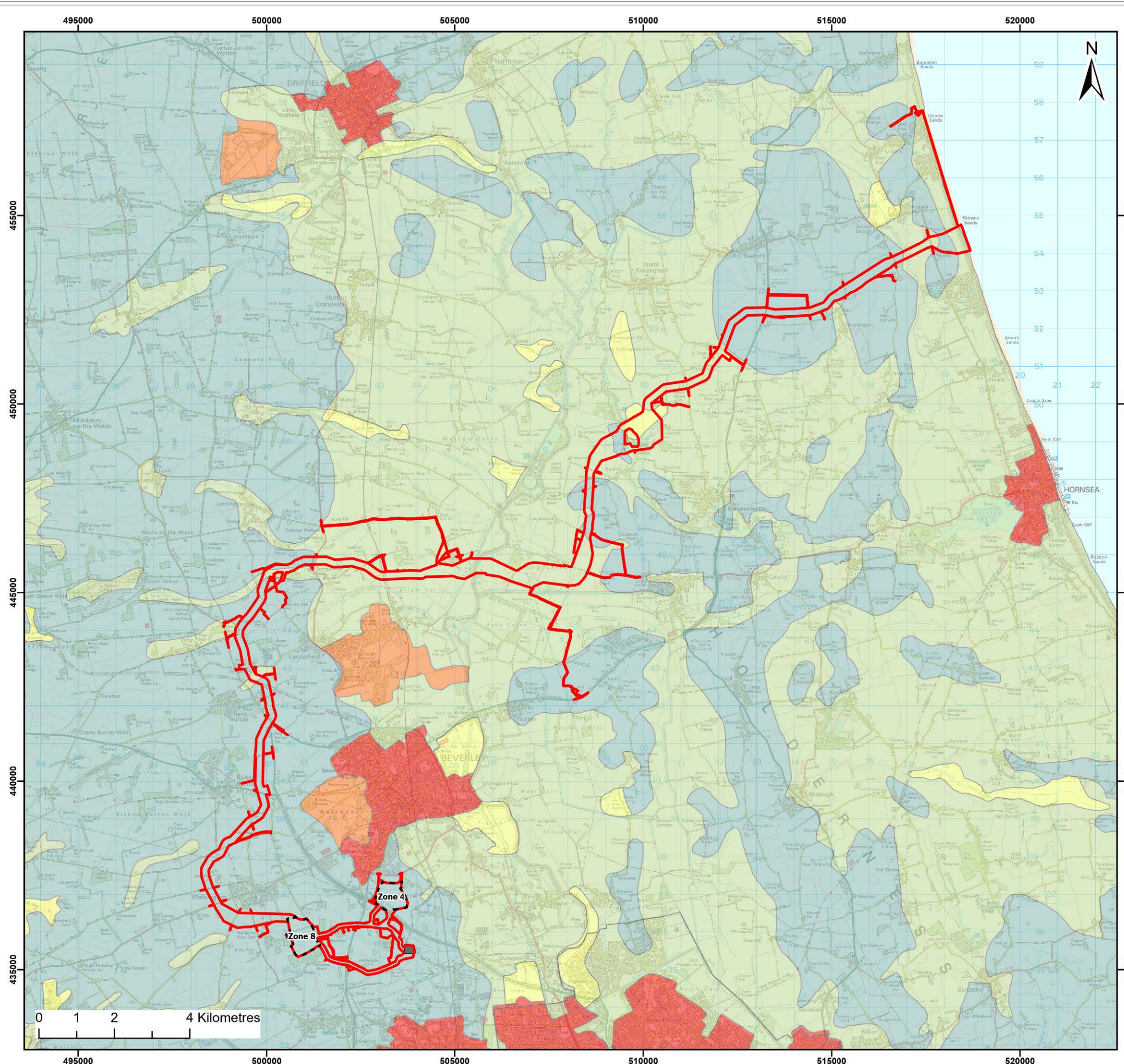
80. More detailed data relating to ALC, referred to as ‘Post 1988 Agricultural Land Class (England)’ is not available for land within the Onshore Development Area.
81. The agricultural land located at the landfall is considered to be BMV land, based on the assumption that all Grade 3 ALC land is assumed as a worst-case to be 3a. The rest of the onshore ECC is predominantly comprised of both ALC Grade 2 and Grade 3. The remaining ALC land located within the onshore ECC is not considered to be BMV agricultural land.
82. The agricultural land located within OCS Zones 4 and 8 is solely ALC Grade 2 land, and therefore considered to be BMV agricultural land. The area of ALC Grade 2 land for the OCS zones presented in **Table 22-14** include both OCS zones. However, only one of these zones will be taken forward to development, therefore the amount of ALC Grade 2 land that will be impacted by the Project will be reduced and limited to those in the selected OCS zone only (see **Section 22.4.5**).

Overall, the BMV land within the Onshore Development Area represents approximately 0.6% of the total available agricultural land within East Riding of Yorkshire (ERYC, 2023).

22.6.1.1.2 Soil Types and Distribution

83. This section provides a description of the soils found within the Onshore Development Area, including the type, drainage, texture, fertility and moisture. The National Soils Map (National Soil Resources Institute, undated) classification has been used to determine the types of soil that exist within the Onshore Development Area.
84. It should be noted that the published soil data provide generic characteristics and is indicative of the soil type present. The precise soil type and characteristics would differ between and within individual fields.
85. Reference should be made to **Chapter 21 Water Resources and Flood Risk** for further details on soils in relation to flood risk and water. Any impact on the soil resource is not predicted to extend beyond the Onshore Development Area.

86. **Table 22-15** provides additional detail on the characteristics of the soil types found within the Onshore Development Area (Cranfield University, 2024).



Legend:

- Onshore Development Area
- Onshore Converter Station Zone Options
- Indicative Birkhill Wood Substation Location

Agricultural Land Classification

- Grade 2
- Grade 3
- Grade 4
- Non Agricultural
- Urban

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Dogger Bank D Offshore Wind Farm	DOGGER BANK WIND FARM				
Title:					
Agricultural Land Classification					
Figure: 22-2	Drawing No: PC6250-RHD-XX-ON-DR-GS-0092				
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Table 22-15 Soil Types within the Onshore Development Area

Soilscapes Definition	Texture	Drainage	Natural Fertility	Typical Habitats	Landcover	General Cropping	General Area within Onshore Development Area
Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Loamy and clayey	Impeded drainage	Moderate	Seasonally wet pastures and woodlands	Grassland and arable some woodland	Mostly suited to grass production for dairying or beef; some cereal production often for feed. Timeliness of stocking and fieldwork is important, and wet ground conditions should be avoided at the beginning and end of the growing season to avoid damage to soil structure. Land is tile drained and periodic moling or subsoiling will assist drainage.	Landfall, onshore ECC and OCS Zone 4
Slightly acid loamy and clayey soils with impeded drainage	Loamy some clayey	Slightly impeded drainage	Moderate to high	Wide range of pasture and woodland types	Arable and grassland	Reasonably flexible but more suited to autumn sown crops and grassland; soil conditions may limit safe groundwork and grazing, particularly in spring.	Landfall, onshore ECC, OCS zones
Loamy and clayey floodplain soils with naturally high groundwater	Loamy and clayey	Naturally wet	Moderate	Wet flood meadows with wet carr woodlands in old river meanders	Grassland some arable	Productive grassland provided drainage is maintained. Risk of poaching and soil damage early and late in the grazing season. Cereal production where flood risk is low.	Landfall and onshore ECC
Freely draining lime-rich loamy soils	Loamy	Freely draining	Lime-rich	Herb-rich chalk and limestone pastures; lime-rich deciduous woodlands	Arable with grassland at higher altitude	Well suited to spring and autumn-sown cereals and other crops including grass but the land is mostly nitrate vulnerable.	Onshore ECC and OCS Zone 8
Loamy and sandy soils with naturally high groundwater and a peaty surface	Peaty	Naturally wet	Low to high	Wet meadows	Mostly arable	Cereals, roots, potatoes and field vegetables provided groundwater is controlled. Ease of working and winter harvesting, which can be damaging to structure, dependent on texture and drainage of subsoil. Irrigation needed on lighter soils.	Onshore ECC
Freely draining slightly acid but base-rich soils	Loamy	Freely draining	High	Base-rich pastures and deciduous woodlands	Arable and grassland	Suitable for spring and autumn sown crops and grassland. Shortage of soil moisture most likely limiting factor to yields especially where stony or shallow.	Onshore ECC and OCS Zone 8

22.6.1.2 Land Use

22.6.1.2.1 Land Use Designations

87. The Onshore Development Area interacts with parts of the following designated sites (see **Figure 22-3**):

- Landfall:
 - Withow Gap, Skipsea SSSI; and
 - Greater Wash SPA.
- Onshore ECC:
 - Leven Canal SSSI (with respect to temporary construction access only).

88. A total of seven LWS are present within the Onshore Development Area, all of which are non-statutory designated sites. As presented on **Figure 22-3**, the LWS located within the Onshore Development Area include:

- Bealey's Beck, Lockington;
- Bealey's Lane;
- Beeford - Dunnington;
- Fishpond Wood, Risby Estate;
- Leman Road Corner - Moorbeck Road (a);
- Leman Road Corner – Moorbeck Road (b);
- Risby Park; and
- Raventhorpe Embankment.

89. The features of these statutory and non-statutory designated sites and the assessment of significance in relation to the impact of construction and operation of the Project on the designated sites are discussed further in **Chapter 19 Geology and Ground Conditions** and **Chapter 23 Onshore Ecology and Ornithology**.

22.6.1.2.2 Site Allocations

90. A review of the East Riding of Yorkshire Local Plan Update (East Riding of Yorkshire Council, 2025) was undertaken to identify any areas of land that are allocated for, or restrict, future developments of change of use. This included a review of the site allocation maps.

91. The review indicates that the Onshore Development Area is located within:

- A Coastal Change Management Area (see **Figure 22-3**);
- Local Plan Mineral Safeguarding Area and Local Geological Sites – see **Chapter 19 Geology and Ground Conditions** for an assessment of the significance of the impact of the Project on these areas and see **Figures 19.2-4** and **19.2-10** of **Volume 2, Appendix 19.2 Preliminary Risk Assessment** for locations of Local Geological Sites and Mineral Safeguarding Areas, respectively.

22.6.1.2.3 Public Rights of Way, National Trails and Cycle Routes

92. There are 39 PRoW located within the Onshore Development Area (see **Figure 22-4**). These comprise 24 footpaths, 13 bridleways, one PRoW designated as both a footpath and bridleway and one restricted byway. The Onshore Development Area also crosses two National Cycle Network (NCN) routes and five long distance trails (three of which are not associated with another footpath).

93. The King Charles III England Coast Path (Easington to Filey Brigg branch) and National Trail, which has been granted approval but is not yet constructed, will be located at the landfall. The King Charles III England Coast Path is not a cliff top PRoW but will create an access strip from the alignment of the trail to the sea referred to as 'spreading room' in Natural England's approved Coastal Access Scheme. This will allow the users of the trail to roam freely anywhere on the seaward side of the trail.

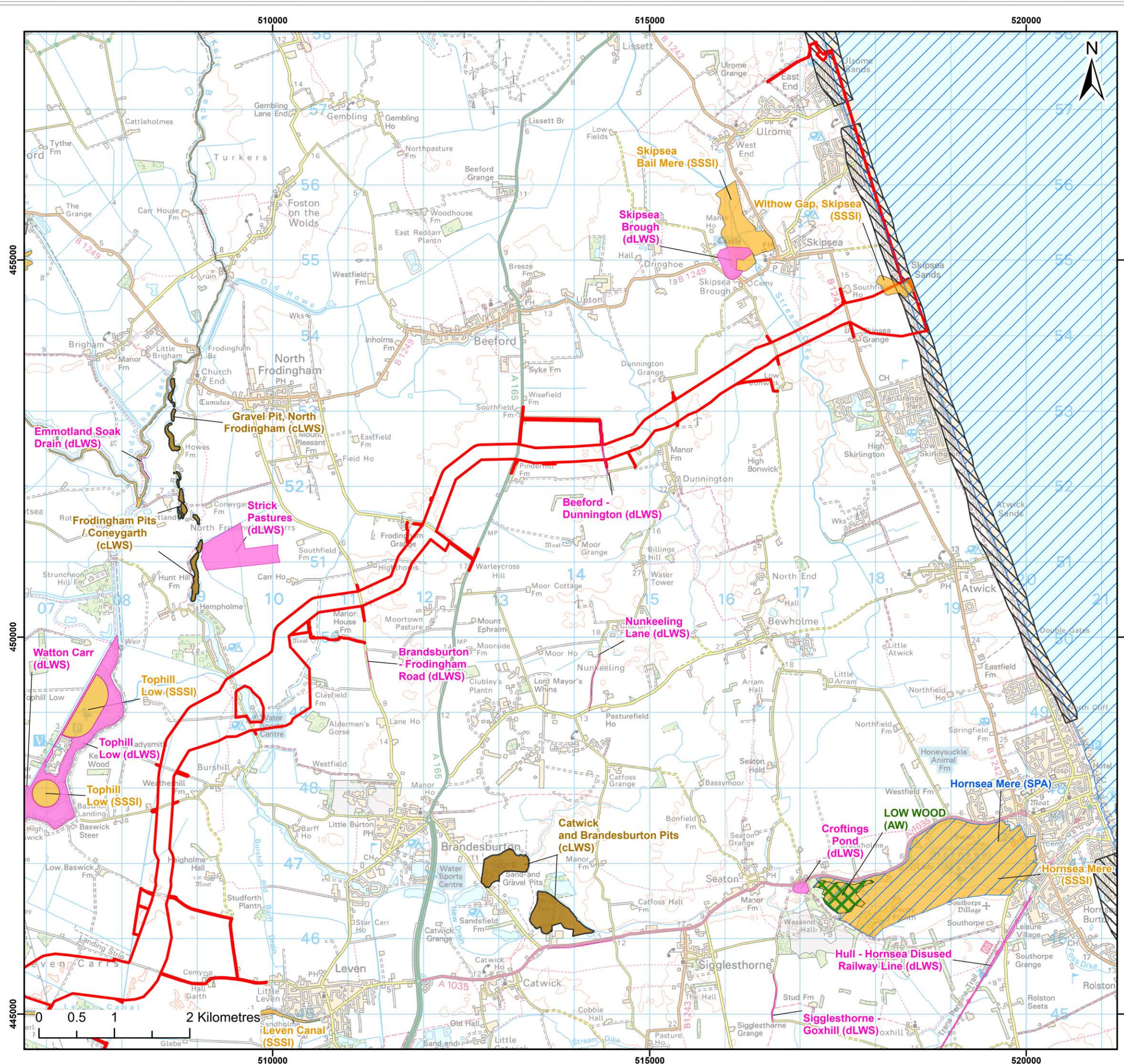
94. **Table 22-16** identifies all PRoW, National Trails and cycle routes, their reference and description within the Onshore Development Area. **Figure 22-4** illustrates the location of these features within the Onshore Development Area. The crossing methodology for each of these features is included within the **Outline Public Rights of Way Management Plan**, a draft version of which has been provided with the **Outline Code of Construction Practice** (document reference: 8.9).

Table 22-16 PRoW, National Trails and Cycle Routes

PRoW / Cycle Route Name	Reference	Location within Onshore Development Area
Bridleways		
Bishop Burton Bridleway No.2	BBURB02	Onshore ECC
Etton Bridleway No.1	ETTOB01	Onshore ECC
Leconfield Bridleway No.2	LECOB02	Onshore ECC
Leconfield Bridleway No. 6	LECOB06	Onshore ECC (access road only)
Leconfield Bridleway No.25	LECOB25	Onshore ECC

PRoW / Cycle Route Name	Reference	Location within Onshore Development Area
Lockington Bridleway No.1	LOCKB01	Onshore ECC
Lockington Bridleway No.4	LOCKB04	Onshore ECC (access road only)
Lockington Bridleway No.10	LOCKB10	Onshore ECC (access road only)
Rowley Bridleway No.13	ROWLB13	Onshore ECC
Walkington Bridleway No.10	WALKB10	Onshore ECC
Woodmansey Bridleway No.30	WOODB30	Onshore ECC (access road only)
Woodmansey Bridleway No.31	WOODB31	OCS Zone 4 (access road only)
Woodmansey Bridleway No.34	WOODB34	OCS Zone 4 (access road only)
Footpaths		
Brandesburton Footpath No.7	BRSNF07	Onshore ECC
Brandesburton Footpath No.10	BRSNF10	Onshore ECC
Brandesburton Footpath No.11	BRSNF11	Onshore ECC
Brandesburton Footpath No.12	BRSNF12	Onshore ECC
Brandesburton Footpath No.15	BRSNF15	Onshore ECC
Cherry Burton Footpath No.2 / Hudson Way	CBURF02	Onshore ECC
Cherry Burton Footpath No.3	CBURF03	Onshore ECC
Leconfield Footpath No.1 / Minster Way	LECOF01	Onshore ECC
Leconfield Footpath No.3	LECOF03	Onshore ECC
Leconfield Footpath No.5	LECOF05	Onshore ECC
Leconfield Footpath No.30	LECOF30	Onshore ECC
Leconfield Footpath No.33	LECOF33	Onshore ECC
Lockington Footpath No. 7	LOCKF07	Onshore ECC
Leven Footpath No.4	LEVEF04	Onshore ECC (access road only)

PRoW / Cycle Route Name	Reference	Location within Onshore Development Area
Leven Footpath No.6	LEVEF06	Onshore ECC
Rowley Bridleway and Footpath No.6	ROWLS06	Onshore ECC (access road only)
Rowley Footpath No.8	ROWLF08	Onshore ECC and OCS Zone 8 (access road only)
Rowley Footpath No.9	ROWLF09	OCS Zone 8
Rowley Footpath No.12	ROWLF12	Onshore ECC
Skipsea Footpath No.6	SKIPF06	Onshore ECC
Skipsea Footpath No.7	SKIPF07	Onshore ECC
Ulrome Footpath No.6	ULROF06	Landfall (access road only)
Walkington Footpath No.7 / High Hunsley Circuit	WALKF07	Onshore ECC
Walkington Footpath No.8 / Beverley 20	WALKF08	Onshore ECC
Woodmansey Footpath No.7	WOODF07	Onshore ECC
Long Distance Trails		
High Hunsley Circuit	N/A	Onshore ECC
Minster Way	N/A	Onshore ECC
Wilberforce Way	N/A	Onshore ECC
Restricted Byway		
Lockington Restricted Byway No. 15	LOCKR15	Onshore ECC (access road only)
National Trails		
King Charles III England Coast Path	N/A	Landfall
Cycle Routes		
National Cycle Route 1	NCN1	Onshore ECC
National Cycle Route 164	NCN164	Onshore ECC



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Title:

Land Uses Within the Onshore Development Area -
- Sheet 1 of 2

Figure: 22-3 Drawing No: PC6250-RHD-XX-ON-DR-GS-0093

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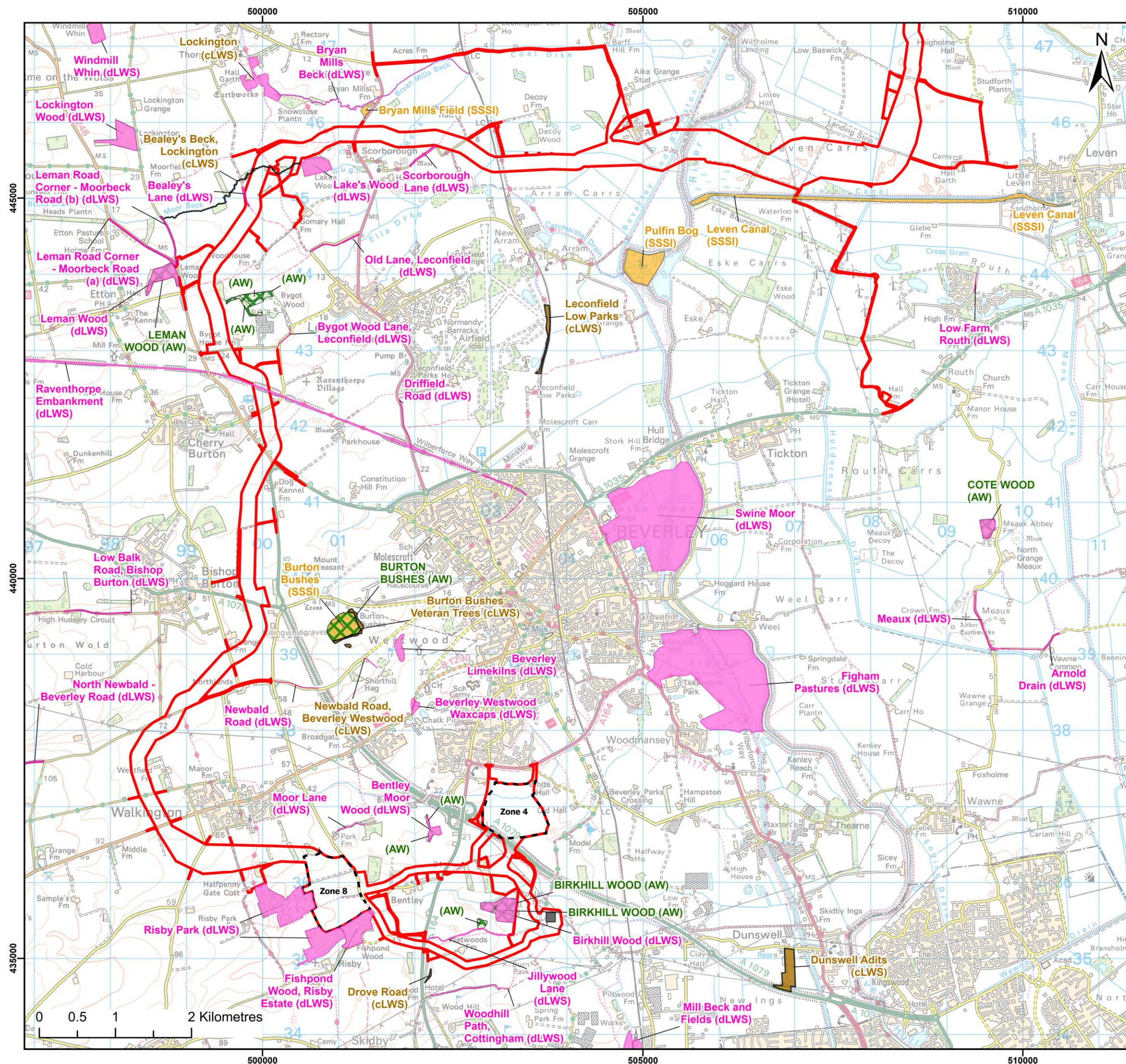
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Legend:

- Onshore Development Area
- Ancient Woodland
- candidate Local Wildlife Sites (cLWS)
- designated Local Wildlife Sites (dLWS)
- Special Protection Area (SPA)
- Site of Special Scientific Interest (SSSI)
- Coastal Change Management Area (ENV6)



- Legend:
- Onshore Development Area
 - Onshore Converter Station Zone Options
 - Indicative Birkhill Wood Substation Location
 - Ancient Woodland
 - candidate Local Wildlife Sites (cLWS)
 - designated Local Wildlife Sites (dLWS)
 - Site of Special Scientific Interest (SSSI)

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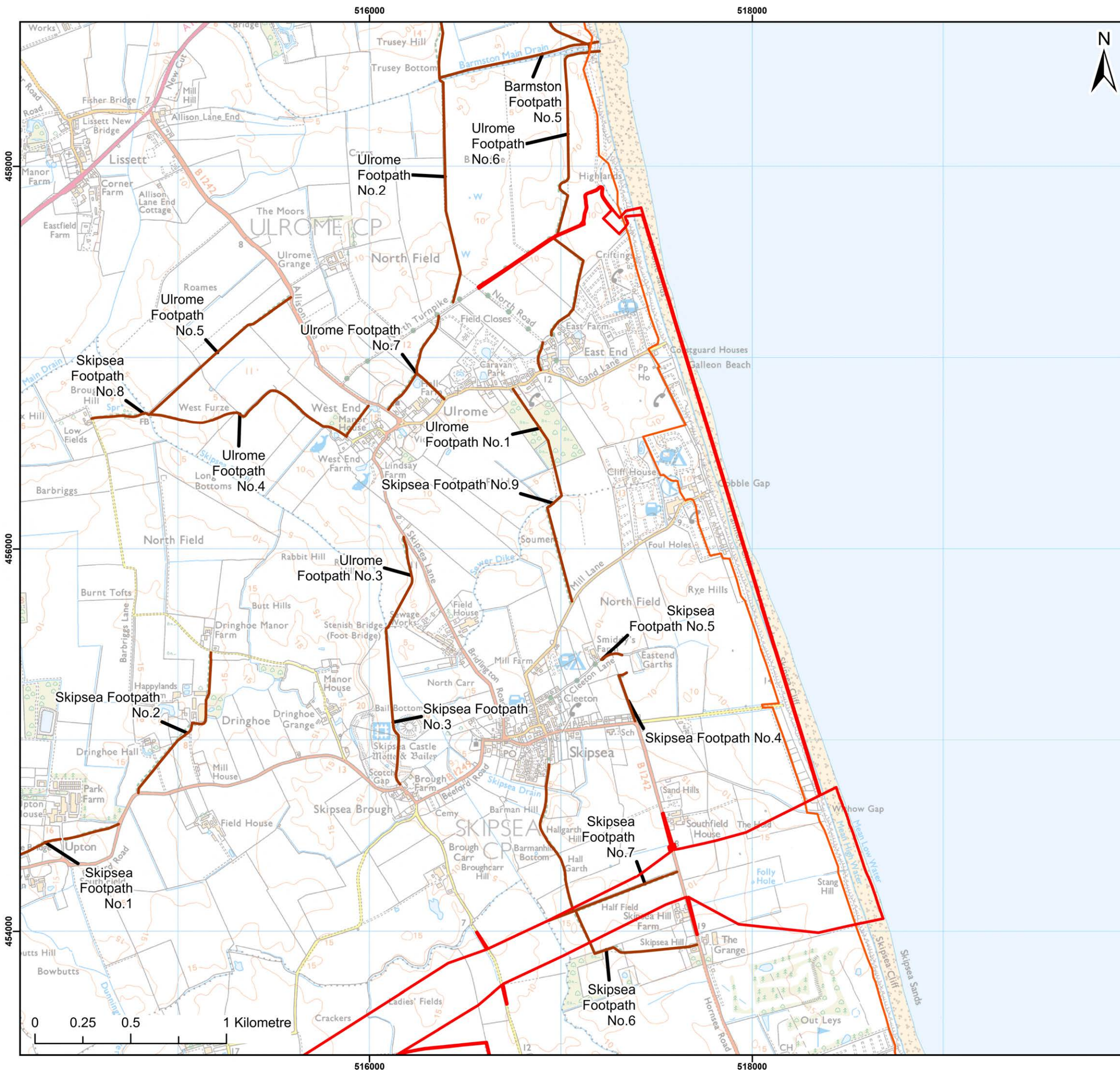
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Land Uses Within the Onshore Development Area -
- Sheet 2 of 2

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Co-ordinate system: British National Grid





Legend:

- Onshore Development Area
- King Charles III England Coastal Path
- Footpath

Public Rights of Way

Footpath

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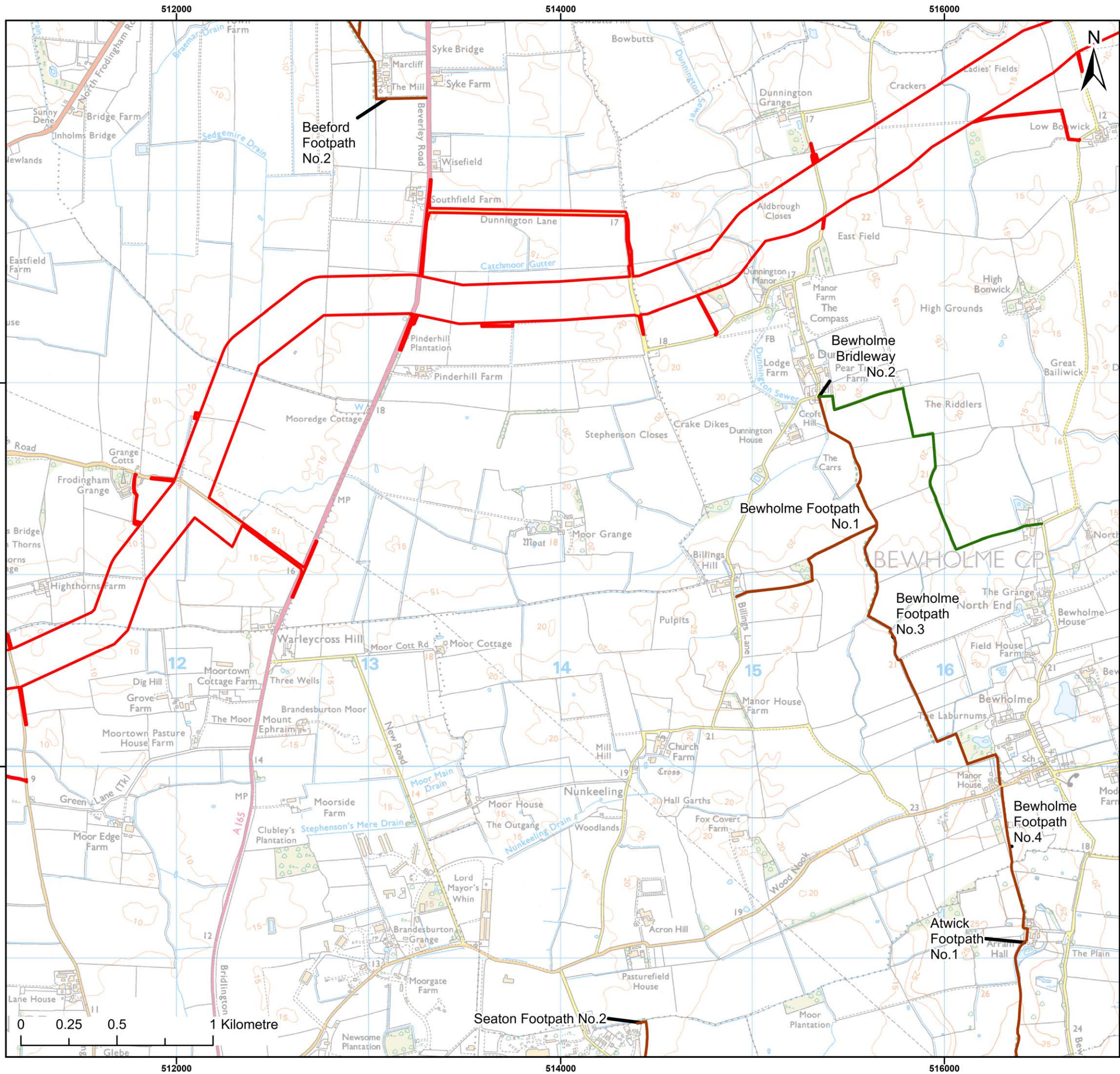
Public Rights of Way and Cycle Routes
- Sheet 1 of 7

Figure: 22-4 Drawing No: PC6250-RHD-XX-ON-DR-GS-0094

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Co-ordinate system: British National Grid





- Legend:
- Onshore Development Area
 - Public Rights of Way**
 - Footpath
 - Bridleway

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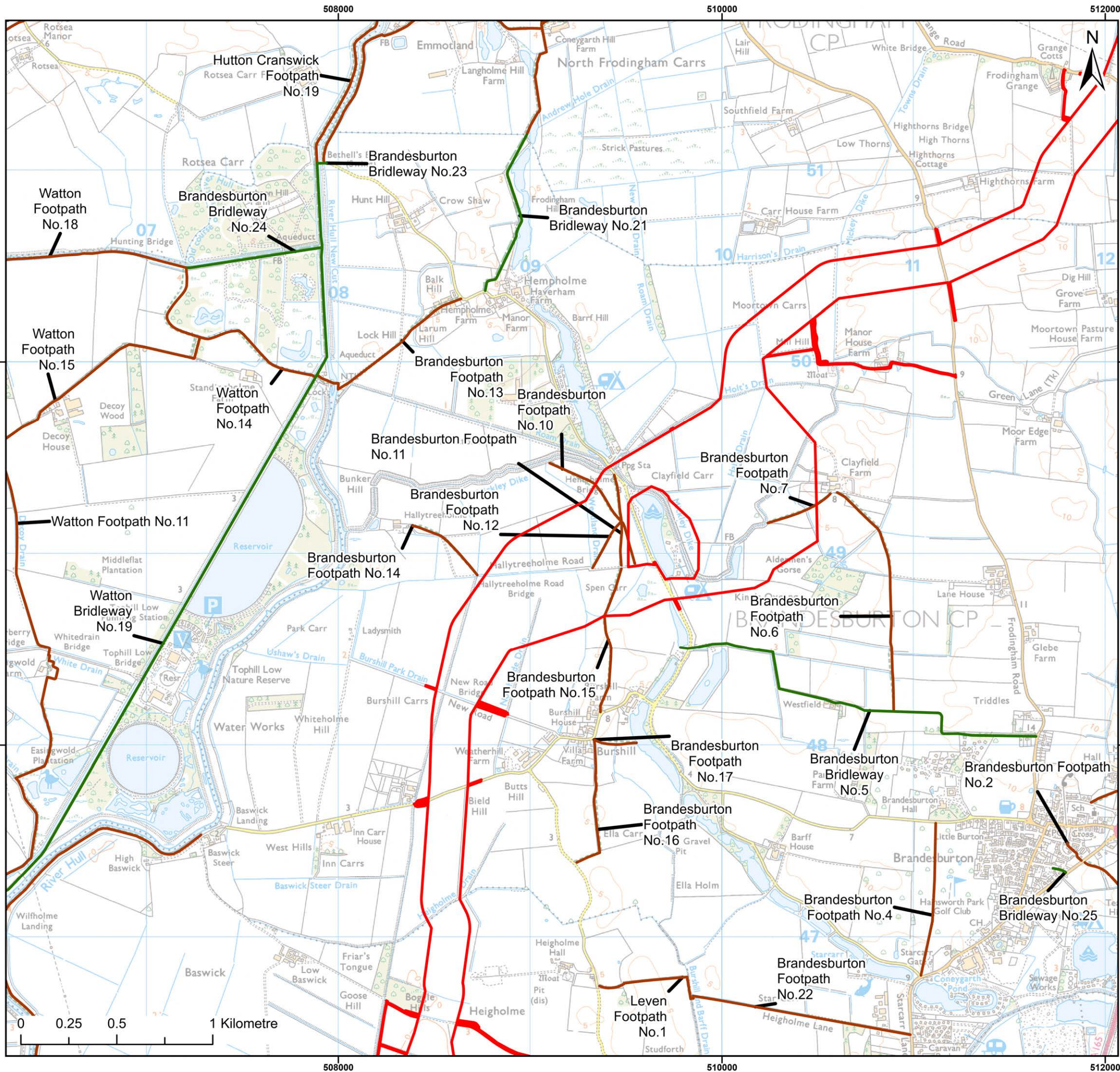
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Public Rights of Way and Cycle Routes
- Sheet 2 of 7

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Legend:

Onshore Development Area

Public Rights of Way

— Footpath

— Bridleway

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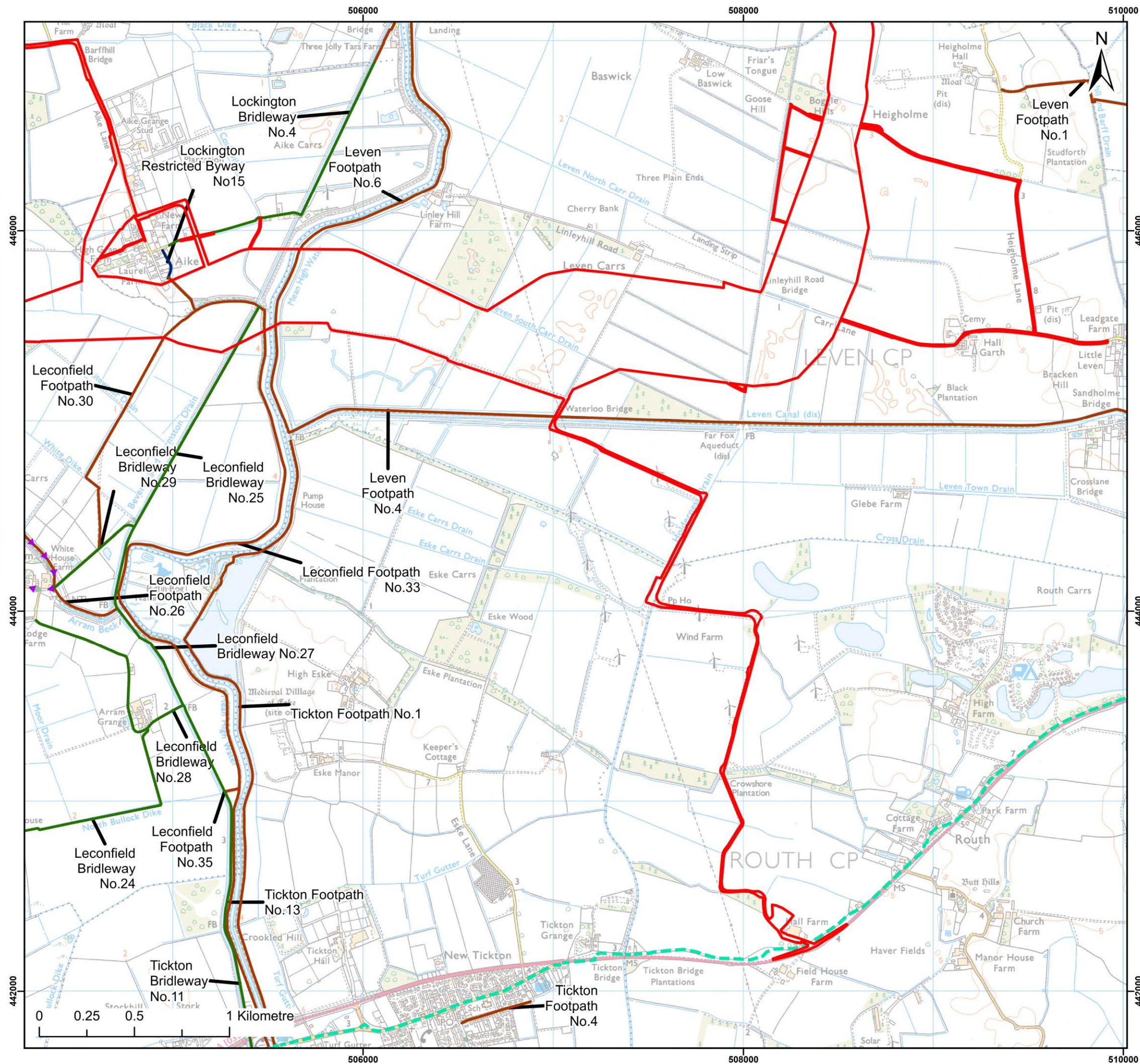
Public Rights of Way and Cycle Routes - Sheet 3 of 7

Figure: 22-4 Drawing No: PC6250-RHD-XX-ON-DR-GS-0094

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Co-ordinate system: British National Grid





Legend:

- Onshore Development Area
- National Cycle Network
 - Route 164
- Public Rights of Way
 - Footpath
 - Bridleway
 - Restricted Byway
 - Minster Way

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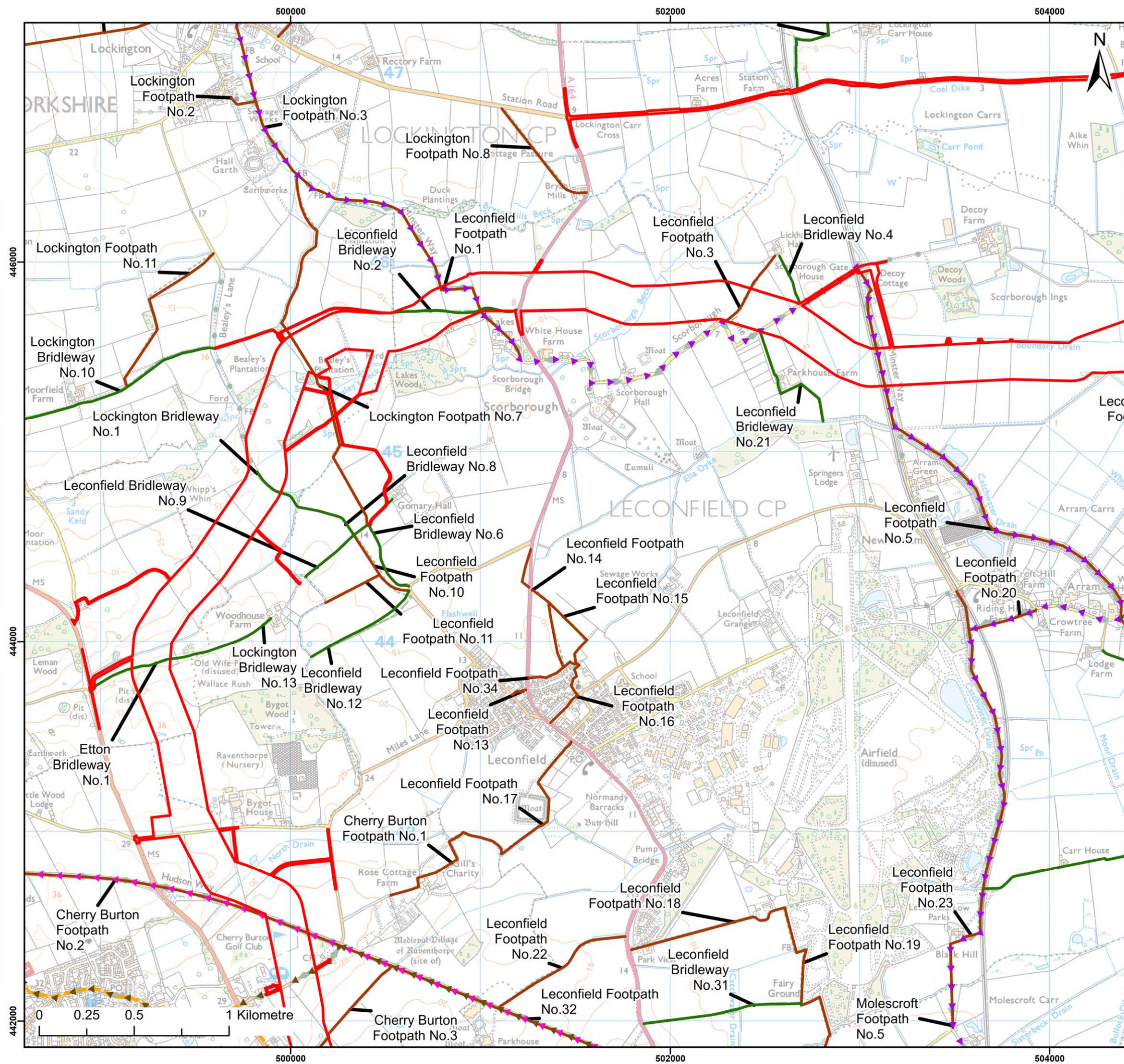
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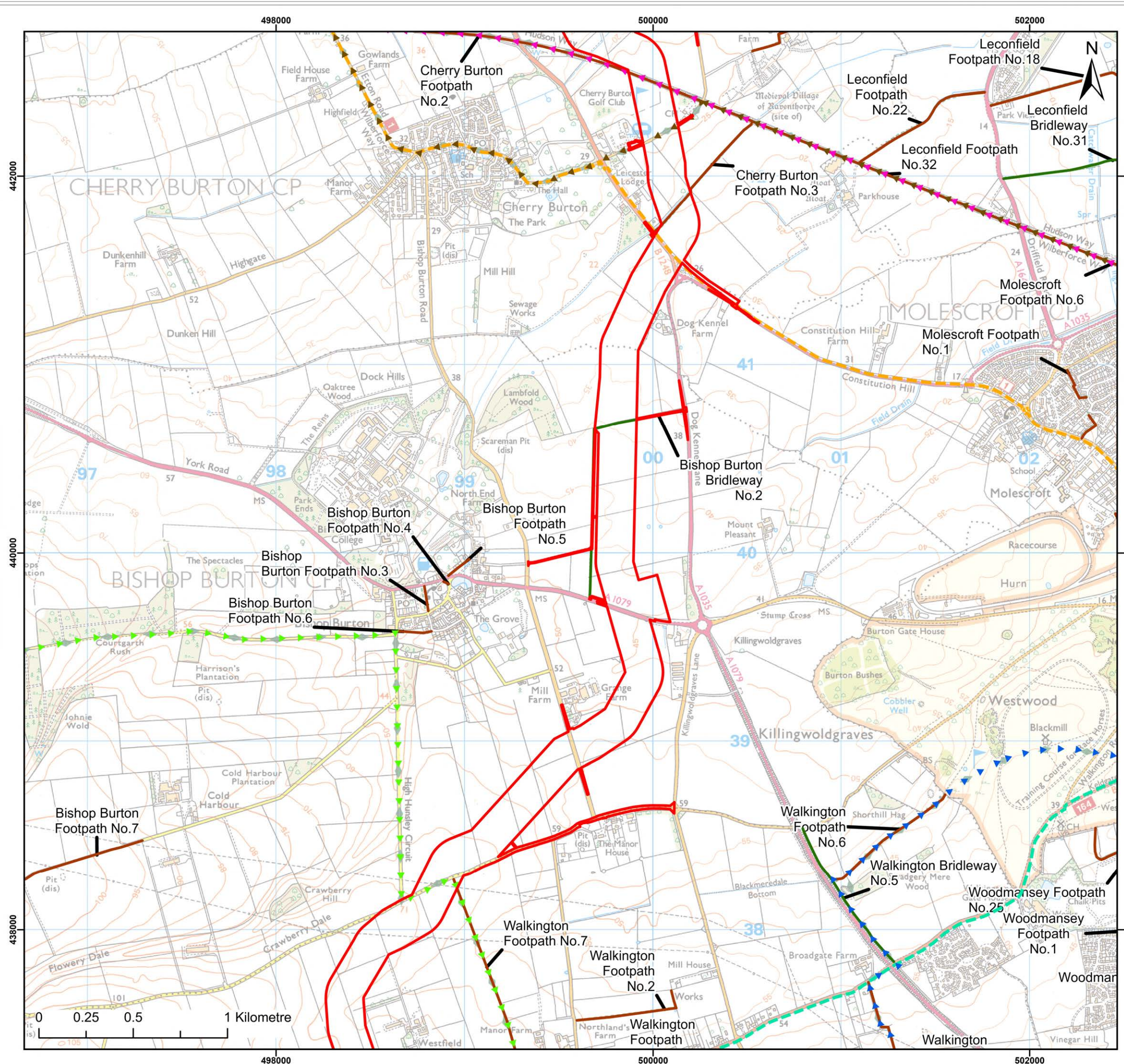
Public Rights of Way and Cycle Routes - Sheet 4 of 7

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Legend:

- Onshore Development Area

National Cycle Network

- Route 1
- Route 164

Public Rights of Way

- Footpath
- Bridleway
- Beverley 20
- High Hunsley Circuit
- Wilberforce Way
- Hudson Way

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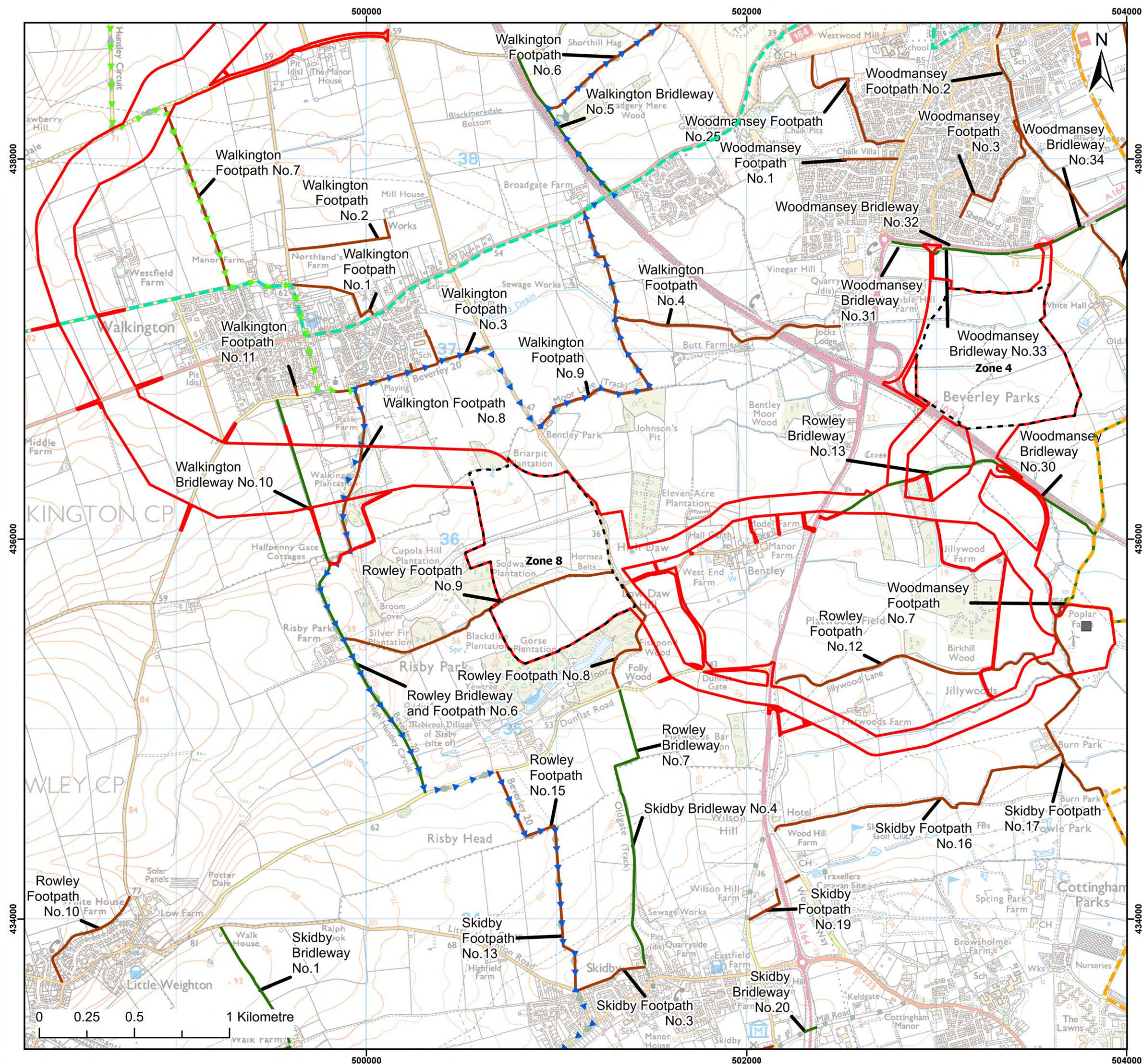
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WIND FARM**

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Public Rights of Way and Cycle Routes
- Sheet 6 of 7

Figure:	22-4	Drawing No:	PC6250-RHD-XX-ON-DR-GS-0094			
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Co-ordinate system: British National Grid



Legend:

- Onshore Development Area
- Onshore Converter Station Zone Options
- Indicative Birkhill Wood Substation Location

National Cycle Network

- Route 1
- Route 164

Public Rights of Way

- Footpath
- Bridleway
- ▶ Beverley 20
- ▶ High Hunsley Circuit

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Public Rights of Way and Cycle Routes
- Sheet 7 of 7

Figure:	22-4	Drawing No:	PC6250-RHD-XX-ON-DR-GS-0094			
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Co-ordinate system: British National Grid

22.6.1.3 Stewardship and Land Management Schemes

95. Stewardship and land management schemes relate, in part, to the objective set out in the Environment Act (UK Parliament, 2021) for the improvement of the natural environment. The stewardship and land management schemes aim to conserve, restore and enhance the natural environment through a variety of incentives to landowners and / or occupiers.
96. Environmental Stewardship Schemes (ESS) allow farmers, tenants and other land managers to receive payment for their environmental land management. The scheme is an agri-environmental scheme, which in accordance with JNCC guidance (JNCC, 2024) and Natural England guidance (Natural England, 2013), aims to:
 - Conserve wildlife and biodiversity;
 - Maintain and enhance landscape quality and character;
 - Protect the historic environment;
 - Protect natural resources;
 - Respond to climate change; and
 - Promote public access and understanding of the countryside.
97. The ESS was launched in March 2005 and has been built into the following three levels:
 - Entry Level Stewardship (ELS) – simple and effective environmental management open to all farmers and land managers;
 - Organic Entry Level Stewardship (OELS) – as ESS, but open to farmers or land managers whose land is either wholly or partially managed organically; and
 - Higher Level Stewardship (HLS) – more complex types of management and agreements which aims to provide significant environmental benefits to priority areas and is tailored to local circumstances.
98. The Countryside Stewardship Scheme (CSS) has sought to replace the ESS as ESS closed to new applicants in December 2014 (Defra, 2014). The overarching aim of the CSS is to look after and improve the environment by conserving and restoring wildlife habitats, managing flood risk, creating and managing woodland, and reducing agricultural water pollution.
99. Similar to the previous ESS, CSS is divided into a number of elements (Defra, 2014). These elements include:
 - Mid-Tier – these are multi-year agreements that focus on widespread environmental issues, such as reducing water pollution or improving the farmed environment for farmland bird and wild pollinators;
 - Wildlife Offers – these are multi-year agreements with a range of highly targeted and effective options which include improving nectar sources for insect pollinators and foraging for birds, winter food for seed-eating birds and improved habitats and other resources for site specific species or areas. The offers are tailored to specific farming practices;
 - Higher Tier – these are multi-year agreements for the most environmentally important sites, including commons and woodlands. These are usually in places that need complex management, such as restoring habitats, and improving woodland; and
 - Capital Grants – these are three-year agreements to achieve specific environmental benefits in four groups:
 - Boundaries, trees and orchards (including former hedgerows and boundaries grant items);
 - Water quality;
 - Air quality; and
 - Natural flood management.
100. Environment Land Management Schemes (ELMS) are planned to provide financial support to farmers following the UK's departure from the European Union and will eventually replace CSS. The transition between the two schemes began in 2021 and is expected to continue until 2027 (UK Parliament, 2024). As part of ELMS, three new schemes have been developed to support and reward environmental land management and the rural economy, whilst also contributing to government targets and commitments to net zero emissions by 2050. These schemes include:
 - Sustainable Farming Incentive;
 - Local Nature Recovery; and
 - Landscape Recovery.
101. The locations of areas managed under ELMS are not yet available, as such an assessment of whether these are located within the Onshore Development Area cannot be undertaken.
102. The location and area of the stewardship and land management schemes (ESS and CSS) within the Onshore Development Area are shown on **Figure 22-5** and **Table 22-17**.

Table 22-17 Stewardship and Land Management Schemes within the Onshore Development Area

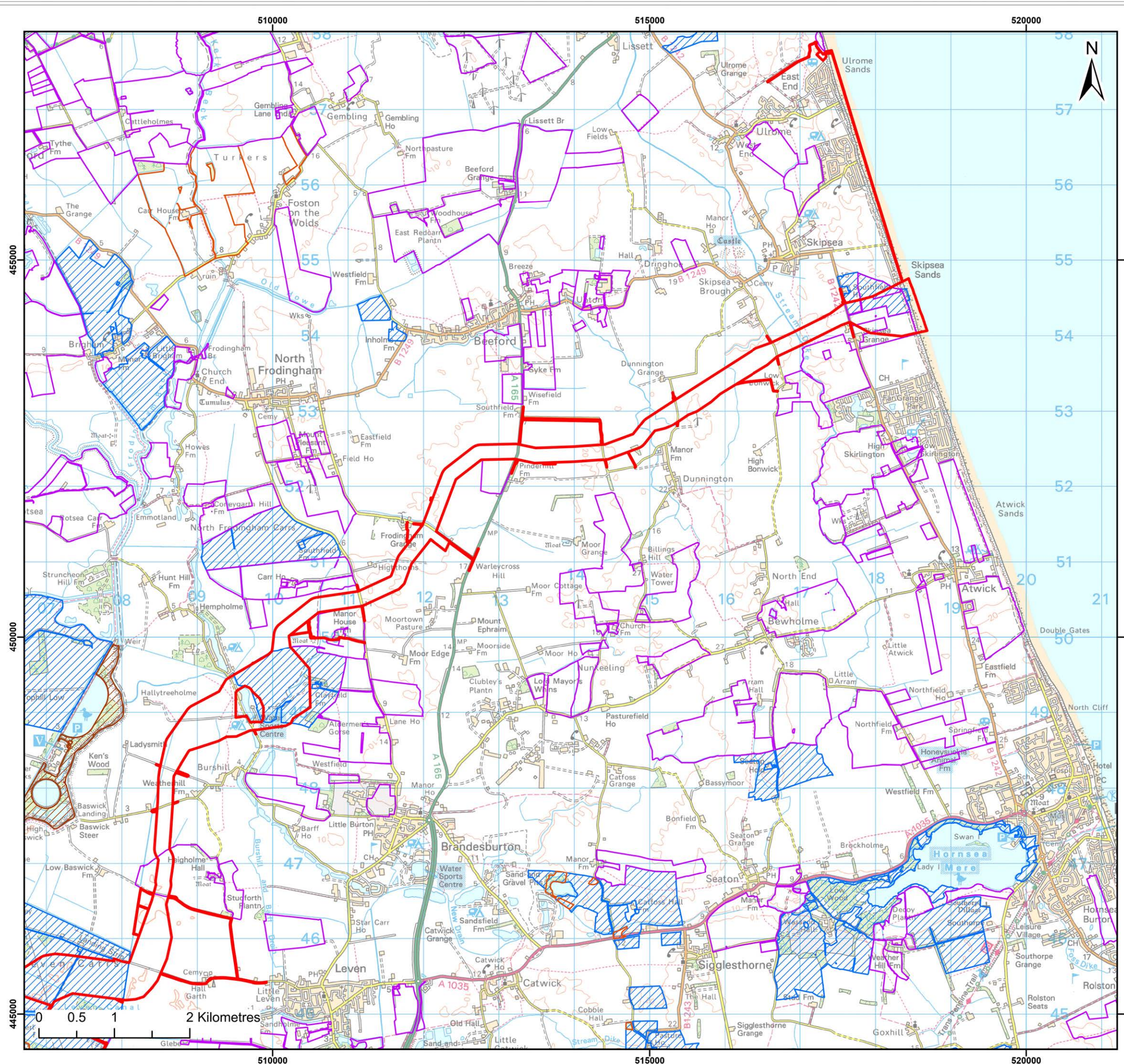
Stewardship and Land Management Scheme	Areas within Landfall (ha)	Area within Onshore ECC (ha)	Area within OCS Zones (ha)*	Area within Onshore Development Area (ha)	% of the Onshore Development Area
Environmental Stewardship					
ELS and HLS Schemes	19.42	182.82	29.45	231.7	18.7
HLS	0	0	0	0	N/A
OELS Schemes	0	0	0	0	N/A
Countryside Stewardship Schemes					
Mid-Tier	18.18	122.48	56.21	196.87	15.9
Higher Tier	0	8.56	0	8.56	0.69
Capital Grants	0	11.86	0	11.86	0.96

*Note: No stewardship and land management schemes are located within OCS Zone 4.

103. OCS Zone 8 has 56.21ha of mid tier CSS and 29.45ha of an entry level plus higher level stewardship ESS. Information received on the CSS agreement which indicates that the land within OCS Zone 8 occupied by a mid-tier CSS contains flower rich margins and plots, winter bird food and scrub control measures on historic and archaeological features. This agreement is in place between 2023 – 2027. No information has been provided on the entry level plus higher level stewardship scheme in the south of OCS Zone 8.
104. There are no stewardship and land management schemes overlapping with OCS Zone 4.
105. Overall, ELS, HLS and CSS Schemes cover approximately 450ha of land within the Onshore Development Area. This constitutes 36.3% of the land located within the Onshore Development Area.

22.6.1.4 Utilities

106. The majority of the identified utilities crossing the Onshore Development Area are for domestic services that include telecom, electricity, water, gas, sewage and street lighting (see **Figure 22-6**). Electricity and gas transmission infrastructure is also present within the Onshore Development Area.
107. National Gas and Northern Gas Networks pressurised gas pipelines interact with the onshore ECC in the following areas:
- North-west of Dunnington;
 - West of Atwick Gas Storage Facility (east of North Road);
 - East of Sigglesworth (running parallel to Wassand Balk);
 - West of Rise Road, Sigglesworth;
 - North of Catwick (running parallel and perpendicular to Main Street);
 - South-west of Frodingham Grange;
 - East of Cherry Burton (running parallel to the B1248);
 - East of Bishop Burton (running parallel to Beverley Road); and
 - North of Cottingham Parks Golf and Leisure Club.
108. National Gas and Northern Gas Networks pressurised gas pipelines interact with the OCS zones in the following areas:
- South and south-east of Walkington overlapping OCS Zone 8; and
 - South of Beverley overlapping with OCS Zone 4.



Legend:

- Onshore Development Area
- Environmental Stewardship Schemes**
 - Entry Level plus Higher Level Stewardship
 - Higher Level Stewardship
- Countryside Stewardship Agreement Management Areas**
 - Countryside Stewardship (Higher Tier)
 - Countryside Stewardship (Mid Tier)

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Project:

Dogger Bank D
Offshore Wind Farm

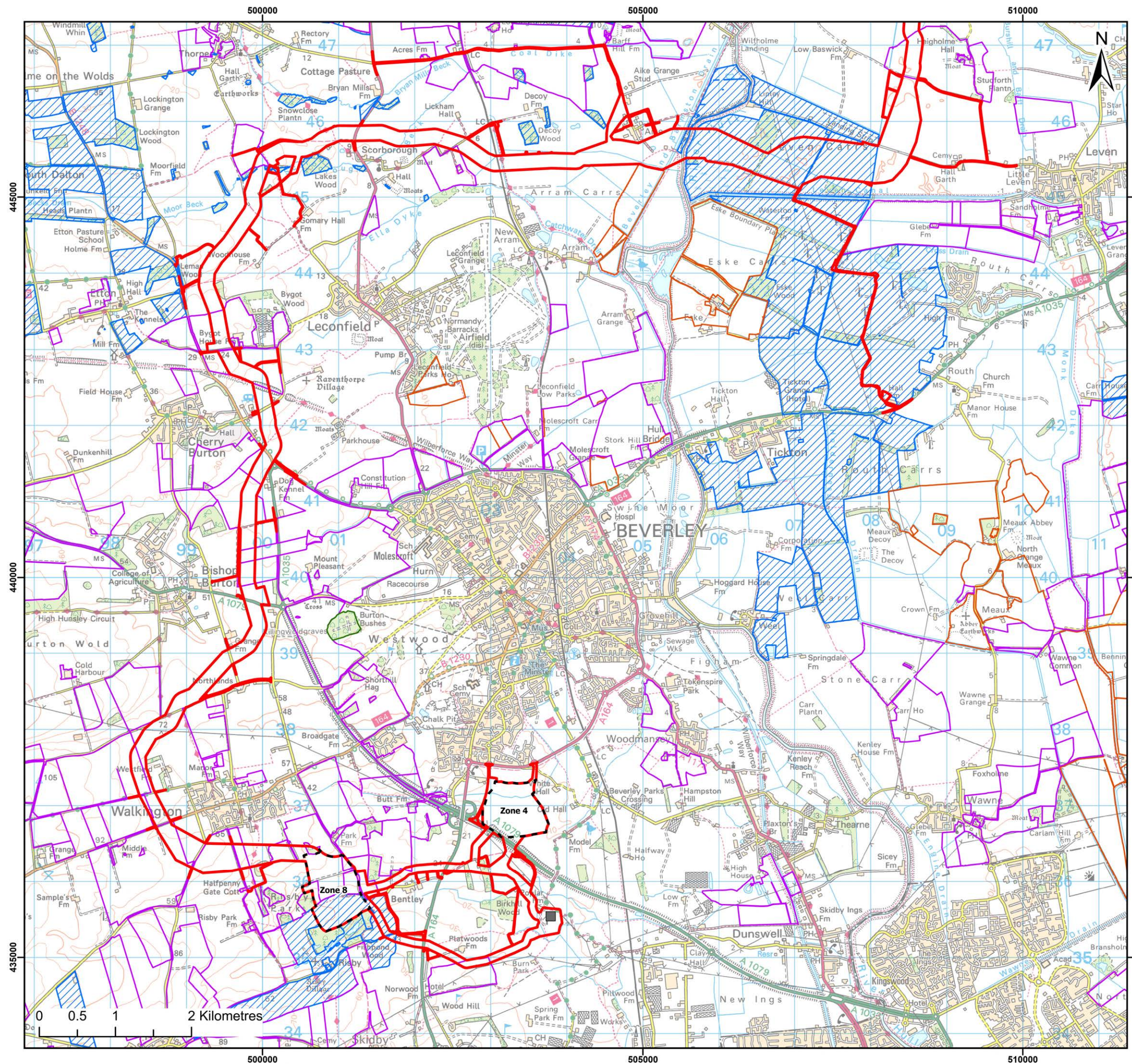
DOGGER BANK
WIND FARM

Title:

Stewardship and Land Management Schemes
- Sheet 1 of 2

Figure:	22-5	Drawing No:	PC6250-RHD-XX-ON-DR-GS-0095			
Revision:	Date:	Drawn:	Checked:	Size:	Scale:	
02	19/05/2025	JH	AB	A3	1:50,000	
01	06/11/2024	JH	AB	A3	1:50,000	

Co-ordinate system: British National Grid



- Legend:
- Onshore Development Area
 - Indicative Birkhill Wood Substation Location
 - Onshore Converter Station Zone Options
 - Environmental Stewardship Schemes**
 - Entry Level plus Higher Level Stewardship
 - Higher Level Stewardship
 - Countryside Stewardship Agreement Management Areas**
 - Countryside Stewardship (Higher Tier)
 - Countryside Stewardship (Mid Tier)
 - Woodland Management Plan

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Project:
Dogger Bank D
Offshore Wind Farm

DOGGER BANK
WIND FARM

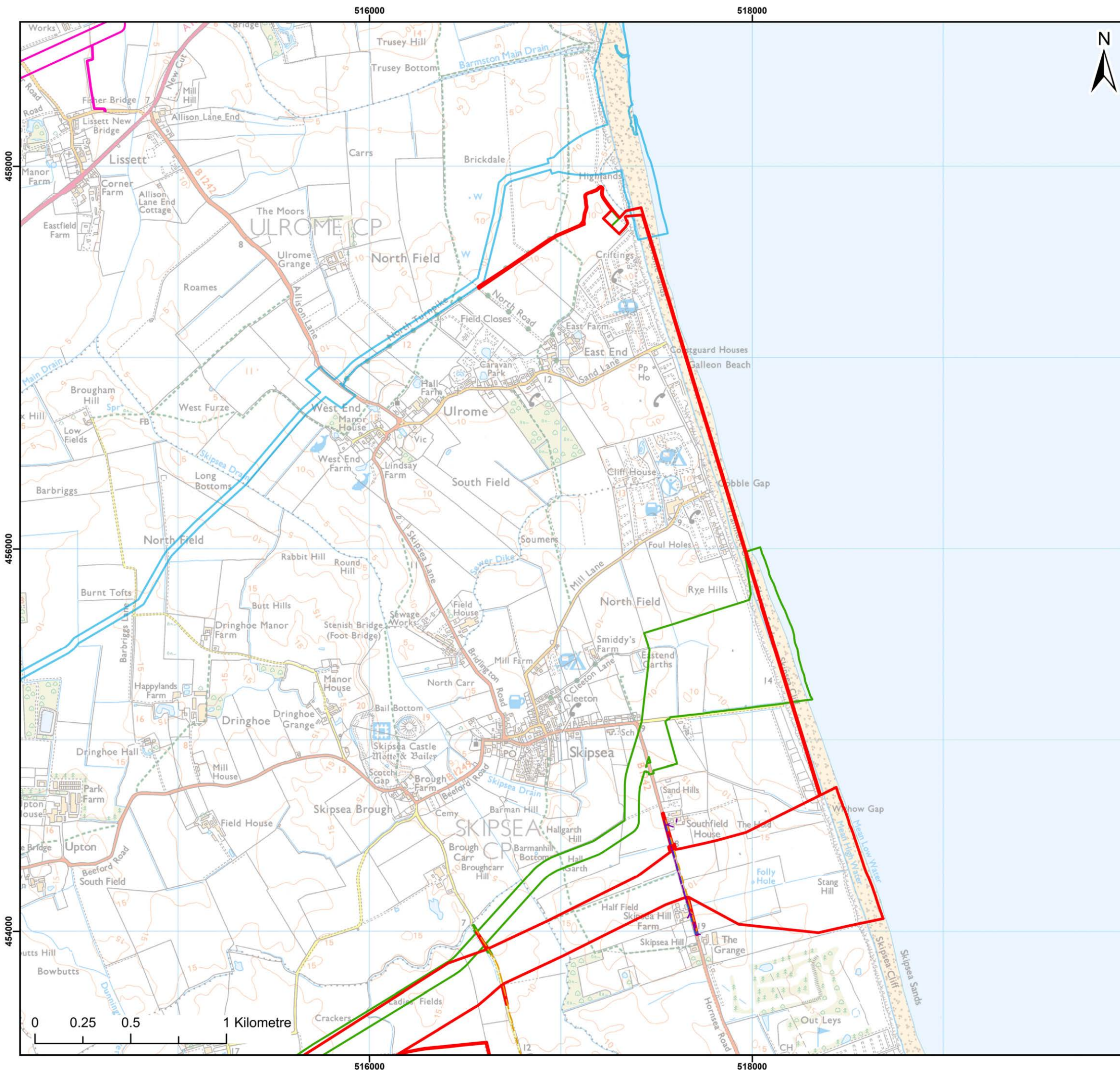
Title:
Stewardship and Land Management Schemes
- Sheet 2 of 2

Figure: 22-5 Drawing No: PC6250-RHD-XX-ON-DR-GS-0095

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01	06/11/2024	JH	AB	A3	1:50,000

Co-ordinate system: British National Grid





- Legend:
- Onshore Development Area
 - Dogger Bank South Onshore Infrastructure Development Area
 - Hornsea 4 Onshore Infrastructure Development Area
 - Doggerbank A & B Onshore Infrastructure Development Area

- Utilities
- Water
 - Telecom
 - Electric

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Project:

Dogger Bank D
Offshore Wind Farm

DOGGER BANK
WIND FARM

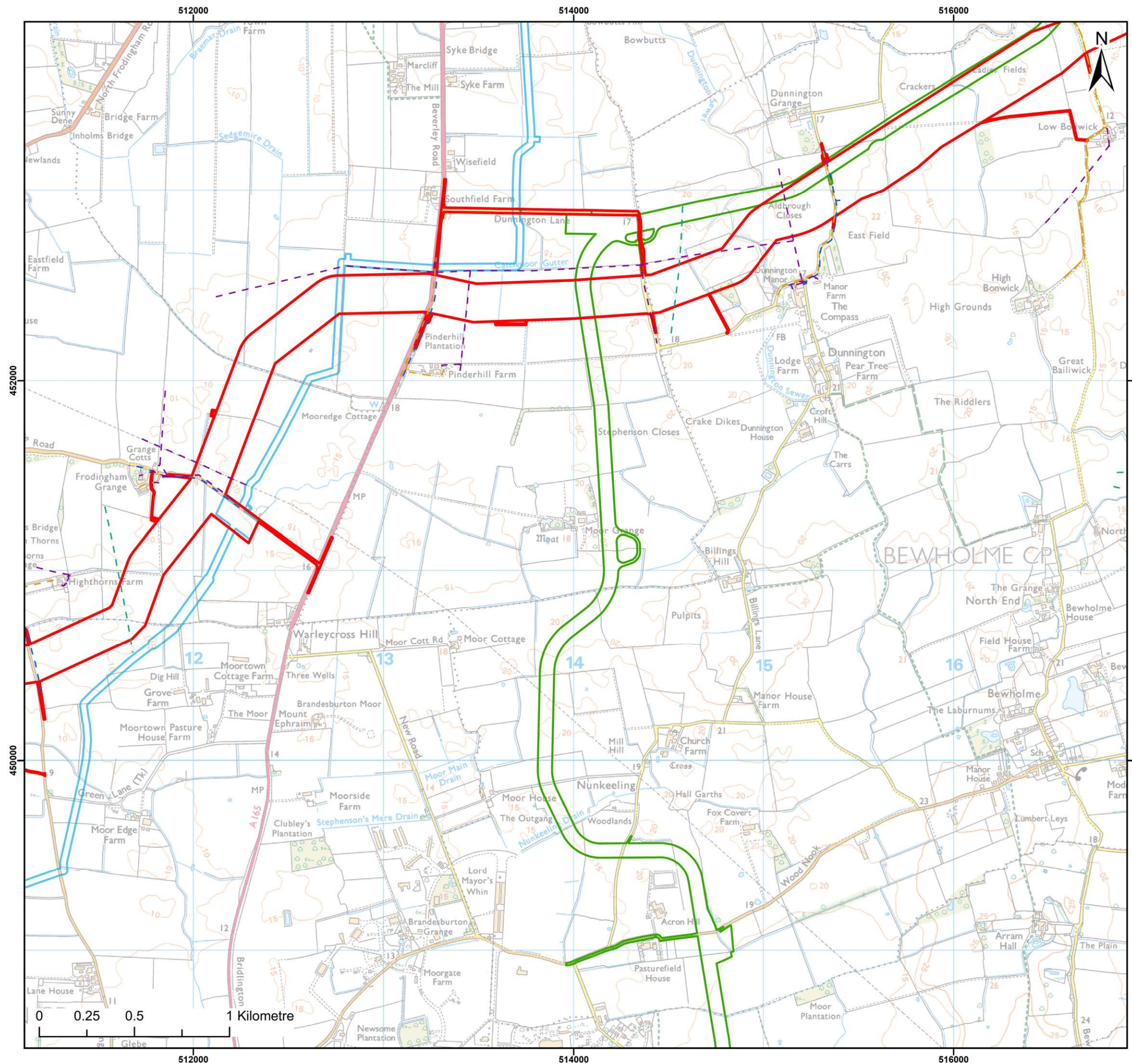
Title:

Utilities within the Onshore Development Area
- Sheet 1 of 7

Figure:	22-6	Drawing No:	PC6250-RHD-XX-ON-DR-GS-0096			
Revision:	Date:	Drawn:	Checked:	Size:	Scale:	
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Co-ordinate system: British National Grid





Legend:

- Onshore Development Area
- Dogger Bank South Onshore Infrastructure Development Area
- Doggerbank A & B Onshore Infrastructure Development Area

Utilities

- Water
- Gas
- Telecom
- Electric

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Project:

Dogger Bank D Offshore Wind Farm

DOGER BANK WIND FARM

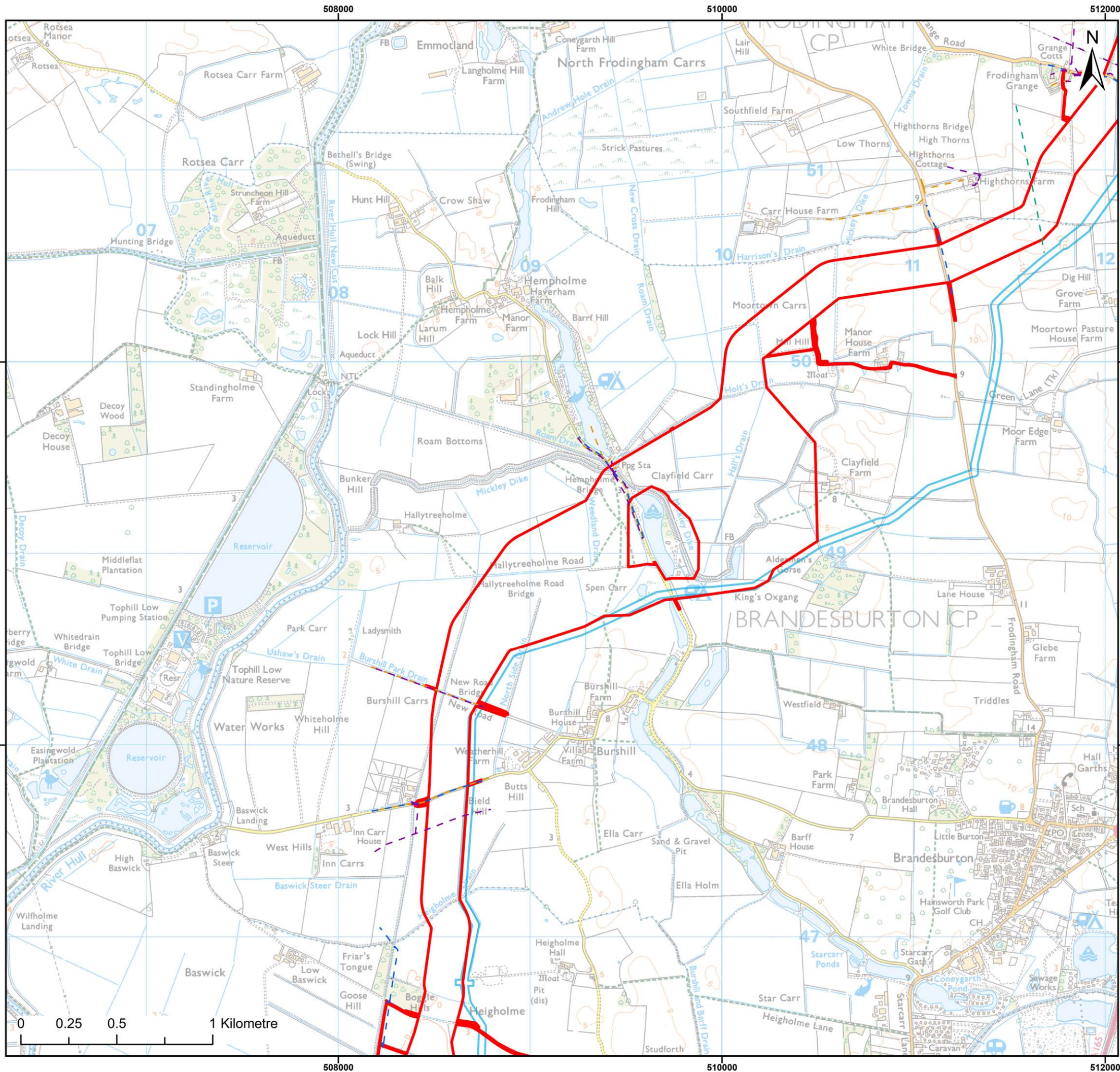
Title:

Utilities within the Onshore Development Area - Sheet 2 of 7

Figure:	22-6	Drawing No:	PC6250-RHD-XX-ON-DR-GS-0096			
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Co-ordinate system: British National Grid

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Legend:

- Onshore Development Area
- Doggerbank A & B Onshore Infrastructure Development Area

Utilities

- Water
- Gas
- Telecom
- Electric

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Project:

Dogger Bank D Offshore Wind Farm

DOGER BANK WIND FARM

Title:

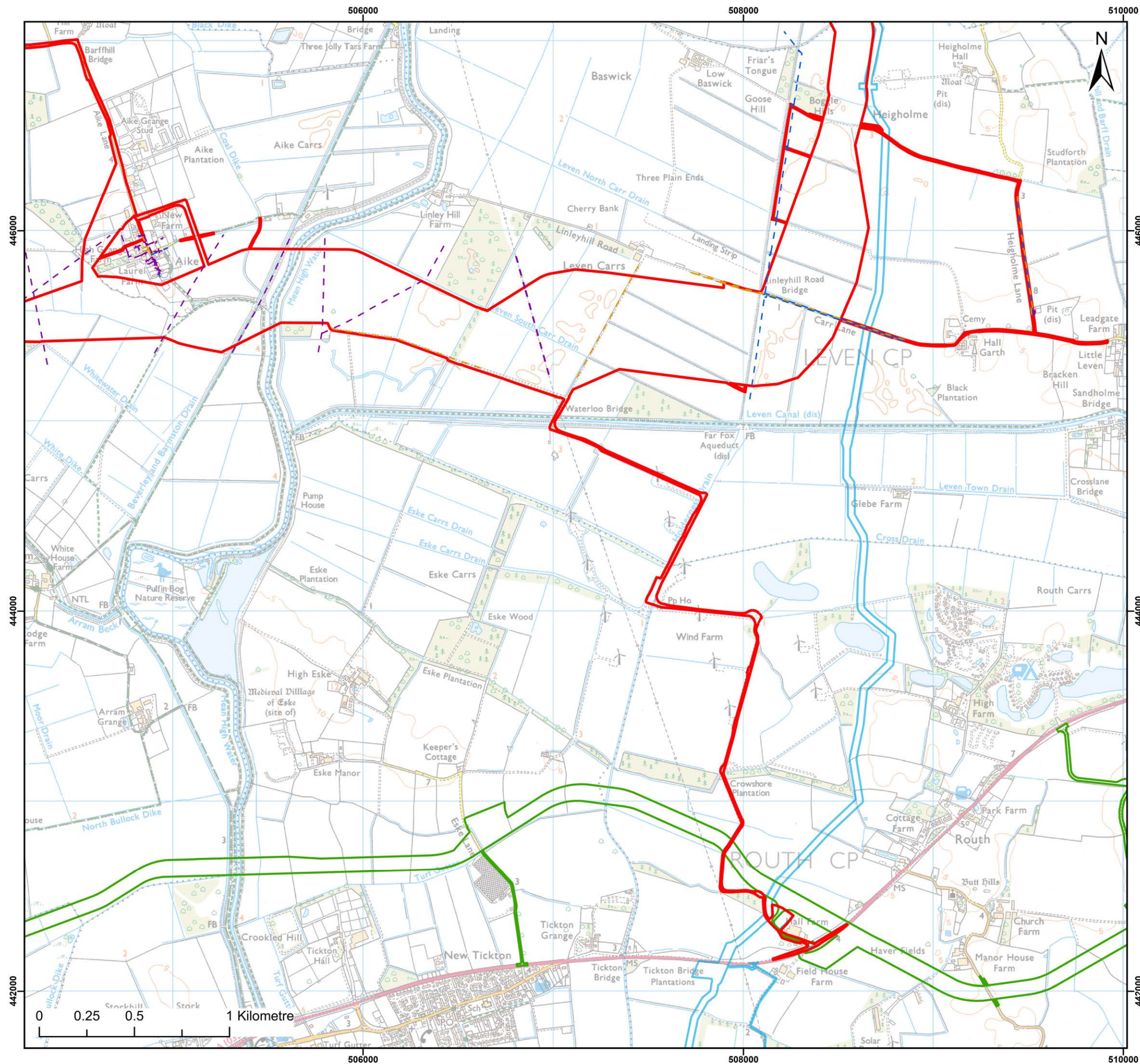
Utilities within the Onshore Development Area - Sheet 3 of 7

Figure: 22-6 Drawing No: PC6250-RHD-XX-ON-DR-GS-0096

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01	06/11/2024	JH	AB	A3	1:20,000

Co-ordinate system: British National Grid

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- Legend:
- Onshore Development Area
 - Dogger Bank South Onshore Infrastructure Development Area
 - Doggerbank A & B Onshore Infrastructure Development Area
- Utilities
- Water
 - Telecom
 - Electric

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Project:

Dogger Bank D Offshore Wind Farm

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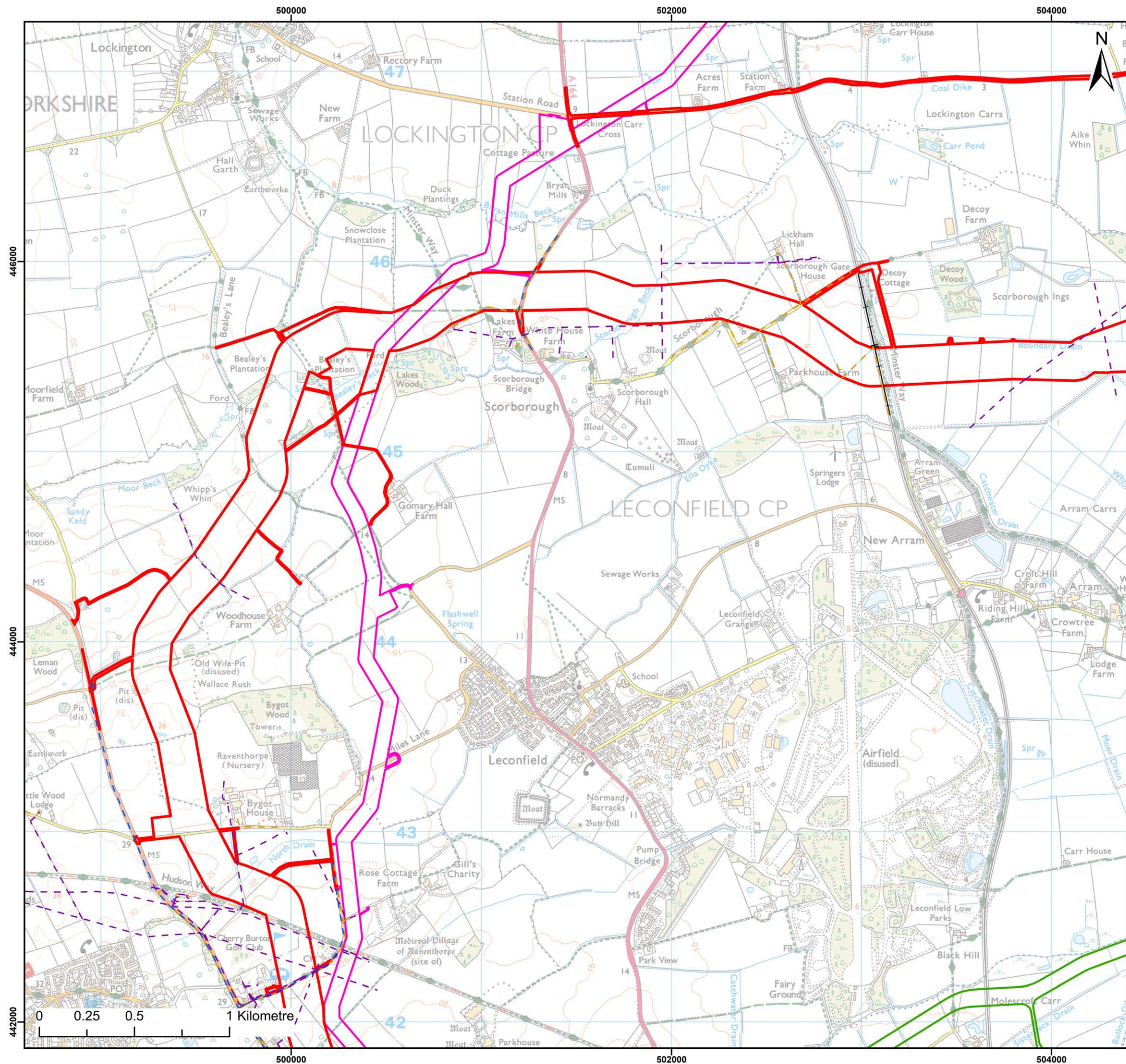
Title:

Utilities within the Onshore Development Area - Sheet 4 of 7

Figure:	22-6	Drawing No:	PC6250-RHD-XX-ON-DR-GS-0096			
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01	06/11/2024	JH	AB	A3	1:20,000	

Co-ordinate system: British National Grid





Legend:

- Onshore Development Area
- Dogger Bank South Onshore Infrastructure Development Area
- Hornsea 4 Onshore Infrastructure Development Area

Utilities

- Water
- Gas
- Rail
- Telecom
- Electric

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Project:

Dogger Bank D
Offshore Wind Farm

**DOGGER BANK
WIND FARM**

Title:

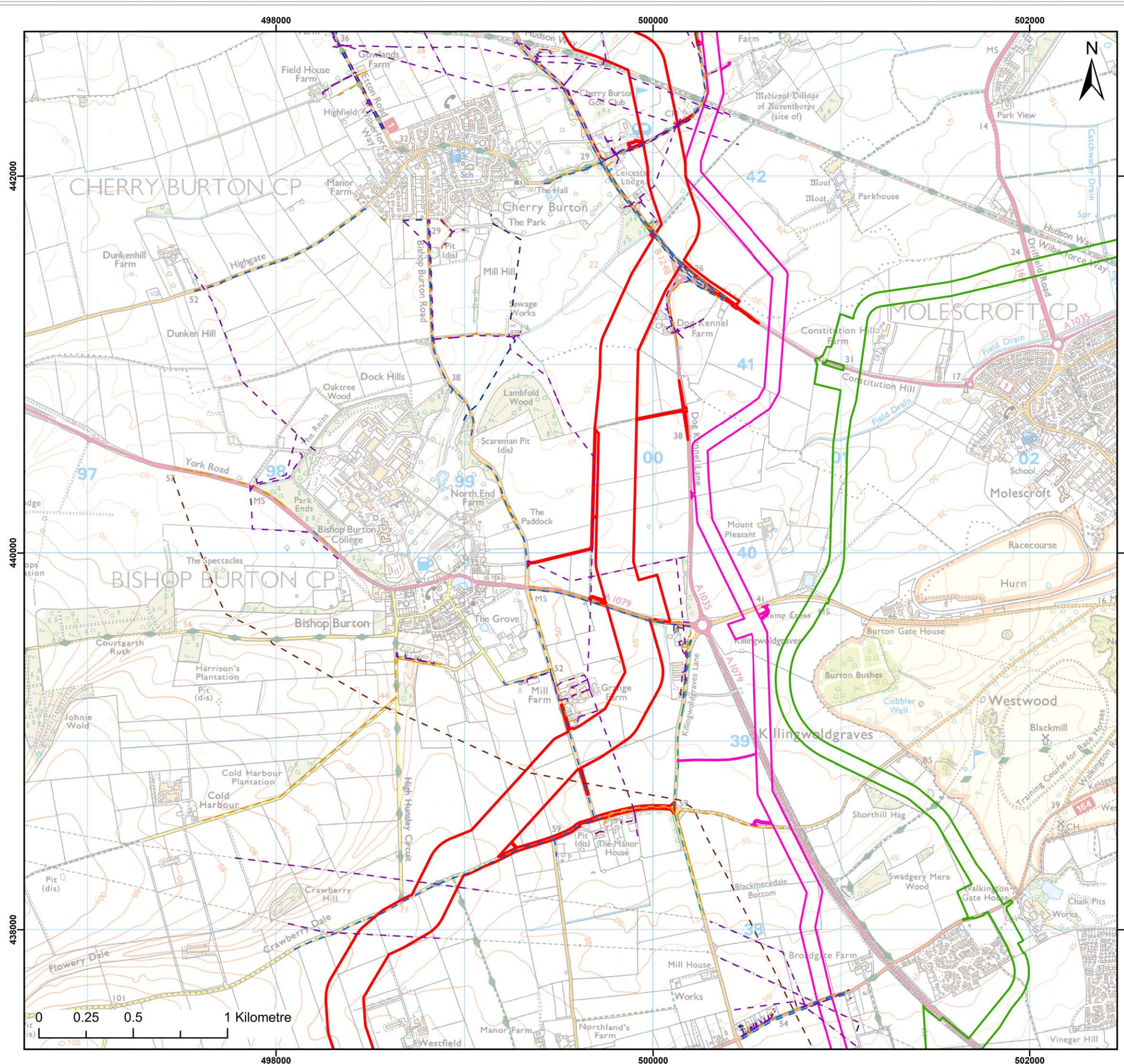
Utilities within the Onshore Development Area
- Sheet 5 of 7

Figure:	22-6	Drawing No:	PC6250-RHD-XX-ON-DR-GS-0096			
Revision:	Date:	Drawn:	Checked:	Size:	Scale:	
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Co-ordinate system: British National Grid

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Legend:

- Onshore Development Area
- Dogger Bank South Onshore Infrastructure Development Area
- Hornsea 4 Onshore Infrastructure Development Area

Utilities

- Water
- Gas
- Sewerage
- Telecom
- Electric
- Pipeline

Project:

Dogger Bank D
Offshore Wind Farm

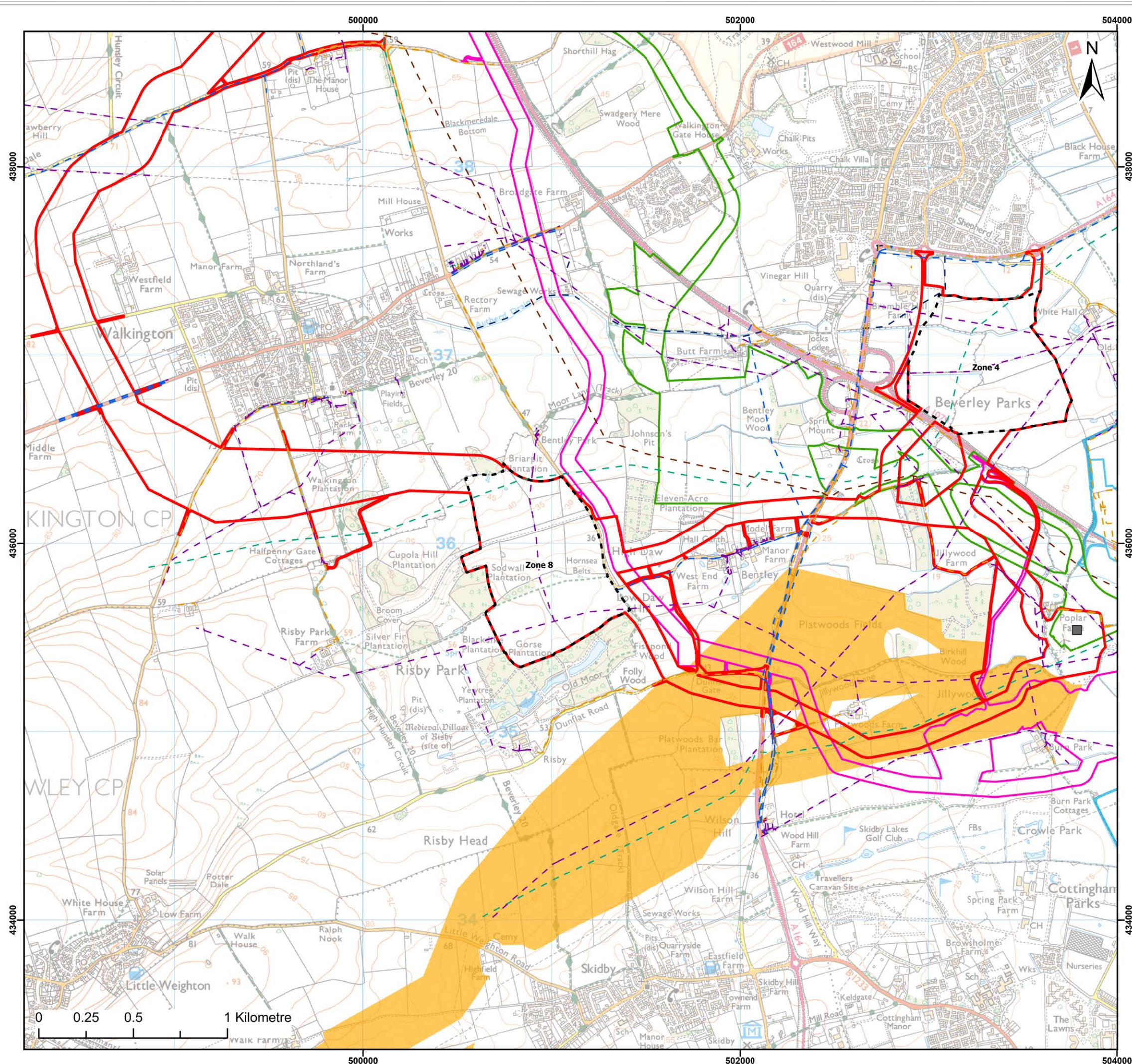
**DOGGER BANK
WIND FARM**

Title:

Utilities within the Onshore Development Area
- Sheet 6 of 7

Figure:	22-6	Drawing No:	PC6250-RHD-XX-ON-DR-GS-0096			
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02	16/05/2025	JH	AB	A3	1:20,000	
01	06/11/2024	JH	AB	A3	1:20,000	

Co-ordinate system: British National Grid



Legend:

- Onshore Development Area
- Onshore Converter Station Zone Options
- Indicative Birkhill Wood Substation Location
- Dogger Bank South Onshore Infrastructure Development Area
- Hornsea 4 Onshore Infrastructure Development Area
- Doggerbank A & B Onshore Infrastructure Development Area
- North Humber to High Marnham Grid Upgrade Infrastructure Development Area

Utilities

- Water
- Gas
- Sewerage
- Telecom
- Electric
- Pipeline

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Project:

Dogger Bank D Offshore Wind Farm

DOGGER BANK WIND FARM

Title:

Utilities within the Onshore Development Area - Sheet 7 of 7

Figure:	22-6	Drawing No:	PC6250-RHD-XX-ON-DR-GS-0096			
Revision:	Date:	Drawn:	Checked:	Size:	Scale:	
02	16/05/2025	JH	AB	A3	1:20,000	
01	06/11/2024	JH	AB	A3	1:20,000	

Co-ordinate system: British National Grid

22.6.2 Predicted Future Baseline

109. In the event the Project is not developed, an assessment of future conditions for soils and land use has been carried out and is described within this section.
110. Over the anticipated O&M phase of the Project, approximately 35 years, the baseline conditions that are presented within this soils and land use chapter will be subject to change. Due to the close interlink with natural processes, which are further driven by climate change, land use and cover are continually evolving and being modified (Wu *et al*, 2013). However, it is considered that anthropogenic changes will be the mechanism that drives macro-scale changes in land use during the lifetime of the Project (e.g. through population growth or changes in distribution, land management techniques, best practice and responding to economic changes associated with agriculture).
111. Increased pressures for more productive agriculture practices due to increased population growth, urbanisation and improved living conditions has the potential to result in loss of grassland areas and increased usage of agri-chemicals and industrial fertiliser to ensure continued high crop yields. Such changes in agricultural processes and land cover have the potential to modify and alter natural ecosystem functions and processes, including the underground water table, associated water quality and the area, distribution and quality of dependent wildlife habitats and their biodiversity (Sohl *et al*, 2012).
112. The population of the East Riding of Yorkshire Council area has steadily increased from 292,007 to 346,309 between 1991 and 2022. It is predicted that the population of the area will continue to grow reaching a size of 360,033 by 2041 (East Riding of Yorkshire Council, 2024). As the current baseline environment within the soils and land use Study Area is largely agricultural in nature, it is anticipated that population growth will drive the expansion of urban areas and result in the loss of some agricultural land. Agricultural land may, for example, be replaced with housing developments as a result of urban expansion.
113. There are a number of NSIP, including those associated with solar farms and the onshore elements of offshore wind farm projects, and smaller developments located within the East Riding of Yorkshire Council area. The presence of these developments may lead to a reduction in the total area of land available for agricultural use. For example, solar farm infrastructure, converter stations and associated permanent easements or access roads would prohibit the continued use of the land for agricultural purposes.
114. Further to this, agricultural patterns are linked to agricultural policy and available subsidy / farm payment structures. Future changes to UK agricultural policy outside the European Union are unknown at the time of writing but are likely to influence agricultural practice in the area in future years.

22.7 Assessment of Effects

115. The likely significant effects to soils and land use receptors that may occur during construction, operation and decommissioning of the Project are assessed in the following sections. The assessment follows the methodology set out in **Section 22.5** and is based on the realistic worst-case scenarios defined in **Section 22.4.4**, with consideration of embedded mitigation measures identified in **Section 22.4.3**.
116. As noted in **Section 22.4.5**, there is potential for the assessment of likely significant effects for the OCS zone infrastructure to differ between the two development scenarios. Where the assessment outcomes are likely to differ, these have been reported separately below.

22.7.1 Potential Effects during Construction

22.7.1.1 Impacts to Agricultural Drainage (SLU-C-01)

117. There is the potential for the groundworks associated with construction activities at the landfall and within the onshore ECC and OCS zone to impact the natural and artificial field drainage systems. These systems, both natural and artificial, play an important role in ensuring soils remain aerated and reduce the risks associated with surface water flooding to the agricultural land itself and surrounding environment.
 118. Existing field drains are expected to be made of ceramic or plastic pipelines and are typically found at a depth between 0.5 to 1.5m. As such, it is likely that the drains would be impacted by any excavation works through agricultural fields. More information regarding the local drainage system is provided in **Chapter 21 Water Resources and Flood Risk**.
- 22.7.1.1.1 Receptor Sensitivity
119. Field drainage networks have a limited capacity to accommodate changes such as degradation or damage. The sensitivity of the receptor is therefore considered to be **medium**.
- 22.7.1.1.2 Impact Magnitude
120. Agricultural drainage within an area >20ha would be impacted during the medium to long term. However, with the implementation of embedded mitigation measures discussed in **Table 22-5** (Commitment IDs CO39, CO43, CO61, CO100, CO101 and CO110), there would be minimal or no disruption to the field drainage system. The magnitude of impact is therefore considered to be **negligible**.

22.7.1.1.3 Effect Significance

121. Overall, it is predicted that the sensitivity of the receptor is **medium** and the magnitude of impact is **negligible**. The effect is therefore of **minor adverse** significance, which is **not significant** in EIA terms.

22.7.1.2 Disruptions to Farming Practices (In General) (SLU-C-02)

122. The majority of the Onshore Development Area is located within areas currently associated with agricultural production. The footprint of the Onshore Development Area, including landfall, onshore ECC, temporary construction compounds and construction accesses could all contribute to the temporary loss of land for agriculture.
123. Construction activities also have the potential to isolate land outside of the Onshore Development Area which could potentially take it out of agricultural use. This could result in the loss of growing seasons in the area affected with associated loss of agricultural related income.
124. Due to the varying sizes of farms located within the Onshore Development Area, there is the potential for landowners/occupiers to be impacted to varying extents by the loss of agricultural land when compared to other larger farms.
125. Loss of agricultural land associated with the OCS and ESBI is considered to be permanent, and as such, is assessed as an operational impact in **Section 22.7.2.2**.

22.7.1.2.1 Receptor Sensitivity

126. The quality of the agricultural land present within the landfall, onshore ECC, temporary construction compounds and construction accesses primarily consists of ALC Grade 2 (approximately 577.52ha) and Grade 3 (approximately 510.02ha) agricultural land (as shown in **Table 22-14**). As mentioned previously, all ALC Grade 3 agricultural land is assumed to be Grade 3a and consequently included within the BMV banding. The sensitivity of the receptor is therefore considered to be **high** to reflect the presence of Grade 2 and 3a agricultural land.

22.7.1.2.2 Impact Magnitude

127. Avoidance of and minimisation of impacts to properties, including agricultural buildings, minimising land take where possible and locating the onshore ECC as close as practicable to the edge of field boundaries to minimise land severance and thus impacts to landowners and agricultural use were adopted as principles in the site selection process leading up to the identification of the Onshore Development Area and will also be applied during further site selection refinements at ES stage (see **Chapter 5 Site Selection and Consideration of Alternatives** for more details). The site selection principles will therefore help minimise impacts to farming practices as a result of construction activities within the Onshore Development Area.
128. However, based on the worst-case parameters as set out in **Table 22-7**, the total construction footprint within agricultural land would be approximately 171.25ha with the majority of agricultural land affected being located along the linear onshore ECC.
129. As the potential effect will be felt over the length of the long linear onshore ECC, effects would not be concentrated in any one area or on any one farm or landowner / occupier. In addition, construction activities associated with the Project would not be operating continuously at the same location during the whole construction phase.
130. As stated in **Table 22-5**, the onshore export cables will be constructed in sections along the onshore ECC with the reinstatement of land temporarily disrupted commencing as soon as reasonably practicable following completion of works in each section (see **Table 22-5**, Commitment IDs CO39, CO60, CO61, CO100, CO101 and CO110). Consequently, the works are considered to be temporary (short-term) in nature.
131. Prior to the commencement of construction works, soil condition surveys will be undertaken to inform the SMP developed post-consent (see **Table 22-5**, Commitment ID CO46), which will create a record of the condition of the land and enable appropriate reinstatement to its original condition. Soils will also be segregated and stored in separate stockpiles so as to aid in the reinstatement of the correct soils in the correct order (see **Table 22-5**, Commitment IDs CO51 and CO47).
132. The magnitude of impact is therefore considered to be **low**.

22.7.1.2.3 Effect Significance

133. Overall, it is predicted that the sensitivity of the receptor is **high** and the magnitude of impact is **low**. The effect is therefore of **moderate adverse** significance, which is **significant** in EIA terms.

22.7.1.2.4 Additional Mitigation and Residual Effect

134. The following additional mitigation measures will also be implemented (this is also shown in **Section 22.7.3**), which are implemented through the CoCP:
- Wherever practicable, access to severed land for farm vehicles will be maintained subject to individual agreements with the relevant landowners, occupiers and / or their land agents. Where necessary, crossing points will be agreed prior to the commencement of the relevant stage of construction works (Commitment ID CO103);
 - In order to reduce conflicts, appropriate planning and timings of works would be discussed with landowners/occupiers; and
 - Private agreements (or compensation in line with the compulsory purchase completion code) will be sought with relevant landowners / occupiers.
135. With the adoption of additional mitigation measures, it is anticipated that the area of individual farm holdings affected by construction works would be reduced as continued access to severed land would be implemented (where practicable). Financial losses as a result of the construction works may also be resolved through private agreements. Therefore, the magnitude of impact would be **negligible**. The residual effect is therefore of **minor adverse** significance, which is **not significant** in EIA terms. However, as noted previously, due to the varying sizes of farms located within and surrounding the Onshore Development Area, there is the potential for landowners / occupiers to be impacted to varying extents by the loss of agricultural land.

22.7.1.3 Soil Degradation and Erosion (SLU-C-04)

136. There is the potential for soils to become compacted and for soil structure to deteriorate during construction works. Degradation is most likely to occur at temporary construction compound locations and along haul roads and construction accesses where heavy materials and equipment are stored. Similarly, changes to soil structure can affect local drainage (this is described in **Chapter 21 Water Resources and Flood Risk**).
137. Deterioration of the soil structure can lead to reduced biological activity, water infiltration, soil porosity and permeability. Deterioration can also lead to a decreased soils strength and risk of erosion (European Commission, 2008). These impacts can lead to reduced fertility and crop yields.
138. Soil quality can also be adversely affected by spills and leaks of contaminative materials (this is described in **Chapter 19 Geology and Ground Conditions**). It can also be adversely affected by the drying and decomposition of peaty layers during stockpiling.

139. There is also the potential for soil erosion to occur during construction works, with some types of soil more susceptible to erosion than others. Additional factors that influence erosion include the soil texture, landscape, weather and land use.
140. Excavation, storage and reinstatement exposes the soils and creates an opportunity for erosion to occur. Loss of soil via erosion, may lead to a reduction in the quality of soils and therefore impact on the value of the agricultural land within the Onshore Development Area.
141. The following activities proposed during the onshore construction works have the potential to degrade and erode the existing soil resource:
- Intrusive pre-construction surveys;
 - Removal of trees / vegetation;
 - Topsoil stripping and earthworks within the construction footprint;
 - Use of haul roads, access tracks and temporary construction compound areas; and
 - Stockpiling and reinstatement of soil.

22.7.1.3.1 Receptor Sensitivity

142. The soils within the Onshore Development Area are mostly loamy and clayey in nature. 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 and are therefore susceptible to compaction.
143. The cohesive nature of clayey and loamy soils results in a low vulnerability in relation to erosion. They are also difficult to handle during wet periods using machinery without causing structural degradation.
144. The sensitivity of the receptor is therefore considered to be **medium**.

22.7.1.3.2 Impact Magnitude

145. Soil within construction areas would be subject to earthworks including initial stockpiling and movement between stockpiles. It is considered that soil over an area of approximately 191.55ha (based on the worst-case parameters as set out in **Table 22-7**) would potentially be temporarily affected. However, with the implementation of embedded mitigation measures discussed in **Table 22-5** (Commitment IDs CO39, CO46, CO47, CO51, CO60, CO61, CO100, CO101 and CO110) there would be minimal or no impacts on soils. The magnitude of impact is therefore considered to be **negligible** (see **Table 22-11**).

22.7.1.3.3 Effect Significance

146. Overall, it is predicted that the sensitivity of the receptor is **medium** and the magnitude of impact is **negligible**. The effect is therefore of **minor adverse** significance, which is **not significant** in EIA terms.

22.7.1.4 Impacts to Stewardship and Land Management Schemes (SLU-C-05)

147. During the construction period, there would be the potential for temporary impacts to stewardship and land management schemes within the footprint of the Onshore Development Area, including landfall, onshore ECC, temporary construction compounds and construction accesses.
148. The effect on individual landowners / occupiers with agreements in place would depend on the extent and duration of construction works within the land parcels managed, in addition to the terms and conditions attached to the agreement in place.
149. As described in **Section 22.6.1.30**, stewardship and land management schemes may be related to one of the following objectives as set out in the JNCC guidance (JNCC, 2024) and Natural England guidance (Natural England, 2013):
- Conserve wildlife and biodiversity;
 - Maintain and enhance landscape quality and character;
 - Protect the historic environment;
 - Protect natural resources;
 - Respond to climate change; and
 - Promote public access and understanding of the countryside.
150. In some instances, it may not be possible to avoid land managed under a stewardship and land management scheme, resulting in a landowner / occupier being potentially unable to meet the terms of the agreement. The level of impact could range from no change, a minor or temporary change such as the need to make changes to grazing or cropping requirements or the termination of the agreement.
151. The impact on specific agreements will only be known following detailed design undertaken post-consent and / or once the Applicant has entered into agreements with the landowners, occupiers and / or their land agents confirming the extent and duration of impacts to specific land parcels.

152. The primary mitigation measures relating to stewardship and land management schemes would be the avoidance where possible of land parcels that are subject to agreements. This was adopted as a principle in the site selection process leading up to the identification of the Onshore Development Area and will also be applied during further site selection refinements at ES stage (see **Chapter 5 Site Selection and Consideration of Alternatives** for more details. Where avoidance is not possible (e.g. in some areas of the onshore ECC), appropriate planning and timing of works will be agreed with the landowner / occupier, subject to individual agreements, to reduce conflicts.

153. Impacts to stewardship and land management schemes associated with the OCS and ESBI is considered to be permanent, and as such, is assessed as an operational impact in **Section 22.7.2.3**.

22.7.1.4.1 Receptor Sensitivity

154. The landfall and onshore ECC (and associated temporary construction compounds and accesses) interact with:
- Approximately 202.24ha of ESS classed at entry level plus higher-level stewardship schemes, which represents 16.31% of the Onshore Development Area;
 - Approximately 140.66ha of CSS classified as mid tier, which represents 11.34% of the Onshore Development Area; and
 - Approximately 8.86ha of higher tier CSS areas, representing 0.71% of the Onshore Development Area (see **Figure 22-5**).
155. Due to the interaction between the landfall and onshore ECC and higher level / tier stewardship schemes, the sensitivity of the receptor is considered to be **high**. It should be noted, however, that the interaction with the higher tier scheme is localised to one scheme within the onshore ECC.

22.7.1.4.2 Magnitude of Impact

156. Although construction works are expected to take approximately 3 years at landfall and 4 years for the onshore ECC, construction works would not be operating continuously or at the same location during the whole construction phase. Following completion of the construction works, land will be reinstated to its original condition and would therefore be available for management under a stewardship and land management scheme in the future (see **Table 22-5**, Commitment IDs CO39, CO60, CO61, CO100, CO101 and CO110). As such, any potential impacts to land managed under a stewardship and land management scheme would be temporary in nature.

157. Existing habitats have been identified within **Volume 2, Appendix 23.2 Preliminary Ecological Appraisal Report**. Mitigation measures with regards to habitat replacement and enhancement to mitigate the effects of habitat loss will be detailed further within the Outline Ecological Management Plan to be submitted with the DCO application (see **Table 22-5**, Commitment ID CO81). It is considered that where stewardship and land management schemes are associated with ecological features, mitigation measures set out in the Outline Ecological Management Plan would also be applicable to these areas. Therefore, minimising effects upon the environmental features which these schemes support.
158. For those stewardship and land management schemes that have been implemented to achieve the protection of the historic environment, an assessment of historic environment receptors is included in **Chapter 24 Onshore Archaeology and Cultural Heritage**. As above, mitigation measures set out in **Chapter 24 Onshore Archaeology and Cultural Heritage** would also be applicable to these areas. Therefore, minimising the effects upon the historical features which these schemes protect.
159. The magnitude of impact is therefore considered to be **negligible**.

22.7.1.4.3 Effect Significance

160. Overall, it is predicted that the sensitivity of the receptor is **high**, and the magnitude of impact is **negligible**. The effect is therefore of **minor adverse** significance, which is **not significant** in EIA terms. It is however noted that impacts would occur at an individual level and therefore effort would be made to engage with those landowners, occupiers and / or their land agents that are potentially affected in order to reduce the effect significance.

22.7.1.5 Impacts to Existing Utilities (SLU-C-06)

161. Avoidance of and minimisation of impacts to third-party assets was adopted as a principle in the site selection process leading up to the identification of the Onshore Development Area and will also be applied during further site selection refinements at ES stage (see **Chapter 5 Site Selection and Consideration of Alternatives** for more details). This will therefore help minimise impacts to utilities as a result of construction activities within the Onshore Development Area.
162. The majority of the identified utilities crossing the Onshore Development Area are for local distribution, telecommunication and water networks supplying domestic and commercial premises within the area. The Onshore Development Area would also cross below National Grid Electricity Transmission overhead lines, medium to high pressure gas pipelines and a buried INEOS high pressure ethylene pipeline (see **Figure 22-6**).

163. The Onshore Development Area crosses several existing and proposed projects including the route of the onshore elements of the Dogger Bank A and B Offshore Wind Farms, the proposed Dogger Bank South Offshore Wind Farms and Hornsea Project Four Offshore Wind Farm.
164. The Project will undertake utilities surveys prior to construction (see **Table 22-5**, Commitment ID CO58). As all onshore export cables would be buried underground (see **Table 22-5**, Commitment IDs CO60, CO61 and CO101), there will be a requirement to cross existing utilities where the site selection process was unable to avoid these areas. As such, the Project will undertake utility crossings in accordance with industry standard practice and safety guidance such as HSG47 '*Avoiding Danger from Underground Services*' and GS6 '*Avoiding Danger from Overhead Power Lines*' as agreed with the utilities owners (see **Table 22-5**, Commitment ID CO39). Therefore, **no change** associated with existing utilities are anticipated during construction works.

22.7.1.6 Impacts to Public Rights of Way, Countryside Rights of Way and Cycle Routes (SLU-C-07)

165. Avoidance of and minimisation of impacts to PRow and cycle routes was adopted as a principle in the site selection process leading up to the identification of the Onshore Development Area and will also be applied during further site selection refinements at ES stage (see **Chapter 5 Site Selection and Consideration of Alternatives** for more details). This will therefore help minimise impacts to recreational routes as a result of construction activities within the Onshore Development Area.
166. The Onshore Development Area crosses numerous recreational routes such as PRow (including bridleways, footpaths and Restricted Byways), the proposed King Charles III England Coast Path and National Cycle Network routes, as shown on **Figure 22-4**. Construction of the Project will require the crossing of recreational routes at 11 locations (see draft **Outline Public Rights of Way Management Plan** provided as an appendix to the **Outline Code of Construction Practice** (document reference 8.9)). The number of crossings will be subject to change with the final number determined following further site selection refinement. The crossing methodology for each of these features will be confirmed within a PRow Management Plan developed post-consent as part of the CoCP (see **Table 22-5**, Commitment IDs CO39 and CO57).
167. Potential interactions with recreational routes are limited to works along the onshore ECC and OCS zone, including construction accesses. It is anticipated that construction works at the landfall would not require closure of any recreational routes due to the use of a trenchless installation technique for landfall cable duct installation. Potential for a permanent PRow diversion associated with construction activities and operational presence of infrastructure within OCS Zone 8 is discussed as an operational impact in **Section 22.7.2.4**.

22.7.1.6.1 Receptor Sensitivity

168. PRow are considered to be regionally important receptors that are utilised for recreational purposes by members of the public who would be affected during the construction phase of the Project and are therefore assessed as **medium** sensitivity. Whereas National Trail, Coastal Paths and National Cycle Network routes are considered to be nationally important receptors and are assessed as **high** sensitivity.

22.7.1.6.2 Impact Magnitude

169. Where the onshore ECC crosses any of the recreational routes, there would be a construction presence and open excavations. In the absence of mitigation, this would prevent public access and in effect would represent a temporary closure of the route until the works along that stretch of the onshore ECC are completed. However, with the implementation of the PRow Management Plan (see **Table 22-5**, Commitment ID CO57) as embedded mitigation, there would be minimal or no disruption to recreational routes due to, for example, temporary diversions or adoption of trenchless crossing techniques (see **Table 22-5**, Commitment ID CO78) with land reinstated following completion of construction works and management measures lifted (see **Table 22-5**, Commitment IDs CO100 and CO101). In addition, where a recreational route runs along the side of a construction access, temporary management measures will also be implemented during construction to ensure safety such as erecting suitable fencing to separate recreational users from construction traffic.
170. The magnitude of impact is therefore considered to be **negligible**.

22.7.1.6.3 Effect Significance

171. In relation to PRow, it is predicted that the sensitivity of the receptor is **medium** and the magnitude of impact is **negligible**. The effect is therefore of **minor adverse** significance, which is **not significant** in EIA terms.
172. In relation to the Coastal Path and National Cycle Network routes, it is predicted that the sensitivity of the receptor is **high** and the magnitude of impact is **negligible**. The effect is therefore of **minor adverse** significance, which is **not significant** in EIA terms.

22.7.2 Potential Effects during Operation

22.7.2.1 Impacts to Agricultural Drainage (SLU-O-01)

173. The Project would primarily be located on rural, agricultural land where there are limited existing formal surface water drainage systems. There are, however, a large number of agricultural land drains, ordinary watercourses and Internal Drainage Board maintained watercourses located along the route of the onshore ECC.
174. A commitment has been made for all onshore export cables to be buried along the route of the onshore ECC (see **Table 22-5**, Commitment ID CO60) as well as the TJB at the landfall, jointing bays and most of the link boxes along the onshore ECC (see **Table 22-5**, Commitment ID CO61). Permanent above ground infrastructure and hard standing associated with the OCS zone and above ground link boxes where required along the onshore ECC, as well as the presence of buried infrastructure have the potential to affect field / land drainage during operation (see **Chapter 21 Water Resources and Flood Risk** for further details).
175. Where agreed with the relevant landowners and subject to detailed design and construction requirements, link boxes along the onshore ECC and at the landfall will be located at or as close to field boundaries as reasonably practicable (Commitment ID CO110).
176. Where the Project intercepts land drainage, post-construction drainage would be installed at the edge(s) of the onshore ECC. This permanent drainage would intercept existing field drains and ensure the integrity of the existing land drainage is maintained during operation of the Project (see **Table 22-5**, Commitment ID CO44).
177. Whilst there would be a permanent change to field drainage within the OCS zone during operation, post-construction drainage will be installed following the completion of works providing restoration of drainage capacity (see **Table 22-5**, Commitment ID CO44).
178. In addition, it is anticipated that surface water run-off from the OCS and ESBI will be collected by perimeter drains attenuated within an adjacent Sustainable Urban Drainage System (SuDS) basin prior to discharge into a nearby watercourse in compliance with a Flood Risk Assessment. This would ensure that any water discharged from the OCS and ESBI into the surrounding drainage network would be at the existing run-off rate (see **Table 22-5**, Commitment ID CO44).
179. With the implementation of embedded mitigation measures, specifically a detailed Operational Drainage System (see **Table 22-5**, Commitment ID CO44), it is considered that there would be **no change** upon field drainage during operation.

22.7.2.2 Disruptions to Farming Practices (In General) (SLU-O-02)

180. The onshore export cables would be buried to a target minimum depth of 1.2m where open cut trenching is used and extending to a target maximum burial depth of 20m where trenchless installation techniques have been used. Following reinstatement, normal agricultural activities within the onshore ECC would be able to continue during the O&M phase (see **Table 22-5**, Commitment IDs CO60 and CO61).
181. At the landfall, one underground TJB would be located to house the joints between the offshore and onshore export cables with an associated underground link box. Within the onshore ECC, there would be approximately 62 jointing bay locations and 56 link box locations. Jointing bays will be buried, while link boxes within the onshore ECC may be located below or above ground. At this stage, it is assumed that at approximately 20 link box locations for the HVDC export cables and all link box locations for the HVAC export cables will involve the use of above-ground link boxes. Underground link boxes will be installed with a manhole cover for O&M access at ground level, while above-ground link boxes will be installed as kiosks on concrete pads. The total permanent land area required for the TJB, jointing bays and link boxes at the landfall and within the onshore ECC would be approximately <1ha.
182. Link boxes at the landfall and along the onshore ECC will be typically marked / protected by bollards, fences or similar of approximately 1.2 to 2m in height (where required and agreed with the relevant landowners). In addition, small marker posts of approximately 1 to 1.2m height will be installed along the operational easement (approximately 20m for HVDC export cables and 25m for HVAC export cables) to demark the location of the installed onshore export cables. Marker posts will, at a minimum, be required at field boundaries, on either side of obstacle crossings such as roads and watercourses and where there are significant directional changes in the onshore export cable route.
183. The dimensions of the link boxes are included in **Table 22-7** and would represent areas of permanent agricultural loss due to the presence of manhole cover at ground level for underground link boxes or structures for above-ground link boxes. Where agreed with the relevant landowners and subject to detailed design and construction requirements, link boxes along the onshore ECC and at the landfall will be located at or as close to field boundaries as reasonably practicable (Commitment ID CO110).
184. Routine non-intrusive inspection works at the landfall is anticipated to consist of a visit to the TJB and associated underground link box every six months for cable joint inspection and monitoring. Routine non-intrusive inspection works along the onshore ECC is anticipated to consist of a visit to each jointing bay and associated link box location every six months for cable joint inspection and monitoring. Periodic testing of onshore export cables is likely to be required every six months, which would be undertaken at defined inspection points along the onshore ECC.

185. The maximum developable area within the OCS zone is 25ha. This includes a permanent land area required of approximately 20.5ha, which comprises the platform footprints for both the OCS and ESBI, landscaping, access, drainage and attenuation but excludes areas for ecological mitigation / enhancement.
186. The infrastructure discussed above would result in the loss of growing seasons in these areas with associated loss of agricultural related incomes during the O&M phase of the Project.

22.7.2.2.1 Receptor Sensitivity

187. The sensitivity of the receptor is considered to be **high** to reflect the presence of ALC Grade 2 and 3a agricultural land within the Onshore Development Area.

22.7.2.2.2 Impact Magnitude

188. The total permanent land area required for the TJB, jointing bays and link boxes at the landfall and within the onshore ECC is anticipated to be <1ha. This is not considered to represent a significant loss of agricultural land.
189. However, the total permanent land area required for the OCS and ESBI within either of the OCS zones is >20ha (as noted in **Section 22.4.5**, only one zone will be taken forward to development). As per **Table 22-11**, the magnitude of impact is therefore considered to be **high**.

22.7.2.2.3 Effect Significance

190. Due to the permanent land area required within the Onshore Development Area, specifically for the OCS and ESBI within the OCS zone, it is predicted that the sensitivity of the receptor is **high**, and the magnitude of impact is **high**. The effect is therefore of **major adverse** significance, which is **significant** in EIA terms.

22.7.2.2.4 Additional Mitigation and Residual Effect

191. The significance of effect in relation to the loss of agricultural land during the operation of the Project cannot be reduced as the land would be unavailable for use in the medium to long-term. As such, the significance of effect remains **major adverse** and therefore **significant** in EIA terms. It should, however, be noted that following completion of construction, there is the potential for some land within the OCS zone to be returned to agriculture (e.g. area used for temporary construction compounds that may no longer be required during operation).
192. Where land cannot be returned to agriculture, private agreements may be required between the Applicant and the relevant landowner / occupier.

22.7.2.3 Impacts to Stewardship and Land Management Schemes (SLU-O-05)

193. Following construction, all land under a stewardship and land management scheme at the landfall and within the onshore ECC would be reinstated to its original condition, with the exception of the link box locations (see **Table 22-5**, Commitment IDs CO60 and CO61). Given the size of each link box, they are not expected to have an impact on the management requirements under a stewardship and land management scheme. In addition, where agreed with the relevant landowners and subject to detailed design and construction requirements, link boxes along the onshore ECC and at the landfall will be located at or as close to field boundaries as reasonably practicable (Commitment ID CO110). As such, in relation to link boxes, there would be **no change** during the O&M phase.
194. OCS Zone 4 is not located within an area under an existing stewardship and land management scheme and so there would be **no change** during the O&M phase.
195. As described in **Section 22.1.1.1**, OCS Zone 8 includes mid-tier CSS and entry level plus higher level ESS and therefore has been assessed for potential impacts during the O&M phase. Although the mid-tier CSS is only in place until 2027, it cannot be assumed that stewardship on this land would not be renewed.

22.7.2.3.1 Receptor Sensitivity

196. To reflect the sensitivity of the entry level plus higher level ESS, the sensitivity of the receptor is considered to be **medium**.

22.7.2.3.2 Impact Magnitude

197. The maximum developable area within the OCS zone is 25ha (including a permanent land area for the OCS and ESBI of approximately 20.5ha). Where there is a direct overlap between permanent infrastructure and the features of the stewardship and land management scheme areas within OCS Zone 8, there would be permanent loss of the managed features. As per **Table 22-11**, the magnitude of impact is therefore considered to be **high**.

22.7.2.3.3 Effect Significance

198. Due to the permanent land area required within OCS Zone 8, should this zone be taken forward to development, it is predicted that the magnitude of impact is **high** on a **medium** sensitivity receptor. The effect is therefore of **major adverse** significance, which is **significant** in EIA terms. As stated above, there would be **no change** during the O&M phase associated with the landfall, onshore ECC and OCS Zone 4.

22.7.2.3.4 Additional Mitigation and Residual Effect

199. The significance of effect in relation to the loss of land managed under stewardship and land management schemes within OCS Zone 8 during the operation of the Project cannot be reduced as the land would be unavailable in the medium to long-term. As such, the significance of effect remains **major adverse** and **significant** in EIA terms. It should, however, be noted that following completion of construction, there is the potential for some land to be returned (e.g. area used for temporary construction compounds that may no longer be required during operation) and habitat compensation measures to be implemented.

22.7.2.4 Impacts to Public Rights of Way, Countryside Rights of Way and Cycle Routes (SLU-O-07)

200. Routine and unplanned maintenance activities within the Onshore Development Area are not anticipated to require disruption to or closure of any paths or cycle routes and would not interfere with local recreation activities such as walking or cycling.
201. Any temporary diversion routes proposed for the construction phase would be removed and the original routes reinstated post-construction (see **Table 22-5**, Commitment IDs CO57, CO60 and CO61). Should the OCS Zone 8 option be taken forward to development, there may be the requirement for a permanent diversion of Rowley Footpath No.9 as it bisects the zone. Any such diversion will include measures to maintain access for all with specific measures to be included within the PRoW Management Plan, with visual impacts of above ground electrical infrastructure minimised as far as reasonable practicable. With the implementation of the mitigation measures anticipated to be included within the PRoW Management Plan, there would be **no change** during the O&M phase.

22.7.3 Potential Effects During Decommissioning

202. No decision has been made regarding the final decommissioning strategy for the onshore infrastructure, as it is recognised that regulatory requirements and industry best practice change over time.
203. Commitment ID CO56 (see **Table 22-5**) requires an Onshore Decommissioning Plan to be prepared and agreed with the relevant authorities prior to the commencement of onshore decommissioning works. This will ensure that decommissioning soils and land use impacts will be assessed in accordance with the applicable regulations and guidance at that time of decommissioning where relevant, with appropriate mitigation implemented as necessary to avoid significant effects.

204. The detailed activities and methodology for decommissioning will be determined later within the Project’s lifetime, but would be expected to include:
- Deinstallation and removal of electrical equipment, buildings and other infrastructure for the OCS and ESBI;
 - Removal of above-ground link boxes along the onshore ECC;
 - Inspection of underground infrastructure to be left in-situ along the onshore ECC and at the landfall (i.e. TJB, jointing bays, underground link boxes, onshore export cables and ducting) to ensure they are safe to remain in place. If considered unsuitable to be left in-situ at the time of decommissioning, these components will be removed; and
 - Site reinstatement and landscaping.
205. Whilst a detailed assessment of decommissioning impacts cannot be undertaken at this stage, for this assessment, it is assumed that decommissioning is likely to operate within the parameters identified for construction (i.e. any activities are likely to occur within the temporary construction working areas and require no greater amount or duration of activity than assessed for construction). The decommissioning sequence will generally be the reverse of the construction sequence. It is therefore assumed that decommissioning impacts would likely be of similar nature to, and no worse than, those identified during the construction phase.

22.7.4 Additional Mitigation Measures

206. **Table 22-18** identifies the proposed additional mitigation measure relevant to soils and land use that have been identified by the EIA process to reduce likely significant adverse effects to acceptable levels. Full details of all commitments made by the Project are provided within **Volume 2, Appendix 6.3 Commitments Register**.

Table 22-18 Additional Mitigation Measure Relevant to Soils and Land Use

Commitment ID	Proposed Additional Mitigation	How the Additional Mitigation will be Secured	Relevance to Soils and Land Use Assessment	Relevance to Impact ID
CO103	Wherever practicable, access to severed land for farm vehicles will be maintained subject to individual agreements with the relevant landowners, occupiers and / or their land agents. Where necessary, crossing points will be agreed prior to the commencement of the relevant stage of construction works.	DCO Requirement - Code of Construction Practice	Reduces the potential impacts to individual landowners / occupiers to levels that are considered not to be significant in EIA terms.	SLU-C-02

207. In addition to the above, further indicative additional mitigation measures included in the Outline CoCP are set out in **Table 22-19**.

Table 22-19 Indicative Additional Mitigation Measures Included in the Outline Code of Construction Practice

Outline CoCP: Additional Mitigation Measures for Soils and Land Use
<p>Agricultural Land Drainage, Irrigation and Operations</p> <p>Wherever practicable, disruption to agricultural operations will be mitigated as early as possible in the construction planning process by providing sufficient time between serving notice of entry and the commencement of construction works and allowing landowners and / or occupiers time to adapt their operations in anticipation of the works.</p> <p>In relation to temporary land take requirements, the Undertaker will seek to liaise with the relevant landowners, occupiers and / or their land agents to agree commercial terms with affected parties, including any loss of ongoing payments or penalties relating to environmental / countryside stewardship and other land management schemes.</p> <p>Where practicable, farm accesses across individual fields will be maintained during construction or diverted using alternative routes as agreed with the relevant parties. Where required by the relevant landowners and / or occupiers and deemed safe, crossing points for livestock and farm vehicles will be installed at suitable locations along the working width of the onshore ECC to maintain access to land-locked or severed fields.</p>

22.8 Cumulative Effects

208. Cumulative effects are the result of the impacts of the Project acting in combination with the impacts of other proposed and reasonably foreseeable developments on receptors. This includes plans and projects that are not inherently considered as part of the current baseline.
209. The overarching framework used to identify and assess cumulative effects is set out in **Chapter 6 Environmental Impact Assessment Methodology**. The four-stage approach is based upon the Planning Inspectorate Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment (Planning Inspectorate, 2024). The fourth stage of the process is the assessment stage, which is detailed within the sections below for potential cumulative effects on soils and land use receptors.

22.8.1 Screening for Potential Cumulative Effects

210. The first step of the CEA identifies which impacts associated with the Project alone, as assessed under **Section 22.7**, have the potential to interact with other plans and projects to give rise to cumulative effects. All potential cumulative effects to be taken forward in the CEA are detailed in **Table 22-20** with a rationale for screening in or out. Only impacts determined to have a residual effect of negligible or greater are included in the CEA. Those assessed as ‘no change’ are excluded, as there is no potential for them to contribute to a cumulative effect.

Table 22-20 Soils and Land Use – Potential Cumulative Effects

Impact ID	Impact and Project Activity	Potential for Cumulative Effects	Rationale
Construction			
SLU-C-01	Impacts to agricultural drainage – excavation works and other construction activities	Yes	Impacts may occur to individual field drains in any area of overlap or those with an extent which intersects two or more proposed project boundaries (where groundworks are anticipated).

Impact ID	Impact and Project Activity	Potential for Cumulative Effects	Rationale
SLU-C-02	Disruptions to farming practices (in general) – temporary loss of agricultural land due to construction activities	Yes	Impacts may occur where project boundaries overlap spatially or temporally on the same landowner / occupier’s land. Such impacts have the potential to affect local productivity.
SLU-C-04	Soil degradation and erosion – excavation works and other construction activities (e.g. movement of heavy machinery and storage of excavated materials)	Yes	Impacts may occur where project boundaries overlap spatially or temporally on the same landowner / occupier’s land. Such impacts have the potential to affect local productivity.
SLU-C-05	Impacts to stewardship and land management schemes – temporary loss of land available due to construction activities	Yes	Impacts may occur where project boundaries overlap spatially or temporally on land subject to the same stewardship and land management scheme. Such impacts have the potential to result in loss of earnings or failure to achieve environmental objectives.
SLU-C-06	Impacts to existing utilities – excavation works and other construction activities	No	Potentially affected utility providers would be contacted, and the location of existing services would be identified prior to the commencement of construction works to ensure there would be no change.
SLU-C-07	Impacts to Public Rights of Way, Countryside Rights of Way and cycle routes – temporary closures / restricted access / diversions due to construction activities and haul roads	Yes	Impacts may occur on individual recreational routes in any area of overlap or those with an extent which intersects two or more proposed project boundaries.

Impact ID	Impact and Project Activity	Potential for Cumulative Effects	Rationale
Operation and Maintenance			
SLU-O-01	Impacts to agricultural drainage – presence of permanent infrastructure	No	Cumulative effects are not anticipated on individual field drains during the O&M phase of the Project and other projects.
SLU-O-02	Disruptions to farming practices (in general) – permanent loss of agricultural land due to the presence of permanent infrastructure and easements	Yes	Cumulative effects may occur at both a local and / or county scale where impacts to productivity affect the agriculture industry.
SLU-O-05	Impacts to stewardship and land management schemes – permanent loss of land due to presence of permanent infrastructure	No – Landfall, onshore ECC and OCS Zone 4	Cumulative effects are not anticipated on stewardship and land management schemes within the landfall, onshore ECC and OCS Zone 4 during the O&M phase of the Project and other projects.
		Yes – OCS Zone 8	There is the potential for cumulative effects at OCS Zone 8 during the O&M phase of the Project and other projects.
SLU-O-07	Impacts to Public Rights of Way, Countryside Rights of Way and cycle routes – potential permanent diversion due to presence of permanent infrastructure	No	Cumulative are not anticipated on recreational routes during the O&M phase of the Project and other projects.
Decommissioning			
There is insufficient information available on other plans and projects which could have a spatial and temporal overlap with the Project’s onshore decommissioning works. The details and scope of onshore decommissioning works will be determined by the relevant regulations and guidance at the time of decommissioning and provided in the Onshore Decommissioning Plan (see Table 22-5 , Commitment ID CO56). This will include a detailed assessment of decommissioning impacts and appropriate mitigation measures to avoid significant effects, including cumulative effects.			

Impact ID	Impact and Project Activity	Potential for Cumulative Effects	Rationale
For this assessment, it is assumed that cumulative decommissioning effects would be of similar nature to, and no worse than, those identified during the construction phase.			

22.8.2 Screening for Other Plans / Projects

211. The second step of the CEA identifies a short-list of other plans and projects that have the potential to interact with the Project to give rise to significant cumulative effects during the construction and O&M phases. The short-list provided in **Table 22-21** has been produced specifically to assess cumulative effects on soils and land use receptors. The exhaustive list of all onshore plans and projects considered in the development of the Project’s CEA framework is provided in **Volume 2, Appendix 6.5 Onshore Cumulative Effects**.
212. Projects that were fully operational during baseline characterisation, including at the time of site-specific surveys, are considered as part of baseline conditions for the surrounding environment. It is assumed that any residual effects associated with these projects are captured within the baseline information. As such, these projects are not subject to further assessment within the CEA and excluded from the screening exercise presented in **Table 22-21**.
213. Projects that are not fully operational, including those in planning / pre-construction stages or under construction, during baseline characterisation and operational projects with potential for ongoing impacts, are included in the screening exercise presented in **Table 22-21**.
214. The screening exercise has been undertaken based on available information on each plan or project up to and including 31st December 2024. Information has been obtained from the Planning Inspectorate’s NSIP portal and ERYC and Hull City Council’s planning portal. It is noted that further information regarding the identified plans and projects may become available between PEIR publication and DCO application submission or may not be available in detail prior to construction. The assessment presented here is therefore considered to be conservative at the time of PEIR publication. The list of plans and projects will be updated at ES stage to incorporate more recent information at the time of writing.
215. Plans and projects identified in **Table 22-21** have been assigned a tier based on their development status, the level of information available to inform the CEA and the degree of confidence. A three-tier system based on the Planning Inspectorate Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment has been adopted (Planning Inspectorate, 2024).

216. Only plans and projects overlapping the Onshore Development Area have been considered for the soils and land use assessment (i.e. the Zone of Influence (Zol) is 0km). Plans and projects that have not been considered as resulting in likely cumulative significant effects for soils and land use are as a result of no spatial overlap with the Onshore Development Area.
217. Each plan or project in **Table 22-21** has been considered on a case-by-case basis. Only plans and projects with potential for significant cumulative effects with the Project are taken forward to a detailed assessment, which are screened based on the following criteria:
- There is potential that a pathway exists whereby an impact could have a cumulative effect on a receptor;
 - The impact on a receptor from the Project and the plan or project in consideration has a spatial overlap (i.e. occurring over the same area);
 - The impact on a receptor from the Project and the plan or project in consideration has a temporal overlap (e.g. occurring at the same time);
 - There is sufficient information available on the plan or project in consideration and moderate to high data confidence to undertake a meaningful assessment; and
 - There is some likelihood that the residual effect (i.e. after accounting for mitigation measures) of the Project could result in significant cumulative effects with the plan or project in consideration.
218. The CEA for soils and land use has identified a total of four plans and projects where significant cumulative effects could arise in combination with the Project. A detailed assessment of cumulative effects is provided in the section below.

Table 22-21 Short List of Plans / Projects for the Soils and Land Use Cumulative Effect Assessment

Project / Plan	Project Type	Status	Tier	Construction / Operation Period	Closest Distance to Onshore ECC (km)	Closest Distance to OCS Zone 4 (km)	Closest Distance to OCS Zone 8 (km)	Potential for Significant Cumulative Effects	Rationale
Dogger Bank A Offshore Wind Farm (EN010021)	Offshore Wind Farm	Operational	1	Operation: 2025+	0	0.50	2.66	No	Although there is spatial overlap between the two projects, cumulative effects are not predicted due to Dogger Bank A being operational prior to the commencement of the construction phase of the Project.
Dogger Bank B Offshore Wind Farm (EN010021)	Offshore Wind Farm	Under Construction	1	Construction: 2020 to 2025 Operation: 2026+	0	0.50	2.66	No	Although there is spatial overlap between the two projects, cumulative effects are not predicted due to Dogger Bank B being operational prior to the commencement of the construction phase of the Project.
Dogger Bank South Offshore Wind Farms (EN010125)	Offshore Wind Farm	Examination	1	Construction: 2026 to 2033 Operation: 2034+	0	0.10	0.30	Yes	Potential for spatial and temporal overlap of construction activities within the onshore ECC. There is also the potential for cumulative effects to occur during the O&M phase of the two projects in relation to disruption to farming practices due to the proximity of the two projects to each other.

Project / Plan	Project Type	Status	Tier	Construction / Operation Period	Closest Distance to Onshore ECC (km)	Closest Distance to OCS Zone 4 (km)	Closest Distance to OCS Zone 8 (km)	Potential for Significant Cumulative Effects	Rationale
Hornsea Project Four Offshore Wind Farm (EN010098)	Offshore Wind Farm	Under Construction	1	Construction: 2024 to 2028 Operation: 2029 +	0	0.11	0.01	Yes	Although there is spatial overlap between the two projects, cumulative effects are not predicted due to the differing construction phases of the projects. However, there is the potential for cumulative effects to occur during the O&M phase of the two projects in relation to disruption to farming practices and on stewardship and land management schemes due to the proximity of the two projects to each other.
Birkhill Wood National Grid Substation	Electricity Transmission Infrastructure	Planning	3	Construction: 2026 to 2030 Operation: 2031+	0	1.11	2.31	Yes	Potential for spatial and temporal overlap of construction activities within the onshore ECC. There is also the potential for cumulative effects to occur during the O&M phase of the two projects in relation to disruption to farming practices due to the proximity of the two projects to each other.

Project / Plan	Project Type	Status	Tier	Construction / Operation Period	Closest Distance to Onshore ECC (km)	Closest Distance to OCS Zone 4 (km)	Closest Distance to OCS Zone 8 (km)	Potential for Significant Cumulative Effects	Rationale
North Humber to High Marnham Grid Upgrade (EN020034)	Electricity Transmission Infrastructure	Planning	3	Construction: 2028 to 2030 Operation: 2031+	0	0.89	0.41	Yes	<p>Potential for spatial and temporal overlap of construction activities in the onshore ECC.</p> <p>There is also the potential for cumulative effects to occur during the O&M phase of the two projects in relation to disruption to farming practices and on stewardship and land management schemes due to the proximity of the two projects to each other.</p>

22.8.3 Assessment of Cumulative Effects

219. As described in **Table 22-21** there is the potential for cumulative effects during the construction phase on soil and land use receptors as a result of the following projects and the Project as there is a spatial overlap with the Onshore Development Area:

- Dogger Bank South Offshore Wind Farms;
- Birkhill Wood National Grid Substation; and
- North Humber to High Marnham Grid Upgrade.

220. It should be noted these projects only overlap with the onshore ECC infrastructure of the Project and not the OCS zones.

221. During the O&M phase of the Project, there is the potential for cumulative effects to occur with the following projects:

- Dogger Bank South Offshore Wind Farms;
- Birkhill Wood National Grid Substation;
- North Humber to High Marnham Grid Upgrade; and
- Hornsea Project Four Offshore Wind Farm.

222. The following sections discuss which soil and land use receptors may be impacted cumulatively as a result of the above projects and the Project.

22.8.3.1 Cumulative Impact 1: Impacts to Agricultural Drainage (SLU-C-01)

223. The three projects identified in **Section 22.8.3** as having the potential for cumulative effects to occur during construction could cumulatively impact upon agricultural drainage systems. This is due to the spatial and potential temporal overlap between these projects and the Project. There is the potential for a greater area of agricultural land drainage to be impacted through temporary changes during construction.

22.8.3.1.1 Receptor Sensitivity

224. As mentioned in **Section 22.7.1.1.1**, the sensitivity of the receptor is considered to be **medium** due to field drainage networks having a limited capacity to accommodate changes.

22.8.3.1.2 Cumulative Impact Magnitude

225. Although it is anticipated that the projects outlined in **Section 22.8.3** will adopt mitigation measures similar to those to the Project, there is the potential for a greater area of field drainage to be impacted.

226. In addition, there is the potential for the same field drainage network to be impacted on multiple occasions in areas of spatial and temporal overlap. However, with the implementation of the anticipated embedded mitigation measures, the magnitude of impact is considered to be **negligible**.

22.8.3.1.3 Cumulative Effect Significance

227. Overall, it is predicted that the sensitivity of the receptor is **medium**, and the magnitude of impact is **negligible**. The cumulative effect is therefore of **minor adverse** significance, which is **not significant** in EIA terms.

22.8.3.2 Cumulative Impact 2: Disruptions to Farming Practices (In General) (SLU-C-02)

228. The three projects identified in **Section 22.8.3** as having the potential for cumulative effects to occur during construction could result in the cumulative loss of agricultural land. This is due to the spatial and potential temporal overlap between these projects and the Project, resulting in the potential for a greater area of agricultural land to be impacted through temporary loss during construction.

22.8.3.2.1 Receptor Sensitivity

229. As mentioned in **Section 22.7.1.2.1**, the sensitivity of the receptor is considered to be **high** to reflect the dominance of Grade 2 agricultural land.

22.8.3.2.2 Cumulative Impact Magnitude

230. Although it is anticipated that the projects outlined in **Section 22.8.3** will adopt mitigation measures similar to those of the Project, the area of land cumulatively affected on a temporary basis would be in excess of 20ha, through for example an increased number of construction compounds, haul roads and other temporary infrastructure to facilitate construction. There is the potential for individual landowners / occupiers to be impacted to a greater extent and on multiple occasions in areas of spatial and temporal overlap. As such, the magnitude of impact is considered to be **medium**.

22.8.3.2.3 Cumulative Effect Significance

231. Overall, it is predicted that the sensitivity of the receptor is **high**, and the magnitude of impact is **medium**. The cumulative effect is therefore of **major adverse** significance, which is **significant** in EIA terms.

22.8.3.2.4 Additional Mitigation and Residual Cumulative Effect

232. As the area of land that will be impacted during construction is in excess of 20ha, it may not be possible to reduce the significance of effect through the application of mitigation measures. Therefore, the significance of effect would remain as **major adverse** significance which is **significant** in EIA terms.

22.8.3.3 Cumulative Impact 3: Soil Degradation and Erosion (SLU-C-04)

233. The three projects identified in **Section 22.8.3** as having the potential for cumulative effects to occur during construction could cumulatively impact upon on soil resources due to soil degradation and erosion. This is due to the spatial and potential temporal overlap between these projects and the Project, resulting in the potential for a greater volume of soils to be impacted.

22.8.3.3.1 Receptor Sensitivity

234. As mentioned in **Section 22.7.1.3.1**, the sensitivity of the receptor is considered to be **medium** due to the soil within the Onshore Development Area being loamy and clayey in nature.

22.8.3.3.2 Cumulative Impact Magnitude

235. Although it is anticipated that the projects outlined in **Section 22.8.3** will adopt mitigation measures similar to those of the Project, there is the potential for a greater volume of soils to be impacted during construction phases. However, with the implementation of the anticipated embedded mitigation measure, the magnitude of impact is considered to be **negligible**.

22.8.3.3.3 Cumulative Effect Significance

236. Overall, it is predicted that the sensitivity of the receptor is **medium**, and the magnitude of impact is **negligible**. The cumulative effect is therefore of **minor adverse** significance which is **not significant** in EIA terms.

22.8.3.4 Cumulative Impact 4: Impacts to Stewardship and Land Management Schemes (SLU-C-05)

237. The three projects identified in **Section 22.8.3** as having the potential for cumulative effects to occur during construction could cumulatively result in the loss of land managed under stewardship and land management schemes. This is due to the spatial and potential temporal overlap between these projects and the Project, resulting in the potential for greater areas of land managed under stewardship and land management schemes to be impacted temporarily during construction.

22.8.3.4.1 Receptor Sensitivity

238. As mentioned in **Section 22.7.1.4.1**, the sensitivity of the receptor is considered to be **high** due to the presence of higher level / tier stewardship and land management schemes.

22.8.3.4.2 Cumulative Impact Magnitude

239. Although it is anticipated that the projects outlined in **Section 22.8.3** will adopt mitigation measures similar in nature to those of the Project, there is the potential for a greater area of land managed under stewardship and land management schemes to be impacted on a temporary basis. In addition, there is the potential for individual landowners / occupiers to be impacted on multiple occasions in areas of spatial and temporal overlap. As such, the magnitude of impact is considered to be **medium**.

22.8.3.4.3 Cumulative Effect Significance

240. Overall, it is predicted that the sensitivity of the receptor is **high**, and the magnitude of impact is **medium**. The cumulative effect is therefore of **major adverse** significance, which is **significant** in EIA terms. However, this is representative of a worst-case scenario and impacts would occur at an individual level and so may have lower cumulative effect significance.

22.8.3.4.4 Additional Mitigation and Residual Cumulative Effect

241. It may not be possible to reduce the significance of effect in relation to the temporary loss of land managed under stewardship and land management schemes during the construction phase of the Project and other projects through the application of mitigation measures. Therefore, the significance of effect would remain as **major adverse** significance which is **significant** in EIA terms.

22.8.3.5 Cumulative Impact 5: Impacts to Public Rights of Way, Countryside Rights of Way and Cycle Routes (SLU-C-07)

242. The three projects identified in **Section 22.8.3** as having the potential for cumulative effects to occur during construction could cumulatively impact upon recreational routes. This is due to the spatial and potential temporal overlap between these projects and the Project, resulting in the potential for a greater number of recreational routes to be affected through temporary closures / diversions during construction.

22.8.3.5.1 Receptor Sensitivity

243. As mentioned in **Section 22.7.1.6.1**, the sensitivity of the receptor is considered to be **medium** for regionally important PRoW and **high** for National Trails, Coastal Paths and National Cycle Network routes as they are deemed to be nationally important features.

22.8.3.5.2 Cumulative Impact Magnitude

244. Although it is anticipated that the projects outlined in **Section 22.8.3** will adopt mitigation measures similar to those of the Project, there is the potential for a greater number of recreational routes to be impacted.
245. In addition, there is the potential for individual recreational routes to be impacted on multiple occasions in areas of spatial and temporal overlap. However, with the implementation of the anticipated embedded mitigation measures, the magnitude of impact is considered to be **negligible**. A negligible magnitude of impact is considered appropriate as it is not anticipated that there would be permanent closures of recreational routes.

22.8.3.5.3 Cumulative Effect Significance

246. Overall, it is predicted that the sensitivity of the receptor for PRow is **medium**, and the magnitude of impact is **negligible**. The cumulative effect on PRow is therefore of **minor adverse** significance which is **not significant** in EIA terms.
247. For National Trails, Coastal Paths and National Cycle Network routes the sensitivity of the receptor is **high**, and the magnitude of impact is **negligible**. The cumulative effect on PRow is therefore of **minor adverse** significance which is **not significant** in EIA terms.

22.8.3.6 Cumulative Impact 6: Disruptions to Farming Practices (In General) (SLU-O-02)

248. The projects identified in **Section 22.8.3** as having the potential for cumulative effects to occur during the O&M phase could result in the cumulative loss of agricultural land. This is due to the potential for impacts to occur at both a local and / or county scale where impacts to productivity affect the agriculture industry due to an increased loss of agricultural land on a permanent basis due to the presence of permanent infrastructure and easements.

22.8.3.6.1 Receptor Sensitivity

249. As mentioned in **Section 22.7.2.2.1**, the sensitivity of the receptor is considered to be **high** to reflect the dominance of Grade 2 agricultural land.

22.8.3.6.2 Cumulative Impact Magnitude

250. Although it is anticipated that the projects outlined in **Section 22.8.3** will adopt mitigation measures similar to those of the Project, the area of land cumulatively affected on a permanent basis would be in excess of 20ha. There is the potential for individual landowners / occupiers to be impacted to a greater extent should, for example, easements for two different projects be located within their land. As such, the magnitude of impact is considered to be **medium**.

22.8.3.6.3 Cumulative Effect Significance

251. Overall, it is predicted that the sensitivity of the receptor is **high**, and the magnitude of impact is **medium**. The cumulative effect is therefore of **major adverse** significance, which is **significant** in EIA terms.

22.8.3.6.4 Additional Mitigation and Residual Cumulative Effect

252. As the area of land that will be impacted during operation would be in excess of 20ha, it may not be possible to reduce the significance of effect through the application of mitigation measures. Therefore, the significance of effect would remain as **major adverse** significance, which is **significant** in EIA terms.

22.8.3.7 Cumulative Impact 7: Impacts to Stewardship and Land Management Schemes (SLU-O-05)

253. As described in **Section 22.7.1.4**, no operational impacts to existing stewardship and land management schemes associated with the landfall, onshore ECC and OCS Zone 4 are predicted. This cumulative impact assessment only applies to OCS Zone 8.
254. Only the North Humber to High Marnham Grid Upgrade and Hornsea Project Four Offshore Wind Farm identified in **Section 22.8.3** have the potential for a cumulative impact on stewardship and land management schemes. This is due to the potential for permanent infrastructure of these projects interacting with stewardship and land management schemes. The remaining projects identified do not have permanent infrastructure located within land managed under stewardship and land management schemes. The cumulative effect of North Humber to High Marnham Grid Upgrade and Hornsea Project Four Offshore Wind Farm and the Project could result in the potential for a greater area of land managed under stewardship and land management schemes to be lost in areas of permanent infrastructure.

22.8.3.7.1 Receptor Sensitivity

255. As mentioned in **Section 22.7.2.3.1**, the sensitivity of the receptor is considered to be **medium** due to the presence of entry level plus higher level ESS.

22.8.3.7.2 Cumulative Impact Magnitude

256. Although it is anticipated that the North Humber to High Marnham Grid Upgrade and Hornsea Project Four Offshore Wind Farm projects will adopt mitigation measures similar to those of the Project, there would be an increased area of land managed under stewardship and land management schemes cumulatively affected on a permanent basis. As such, the magnitude of impact is considered to be **high**.

22.8.3.7.3 Cumulative Effect Significance

257. Overall, it is predicted that the sensitivity of the receptor is **medium**, and the magnitude of impact is **high**. The cumulative effect is therefore of **major adverse** significance, which is **significant** in EIA terms.

22.8.3.7.4 Additional Mitigation and Residual Cumulative Effect

258. It may not be possible to reduce the significance of effect in relation to the loss of land managed under stewardship and land management schemes during the operation of the Project and other projects through the application of mitigation measures. Therefore, the significance of effect would remain as **major adverse** significance, which is **significant** in EIA terms.

22.9 Inter-Relationships and Effects Interactions

22.9.1 Inter-Relationships

259. Inter-relationships are defined as effects arising from residual effects associated with different environmental topics acting together upon a single receptor or receptor group. Potential inter-relationships between soils and land use and other environmental topics have been considered, where relevant, within the PEIR. **Table 22-22** provides a summary of key inter-relationships and signposts to where they have been addressed in the relevant chapters.

Table 22-22 Soils and Land Use – Inter-Relationships with Other Topics

Impact ID	Impact and Project Activity	Related EIA Topic	Where Assessed in the PEIR Chapter	Rationale
Construction				
SLU-C-01	Impacts to agricultural drainage – excavation works and other construction activities	Chapter 21 Water Resources and Flood Risk	Section 22.7.1.1	Potential impacts on drainage could lead to changes in flood risk or water resources, e.g. private water supplies.

Impact ID	Impact and Project Activity	Related EIA Topic	Where Assessed in the PEIR Chapter	Rationale
SLU-C-02	Disruptions to farming practices (in general) – temporary loss of agricultural land due to construction activities	Chapter 23 Onshore Ecology and Ornithology	Section 22.7.1.2	Change in land uses could impact on ecological receptors, for example the loss of agricultural land.
SLU-C-04	Soil degradation and erosion – excavation works and other construction activities (e.g. movement of heavy machinery and storage of excavated materials)	Chapter 23 Onshore Ecology and Ornithology	Section 22.7.1.3	Changes in soil quality and quantity could impact upon ecological receptors.
		Chapter 19 Geology and Ground Conditions		Changes in soil quality could impact on ground conditions and potentially contaminated land.
SLU-C-05	Impacts to stewardship and land management schemes – temporary loss of land available due to construction activities	Chapter 23 Onshore Ecology and Ornithology	Section 22.7.1.4	Changes in land uses could impact on ecological receptors, for example, the removal of trees or hedgerows or the loss of agricultural land.
SLU-C-07	Impacts to Public Rights of Way, Countryside Rights of Way and cycle routes – temporary closures / restricted access / diversions due to construction activities and haul roads	Chapter 30 Socio-Economics, Tourism and Recreation	Section 22.7.1.6	The Project may affect local businesses in the tourism and recreation industry.

Impact ID	Impact and Project Activity	Related EIA Topic	Where Assessed in the PEIR Chapter	Rationale
Operation and Maintenance				
SLU-O-01	Impacts to agricultural drainage – presence of permanent infrastructure	Chapter 21 Water Resources and Flood Risk	Section 22.7.2.1	Potential impacts on drainage could lead to changes in flood risk or water resources, e.g. private water supplies.
SLU-O-02	Disruptions to farming practices (in general) – permanent loss of agricultural land due to the presence of permanent infrastructure and easements	Chapter 23 Onshore Ecology and Ornithology	Section 22.7.2.2	Change in land uses could impact on ecological receptors, for example the loss of agricultural land.
SLU-O-05	Impacts to stewardship and land management schemes – permanent loss of land due to presence of permanent infrastructure	Chapter 23 Onshore Ecology and Ornithology	Section 22.7.2.3	
SLU-O-07	Impacts to Public Rights of Way, Countryside Rights of Way and cycle routes – potential permanent diversion due to presence of permanent infrastructure	Chapter 30 Socio-Economics, Tourism and Recreation	Section 22.7.2.4	The Project may affect local businesses in the tourism and recreation industry.

Decommissioning

The details and scope of onshore decommissioning works will be determined by the relevant regulations and guidance at the time of decommissioning and provided in the Onshore Decommissioning Plan (see **Table 22-5**, Commitment ID CO56).

For this assessment, it is assumed that inter-relationships during the decommissioning phase would be of similar nature to those identified during the construction phase.

22.9.2 Interactions

260. The impacts identified and assessed in this chapter have the potential to interact with each other. Potential interactions between impacts are identified in **Table 22-23**. Where there is potential for interaction between impacts, these are assessed in **Table 22-24** for each receptor or receptor group.
261. Interactions are assessed by development phase (“phase assessment”) to see if multiple impacts could increase the overall effect significance experienced by a single receptor or receptor group during each phase. Following from this, a lifetime assessment is undertaken which considers the potential for multiple impacts to accumulate across the construction, O&M and decommissioning phases and result in a greater effect on a single receptor or receptor group. When considering synergistic effects from interactions, it is assumed that the receptor sensitivity remains consistent, while the magnitude of different impacts is additive.

Table 22-23 Soils and Land Use – Potential Interactions between Impacts throughout the Project’s Lifetime

Construction, Operation and Maintenance										
	SLU-C-01	SLU-C-02	SLU-C-04	SLU-C-05	SLU-C-06	SLU-C-07	SLU-O-01	SLU-O-02	SLU-O-05	SLU-O-07
Impacts to Agricultural Drainage (SLU-C-01)		No	No	No	No	No	Yes	No	No	No
Disruption to Farming Practices (SLU-C-02)	No		No	No	No	No	No	Yes	No	No
Soil Degradation and Erosion (SLU-C-04)	No	No		No	No	No	No	No	No	No
Impacts to Stewardship and Land Management Schemes (SLU-C-05)	No	No	No		No	No	No	No	Yes	No
Impacts to Existing Utilities (SLU-C-06)	No	No	No	No		No	No	No	No	No
Impacts to Public Rights of Way, Countryside Rights of Way and Cycle Routes (SLU-C-07)	No	No	No	No	No		No	No	No	Yes
Impacts to Agricultural Drainage (SLU-O-01)	Yes	No	No	No	No	No		No	No	No
Disruption to Farming Practices (SLU-O-02)	No	Yes	No	No	No	No	No		No	No
Impacts to Stewardship and Land Management Schemes (SLU-O-05)	No	No	No	Yes	No	No	No	No		No
Impacts to Public Rights of Way, Countryside Rights of Way and Cycle Routes (SLU-O-07)	No	No	No	No	No	Yes	No	No	No	

Decommissioning

The details and scope of onshore decommissioning works will be determined by the relevant regulations and guidance at the time of decommissioning and provided in the Onshore Decommissioning Plan (see **Table 22-5**, Commitment ID CO56).

For this assessment, it is assumed that interactions during the decommissioning phase would be of similar nature to, and no worse than, those identified during the construction phase.

Table 22-24 Interaction Assessment – Phase and Lifetime Effects

Receptor	Impact ID	Highest Significance Level			Phase Assessment	Lifetime Assessment
		Construction	Operation and Maintenance	Decommissioning		
Field drainage network	SLU-C-01 SLU-O-01	Minor adverse	No change	TBC – Assumed no greater than construction	<p>Construction: No greater than individually assessed impact.</p> <p>Given the predicted effect significance and that the impact would be managed with standard and best practice methodologies or is considered that there would either be no interactions or that these would not result in a greater impact than when assessed individually.</p> <p>Operation and Maintenance: No greater than individually assessed impact.</p> <p>Decommissioning: No greater than individually assessed impact.</p> <p>For assessment purposes, it is assumed that decommissioning impacts will be of a similar nature to, and no worse than, construction impacts.</p>	<p>No greater than individually assessed impact.</p> <p>Most impacts within the Onshore Development Area would occur during the construction phase of the Project. Field drainage would be reinstated following construction, where possible, with drainage requirements at the OCS zone complying with a flood risk assessment. The impacts to field drainage over the O&M phase at the OCS zone is assessed as no change. It is therefore anticipated that there are no lifetime impacts for receptors.</p>
Agricultural land	SLU-C-02 SLU-O-02	Moderate adverse	Major adverse	TBC – Assumed no greater than construction	<p>Construction: Greater than individually assessed impact.</p> <p>Given the predicted effect significance, and that it will not be possible to mitigate the impacts to levels of minor significance, there is the potential for greater impacts to occur than when assessed individually.</p> <p>Operation and Maintenance: Greater than individually assessed impact.</p> <p>Decommissioning: Greater than individually assessed impact.</p> <p>For assessment purposes, it is assumed that decommissioning impacts will be of a similar nature to, and no worse than, construction impacts.</p>	<p>Greater than individually assessed impact.</p> <p>Most impacts within the Onshore Development Area would occur during the construction phase of the Project. The impacts to agricultural land over the O&M phase at the OCS zone are considered major adverse. It is therefore anticipated that there is the potential for lifetime impacts to occur.</p>

Receptor	Impact ID	Highest Significance Level			Phase Assessment	Lifetime Assessment
		Construction	Operation and Maintenance	Decommissioning		
Agricultural soils	SLU-C-04	Minor adverse	N/A	TBC – Assumed no greater than construction	<p>Construction: No greater than individually assessed impact.</p> <p>Given the predicted effect significance and that each impact would be managed with standard and best practice methodologies, it is considered that there would either be no interactions or that these would not result in greater impacts than assessed individually.</p> <p>Operation& Maintenance: N/A</p> <p>Decommissioning: No greater than individually assessed impact.</p> <p>For assessment purposes, it is assumed that decommissioning impacts will be of a similar nature to, and no worse than, construction impacts.</p>	<p>No greater than individually assessed impact.</p> <p>Most impacts within the Onshore Development Area would occur during the construction phase of the Project. Soils would be reinstated following construction, where possible, restoring the area to its original condition. No impacts due to soil degradation and erosion are anticipated during the O&M phase. It is therefore anticipated that there are no lifetime impacts for receptors.</p>
Stewardship and land management schemes	SLU-C-05 SLU-O-05	Minor adverse	<p>No change (Landfall, onshore ECC and OCS Zone 4)</p> <p>Major adverse (OCS Zone 8)</p>	TBC – Assumed no greater than construction	<p>Construction: No greater than individually assessed impact.</p> <p>Operation and Maintenance: Greater than individually assessed impact.</p> <p>Given the significance levels are major adverse during operation within OCS Zone 8, and it will not be possible to mitigate the impacts to levels of minor adverse significance, there is the potential for greater impacts to occur than when assessed individually.</p> <p>Decommissioning: No greater than individually assessed impact.</p> <p>For assessment purposes, it is assumed that decommissioning impacts will be of a similar nature to, and no worse than, construction impacts.</p>	<p>Greater than individually assessed impact.</p> <p>Most impacts within the Onshore Development Area would occur during the construction phase of the Project. The impacts to stewardship and land management schemes during the lifetime of the OCS and ESBI within OCS Zone 8 are considered major adverse. It is therefore anticipated that there is the potential for lifetime impacts to occur.</p>

Receptor	Impact ID	Highest Significance Level			Phase Assessment	Lifetime Assessment
		Construction	Operation and Maintenance	Decommissioning		
Users of recreational routes	SLU-C-07 SLU-O-07	Minor adverse	No change	TBC – Assumed no greater than construction	<p>Construction: No greater than individually assessed impact.</p> <p>Given the predicted effect significance and that each impact would be managed with standard and best practice methodologies, it is considered that there would either be no interactions or that these would not result in a greater impact than assessed individually.</p> <p>Operation and Maintenance: N/A</p> <p>Decommissioning: No greater than individually assessed impact.</p> <p>For assessment purposes, it is assumed that decommissioning impacts will be of a similar nature to, and no worse than, construction impacts.</p>	<p>No greater than individually assessed impact.</p> <p>There would be limited impact to recreational routes during the construction phase. It is unlikely that there would be widespread closures of routes during the O&M phase of the Project. It is therefore anticipated that there are no lifetime impacts for receptors.</p>

22.10 Monitoring Measures

262. During the construction phase, there will be the requirement for a soil specialist to monitor soil handling to ensure compliance with the SMP. There will also be the requirement for monitoring of both local and long-range weather forecasts to ensure damage to soils is minimised as a result of handling during, for example, wet weather. These monitoring measures are identified in the **Outline Code of Construction Practice** (document reference 8.9), which will inform the development of the SMP post-consent (see **Table 22-5**, Commitment IDs CO39 and CO46). No additional monitoring measures with respect to soils and land use are therefore proposed.

22.11 Summary

263. **Table 22-25** presents a summary of the preliminary results of the assessment of likely significant effects on soils and land use during the construction, operation and decommissioning of the Project.
264. These impacts are driven mainly by change of land use, soil handling and the disruption to recreational routes during the construction phase of the Project. The construction impacts to soils and land use have a greater likelihood to be more significant on higher sensitivity land (such as Grade 2 BMV agricultural land) and land subject to stewardship and land management schemes. The construction phase of the Project also has the potential to disrupt recreational routes which are determined to have a medium to high sensitivity to change. However, many of the impacts, which will be managed via the PRow Management Plan (see **Table 22-5**, Commitment ID CO57) are temporary and reversible once construction is complete.
265. During the O&M phase, the impacts to soils and land use are limited. This is because the onshore export cables would be buried. However, residual impacts to changes in land use as a result of the permanent loss of agricultural land during operation are potentially major adverse, which is significant in EIA terms.
266. Cumulatively, there is the potential for interactions between the Project and other developments during the construction phase on agricultural drainage, farming practices, soil resources, stewardship and land management schemes and PRow, CRoW and cycle routes. With the exception of potential cumulative impacts to farming practices, the cumulative significance of effect is minor adverse. With regards to farming practices, the cumulative significance of effect is major adverse, which is significant in EIA terms.

267. During the O&M phase of the Project and the other identified projects, there is the potential for a cumulative loss of agricultural land associated with permanent infrastructure and easements. As with the construction phase, the cumulative significance of effect associated with the permanent loss of agricultural land during the O&M phase is major adverse, which is significant in EIA terms.
268. Additionally, there is the potential for cumulative effects to occur on land managed under stewardship and land management schemes during the O&M phases of the Project, the North Humber to High Marnham Grid Upgrade and Hornsea Project Four Offshore Wind Farm. There is also the potential for operational cumulative effects on farming practices between the Project and the other identified cumulative developments. The cumulative significance of effect for both impacts is considered to be major adverse, which is significant in EIA terms. No additional cumulative effects for the O&M phase of the projects have been identified.
269. The detail and scope of the onshore decommissioning works would be determined by the relevant legislation and guidance at the time of decommissioning and agreed with the relevant authorities. As such, impacts during the decommissioning phase are assumed to be the same as those identified during the construction phase.

22.12 Next Steps

270. The Soils and Land Use ES chapter will include an updated baseline environment and impact assessment following refinement of the Onshore Development Area and the Project Design Envelope. The chapter will also incorporate any additional data which has become available following the submission of the PEIR, as well as any stakeholder comments received as part of the statutory consultation.
271. The **Outline Public Rights of Way Management Plan**, which is included as an appendix to the **Outline Code of Construction Practice** (document reference 8.9) provided with the PEIR, will also be updated following further site selection refinements for DCO application submission.

Table 22-25 Summary of Potential Effects Assessed for Soils and Land Use

Impact ID	Impact and Project Activity	Embedded Mitigation Measures	Receptor	Receptor Sensitivity	Impact Magnitude	Effect Significance	Additional Mitigation Measures	Residual Effect	Monitoring Measures
Construction									
SLU-C-01	Impacts to agricultural drainage – excavation works and other construction activities	CO39 CO43 CO60 CO61 CO100 CO101 CO110	Field drainage network	Medium	Negligible	Minor Adverse (Not Significant)	N/A	Minor Adverse (Not Significant)	N/A
SLU-C-02	Disruptions to farming practices (in general) – temporary loss of agricultural land due to construction activities	CO39 CO46 CO47 CO51 CO60 CO61 CO100 CO101 CO110	Agricultural land	High	Low	Moderate Adverse (Significant)	CO103	Minor Adverse (Not Significant)	N/A
SLU-C-04	Soil degradation and erosion – excavation works and other construction activities (e.g. movement of heavy machinery and storage of excavated materials)	CO39 CO46 CO47 CO51 CO60 CO61 CO100 CO101 CO110	Agricultural soils	Medium	Negligible	Minor Adverse (Not Significant)	N/A	Minor Adverse (Not Significant)	N/A

Impact ID	Impact and Project Activity	Embedded Mitigation Measures	Receptor	Receptor Sensitivity	Impact Magnitude	Effect Significance	Additional Mitigation Measures	Residual Effect	Monitoring Measures
SLU-C-05	Impacts to stewardship and land management schemes – temporary loss of land available due to construction activities	CO39 CO60 CO61 CO81 CO100 CO101 CO110	Stewardship and land management schemes	High	Negligible	Minor Adverse (Not Significant)	N/A	Minor Adverse (Not Significant)	N/A
SLU-C-06	Impacts to existing utilities - excavation works and other construction activities	CO39 CO58 CO60 CO61 CO100 CO101	Utilities	No Change					
SLU-C-07	Impacts to Public Rights of Way, Countryside Rights of Way and cycle routes – temporary closures / restricted access / diversions due to construction activities and haul roads	CO39 CO57 CO60 CO61 CO77 CO78 CO100 CO101	Users of recreational routes	Medium to High	Negligible	Minor Adverse (Not Significant)	N/A	Minor Adverse (Not Significant)	N/A
Operation and Maintenance									
SLU-O-01	Impacts to agricultural drainage – presence of permanent infrastructure	CO44 CO60 CO61 CO110	Field drainage network	No Change					

Impact ID	Impact and Project Activity	Embedded Mitigation Measures	Receptor	Receptor Sensitivity	Impact Magnitude	Effect Significance	Additional Mitigation Measures	Residual Effect	Monitoring Measures
SLU-O-02	Disruptions to farming practices (in general) – permanent loss of agricultural land due to the presence of permanent infrastructure and easements	CO60 CO61 CO110	Agricultural land	High	High	Major Adverse (Significant)	No additional mitigation proposed. Land available for agricultural use will be unavailable during the O&M phase, as such the magnitude of impact would remain high.	Major Adverse (Significant)	N/A
SLU-O-05	Impacts to stewardship and land management schemes – permanent loss of land due to presence of permanent infrastructure	CO60 CO61 CO110	Stewardship and land management schemes	With regards to the potential impacts on stewardship and land management schemes at the landfall, within the onshore ECC and OCS Zone 4, there would be no change to existing schemes during the O&M phase of the Project.					
				Medium (OCS Zone 8 only)	High (OCS Zone 8 only)	Major Adverse (Significant) (OCS Zone 8 only)	No additional mitigation proposed. Land available for stewardship and land management schemes will be unavailable during the O&M phase, as such the magnitude of impact would remain high.	Major Adverse (Significant) (OCS Zone 8 only)	N/A
SLU-O-07	Impacts to Public Rights of Way, Countryside Rights of Way and cycle routes – potential permanent diversion due to presence of permanent infrastructure	CO57 CO60 CO61	Users of recreational routes	No Change					

Impact ID	Impact and Project Activity	Embedded Mitigation Measures	Receptor	Receptor Sensitivity	Impact Magnitude	Effect Significance	Additional Mitigation Measures	Residual Effect	Monitoring Measures
Decommissioning									
SLU-D-01	Impacts to agricultural drainage – decommissioning activities not yet defined	CO56							
SLU-D-02	Disruptions to farming practices (in general) – decommissioning activities not yet defined								
SLU-D-04	Soil degradation and erosion – decommissioning activities not yet defined								
SLU-D-05	Impacts to stewardship and land management schemes – decommissioning activities not yet defined.								
SLU-D-06	Impacts to existing utilities - decommissioning activities not yet defined								
SLU-D-07	Impacts to Public Rights of Way, Countryside Rights of Way and cycle routes – decommissioning activities not yet defined								

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List of Acronyms

Acronym	Definition
ALC	Agricultural Land Classification
ALO	Agricultural Land Officer
BMV	Best and Most Versatile
CEA	Cumulative Effect Assessment
CoCP	Code of Construction Practice
CRoW	Countryside and Rights of Way
CSS	Countryside Stewardship Scheme
DBD	Dogger Bank D Offshore Wind Farm
DCO	Development Consent Order
Defra	Department for Environment, Food and Rural Affairs
DESNZ	Department for Energy Security and Net Zero
DMRB	Design Manual for Roads and Bridges
ECC	Export Cable Corridor
EIA	Environmental Impact Assessment
ELMS	Environment Land Management Schemes
ELS	Entry Level Stewardship
EMF	Electro Magnetic Field
EPP	Evidence Plan Process
ES	Environmental Statement
ESBI	Energy Storage and Balancing Infrastructure
ESS	Environmental Stewardship Scheme
ETG	Expert Topic Group
HDD	Horizontal Directional Drilling

Acronym	Definition
HLS	Higher Level Stewardship
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
IDB	Internal Drainage Board
IEMA	Institute of Environmental Management and Assessment
IES	Institution of Environmental Sciences
ILA	Important Landscape Areas
IQ	Institute of Quarrying
LNR	Local Nature Reserve
LPA	Local Planning Authority
LWS	Local Wildlife Site
MAFF	Ministry of Agriculture, Fisheries and Food
MMP	Materials Management Plan
NCN	National Cycle Network
NNR	National Nature Reserve
NPPF	National Planning Policy Framework
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
O&M	Operation and Maintenance
OCS	Onshore Converter Station
OELS	Organic Entry Level Stewardship
PEIR	Preliminary Environmental Information Report
PRoW	Public Rights of Way
RSPB	Royal Society for the Protection of Birds

Acronym	Definition
SocEnv	Society for the Environment
SMP	Soil Management Plan
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Drainage Systems
TJB	Transition Joint Bay
UK	United Kingdom
Zol	Zone of Influence