Preliminary Environmental Information Report

Non-Technical Summary

LLK1-ARU-REP-ENV-000021
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LIONLINK

Contents

Glossary of Project Terminology

This Glossary has been provided to define terms used across a number of the LionLink Proposed Scheme documents.

Terms and abbreviations specific to this technical chapter are provided at the end of the document in the **Topic Glossary and Abbreviations.**

Term	Description
Amendment to Kiln Lane Substation Scenario	The scenario where the Proposed Scheme will comprise the amendments to Kiln Lane Substation that would be required if Kiln Lane Substation was built out pursuant to the EA1N/EA2 DCOs.
Applicant, the	National Grid Lion Link Limited (NGLLL)
Bellmouth	A flared vehicular access/egress point connecting permanent route to the public highway.
Converter Station	A converter station changes electricity between High Voltage Alternating Current (HVAC), which power our homes, and High Voltage Direct Current (HVDC) which is more efficient for transporting electricity over long distances and vice versa. The proposed Converter Station is located to the east of Saxmundham.
Converter Station Site	The Converter Station Site as a whole, allowing for the co-location of the Converter Station with the Converter Station being separately consented as part of the Sea Link project.
Co-ordination	The process of people or entities working together.
Co-location	Where different elements of a project, or various projects, are located in one place.
Construction Compound	Temporary compounds installed during the construction phase of the Proposed Scheme. Each compound is likely to contain storage areas such as laydown areas, soils storage, and areas for equipment and fuel, drainage, generators, car parking and offices and welfare areas (portacabins).
Development Consent Order (DCO)	An order made by the Secretary of State pursuant to the Planning Act 2008 (as amended) granting development consent for a Nationally Significant Infrastructure Project. It grants consent to develop the approved project and may include (among other things) powers to compulsorily acquire land and rights where required and deemed marine licences for any offshore works.
Draft Order Limits	The area of land identified as being subject to the DCO application. The Draft Order Limits are made up of the land required both temporarily and permanently to allow for the construction, operation and maintenance, and decommissioning of the Proposed Scheme. All onshore parts of the Proposed Onshore Scheme are located within England and offshore parts of the Proposed Offshore Scheme are located within English territorial waters to 12 Nautical

Term	Description
	Miles and then up to the United Kingdom (UK) Exclusive Economic Zone (EEZ) boundary at sea.
Dutch Offshore Components	Is the term used when referring to the offshore elements of the Project within Dutch waters.
Eastern Route Option	As part of the Underground HVDC cable corridor, the Eastern Route Option would facilitate a degree of co-location with the Sizewell Link Road (SLR) scheme.
Environmental Impact Assessment (EIA)	The EIA is a systematic regulatory process that assesses the potential likely significant effects of a proposed project or development on the environment.
EIA Scoping Report	An EIA scoping report defines the proposed scope and methodology of the EIA process for a particular project or development. The EIA Scoping Report for the Proposed Scheme was submitted to the Planning Inspectorate with a request for the Secretary of State to adopt a scoping opinion in relation to the Proposed Scheme on 6 March 2024.
Environmental Statement (ES)	The ES is a document that sets out the likely significant effects of the project on the environment. The ES is the main output from the EIA process. The ES is published as part of the DCO application.
Exclusive Economic Zone (EEZ)	The zone in which the coastal state exercises the rights under Part V of the United Nations Convention on the Law of the Sea. These rights relate principally to the water column and may extend to 200 nautical miles from baselines. This is distinct from territorial waters, which for the UK extend 12 nautical miles from the coast.
Full Build Out of Kiln Lane Substation Scenario	The scenario if the Proposed Scheme was brought forward first, then it would be responsible for developing Kiln Lane Substation for the Proposed Scheme, with sufficient additional capacity for other projects.
Joint Bay	Underground structures constructed at regular intervals along the onshore cable route to join sections of cable and facilitate installation of the cables into the buried ducts.
Kiln Lane Substation	The proposed connection point for the Project to the British National Electricity Transmission System, located to the north of Friston. Formerly known as Friston Substation. The new name has recently been adopted by NGET. The substation is of the same footprint and in the same location. Friston Substation will, hereafter, be referred to as Kiln Lane Substation.
Landfall	The proposed Landfall is where the proposed offshore HVDC Submarine Cables are brought ashore and meets with the onshore proposed Underground HVDC Cables. This includes the Transition Joint Bay (TJB). The proposed Landfall will be located at Walberswick, and there will be no permanent above ground infrastructure at the proposed Landfall.
Landfall Site	The area where the Landfall may be located.

Term	Description
Limit of Deviation	A maximum distance or measurement of variation within which the works must be constructed. These are lateral (i.e. on the ground) and vertical limits (in relation to height).
Link Box Chamber	Link boxes are used at joint bays to facilitate grounding connections to ensure safety and enable maintenance. Link boxes can either be installed below ground, in a link box chamber, or in an above ground link pillar
Multi-purpose interconnector (MPI)	A project where GB interconnection is combined with transmission of offshore generation within GB (and optionally within a connecting state).
National Grid Electricity Distribution (NGED)	The local distribution network operator for the Midlands, the southwest of England and south Wales.
National Grid Electricity Transmission (NGET)	Operators of the national electricity transmission network across Great Britain and own and maintain the network in England and Wales, providing electricity supplies from generating stations to local distribution companies. National Grid does not distribute electricity to individual premises, but its role in the wholesale market is vital to ensuring a reliable, secure and quality supply to all.
National Grid Lion Link Limited (NGLLL)	The Applicant, a joint venture between National Grid Ventures and TenneT. NGLLL is a business within the wider National Grid Ventures portfolio.
National Grid Strategic Infrastructure (NGSI)	Part of NGET and responsible for delivering major strategic UK electricity transmission projects, focussed on connecting more clean, low-carbon power to England and Wales.
National Grid Ventures (NGV)	Operates and invests in energy projects, technologies and partnerships to accelerate the development of a clean energy future. This includes interconnectors (such as the LionLink Project), allowing trade between energy markets and the efficient use of renewable energy resources.
Nationally Significant Infrastructure Projects (NSIP)	Major infrastructure developments in England and Wales for which development consent is required, as defined within Section 14 of the Planning Act 2008 (as amended). This includes any development which is subject to a direction by the relevant Secretary of State pursuant to Section 35 of the Planning Act 2008.
Non-standard interconnector (NSI)	A project where GB interconnection is combined with transmission of offshore generation outside of GB.
Northern Route Option	A northern cable corridor option that would allow Underground HVAC Cable delivery for Proposed Scheme only.
Offshore Hybrid Asset (OHA)	A project that combines cross-border interconnection with the transmission of offshore generation, this is an overarching term which covers both multi-purpose interconnectors (MPI) and non-standard interconnectors (NSI).
Order Limits	The maximum extent of land within which the Proposed Scheme may take place, as consented.

Term	Description
Outline Offshore Construction Environmental Management Plan (Outline Offshore CEMP)	Describes the control measures and standards proposed to be implemented to provide a consistent approach to the environmental management of the construction activities of the Proposed Offshore Scheme.
Outline Onshore Code of Construction Practice (Outline Onshore CoCP)	Describes the control measures and standards proposed to be implemented to provide a consistent approach to the environmental management of the construction activities of the Proposed Onshore Scheme.
Overhead Lines (OHL)	Conductors (wires) carrying electric current, strung from Tower to Tower.
Planning Act 2008	The Planning Act 2008 being the relevant primary legislation for national infrastructure planning.
Planning Inspectorate (PINS)	The Planning inspectorate review DCO applications and make a recommendation to the Secretary of State, who will then decide whether to approve the DCO.
Preliminary Environmental Information Report (PEIR)	The PEIR is a document, compiled by the Applicant, which presents preliminary environmental information, as part of the statutory consultation process. This is defined by the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 as containing information which "is reasonably required for the consultation bodies to develop an informed view of the likely significant environmental effects of the development (and of any associated development)" (Section 12 2. (b)). This PEIR describes the Proposed Scheme, sets out preliminary findings of the EIA undertaken to date, and the mitigation measures proposed to reduce effects. The PEIR is published at Statutory Consultation stage for information and feedback.
Project (the)	The LionLink Project (hereafter referred to as the 'Project') is a proposal by National Grid Lion Link Limited (NGLLL) and TenneT. The Project is a proposed electricity link between Great Britain (GB) and the Netherlands with a capacity of up to 2.0 gigawatts (GW) of electricity and will connect to Dutch offshore wind via an offshore platform in Dutch waters. The Project is the collective term used to refer to the proposal for all aspects (onshore and offshore) of the proposed interconnector between GB and the Netherlands.
Proposed Offshore Scheme	The term used when referring to the offshore elements of the Proposed Scheme, seaward of the mean high-water springs to the EEZ boundary at sea.
Proposed Onshore Scheme	The term used when referring to the onshore elements of the Proposed Scheme, landward of the mean low water springs. Proposed Onshore Scheme components include:

Term	Description
	a) Kiln Lane Substation. b) Underground High Voltage Alternating Current (HVAC) Cables; c) Converter Station. d) Underground High Voltage Direct Current (HVDC) Cables; and e) Landfall.
Proposed Scheme	Used when referring to the GB scheme components of the Project, not including Dutch components. This includes both the onshore and offshore scheme components which are within UK territorial waters and up to the UK EEZ boundary at sea.
Rochdale Envelope	The Rochdale Envelope or Design Envelope approach is employed where the nature of a proposed development means that some details of a project are not available in advance of, or at the time of submitting the DCO application. The Rochdale Envelope approach defines a design envelope and parameters within which the final design will sit and ensures a robust and reliable EIA can be undertaken.
Scoping Opinion	A scoping opinion is requested from the Planning Inspectorate on behalf of the Secretary of State, to inform the requirements of EIA process and ultimately the ES which will be submitted as part of the application for development consent. Through the scoping process, the views of the statutory consultees and other relevant organisations on the proposed scope of the EIA are sought. A Scoping Opinion for the Proposed Scheme was issued by the Planning Inspectorate (on behalf of the Secretary of State) on 16 April 2024. The Applicant received a separate EIA Scoping Opinion from the Marine Management Organisation (MMO) (Reference DCO/2024/00005, dated 04 September 2024) as the MMO were unable to provide opinion to the Planning Inspectorate in time for the April 2024 deadline.
Scottish Power Renewables (SPR) East Anglia One North (EA1N) and East Anglia 2 (EA2) Consents (SPR EA1N and EA2 Consents)	The Orders made following the Scottish Power Renewables applications for development consent for the following projects: a) The East Anglia ONE North Offshore Wind Farm Order 2022; and b) East Anglia TWO Offshore Wind Farm Order 2022
Southern Route Option	A southern cable corridor option that would allow: a) Underground HVAC Cable delivery for Proposed Scheme only, or b) Underground HVAC Cable delivery for Proposed Scheme and ducting for Sea Links Underground HVAC and HVDC cables in that section.
Statutory Consultation	Consultation undertaken with the community and stakeholders in advance of the application for development consent being submitted

Term	Description
	to the Planning Inspectorate, on behalf of the Secretary of state, in accordance with the PA 2008.
Substation	Substations are used to control the flow of power through the electricity system. They are also used to change (or transform) the voltage from a higher to lower voltage to allow it to be transmitted to local homes and businesses.
TenneT	Operator of the electricity transmission network across the Netherlands.
Tower	A structure used to carry overhead electrical conductors, insulators, and fittings. Often described as a pylon.
Transition Joint Bay (TJB)	An underground structure at the Landfall Site that house the joints between the offshore cables and the onshore cables.
Underground Cable Corridors	Collective term for the corridors within which HVAC and HVDC cables are planned.
Underground High Voltage Alternating Current (HVAC) Cable Corridor	A corridor in which the underground HVAC cables are planned to be installed.
Underground High Voltage Alternating Current (HVAC) Cables	Transmission cables which connect between the Converter Station and Substation. HVAC cables are designed to manage fluctuating flow of current.
Underground High Voltage Direct Current (HVDC) Cable Corridor	A corridor in which the underground HVDC cables are planned to be installed.
Underground High Voltage Direct Current (HVDC) Cables	Transmission cables which connect the Converter Station to the Landfall Site and then offshore. HVDC cables are designed to manage current flowing in one direction.
Visibility Splay	An area of land at a road junction that ensures drivers have an unobstructed view of oncoming traffic allowing them to safely join or cross the road.
Western Route Option	As part of the Underground HVDC cable corridor, the Western Route Option would deliver the Scheme within its own corridor with no co-location with the Sizewell Link Road (SLR) scheme.

1 Introduction

1.1 Overview

1.1.1 The LionLink Project is a proposed energy infrastructure project, which aims to deliver a new subsea cable (known as an interconnector) between the United Kingdom and the Netherlands. The LionLink Project will contribute to improvements in the distribution of energy, helping to meet cross-national energy demands.

1.1.2 The components of the LionLink Project proposed within the Netherlands are to be consented through the Dutch planning system. The components proposed within the United Kingdom are the subject of an application for development consent being promoted by National Grid Lion Link Limited.

1.1.3 The United Kingdom components of the LionLink Project are referred to as the Proposed Scheme.

1.2 Purpose of this document

1.2.1 In accordance with requirements of the United Kingdom planning regulations, public engagement (i.e., Statutory Consultation) is being carried out for the Proposed Scheme. This is undertaken prior to an application being submitted for development consent.

1.2.2 As part of this Statutory Consultation process, preliminary environmental information has been prepared and compiled into a detailed multi-volume report, the Preliminary Environmental Information Report. This non-technical summary document provides an overview of that Preliminary Environmental Information Report.

1.2.3 The purpose of this non-technical summary is to help local communities and other stakeholders understand the preliminary environmental findings of the Proposed Scheme in a more concise and accessible format compared to the full Preliminary Environmental Information Report.

1.2.4 This document summarises the following in each section:

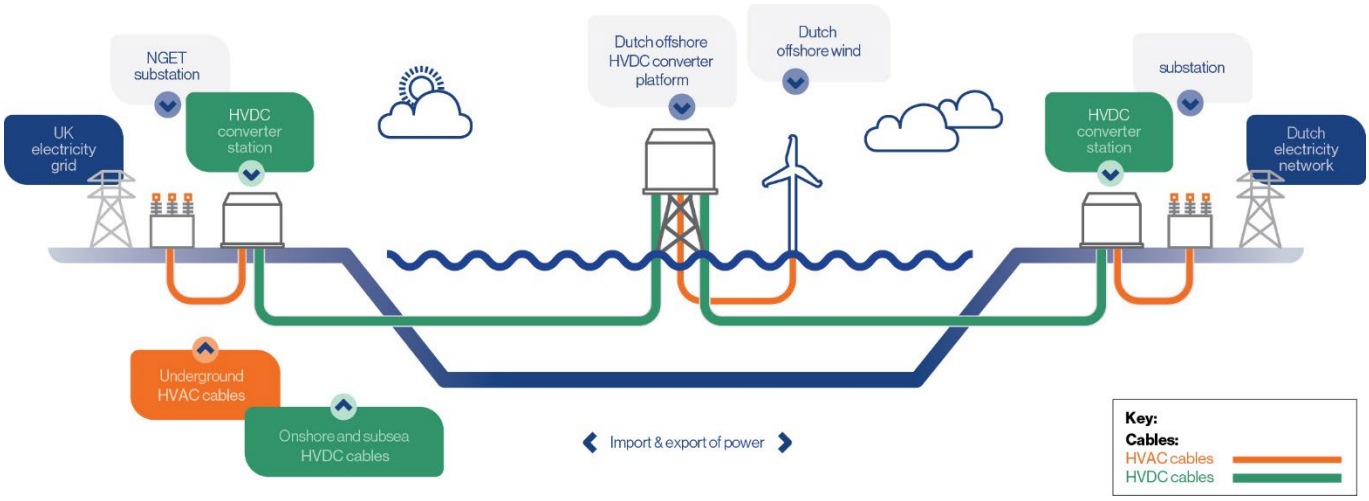
a. Section 2 - the Proposed Scheme;
b. Section 3 - how the Proposed Scheme has been selected from various options;
c. Section 4 - how preliminary environmental information has been obtained and assessed;
d. Section 5 - preliminary environmental findings; and
e. Section 6 - next steps.

1.3 What is LionLink?

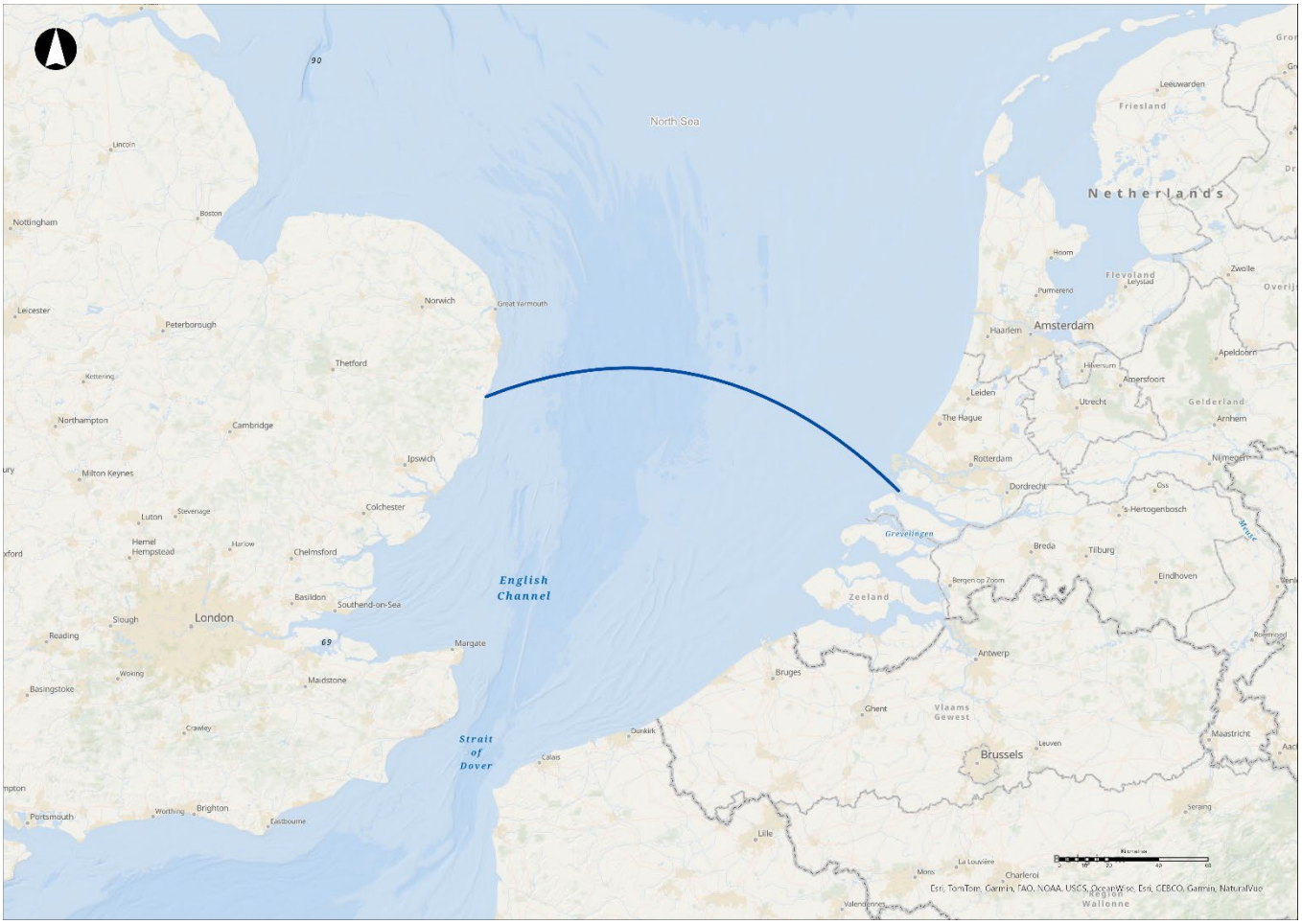
1.3.1 National Grid Ventures is developing plans to build LionLink, a new subsea electricity cable (known as an interconnector) between the UK and the Netherlands. This subsea cable will have the capacity to deliver up to 2 gigawatts of electricity, which will be vital in supporting greater energy security and delivering more affordable energy for consumers. LionLink will bring offshore wind energy to the UK by connecting to a Dutch offshore wind farm, whilst also enabling the flow of energy between the UK and Dutch electricity systems.

1.3.2 The key components of the LionLink Project are shown in **Inset 1**, and its location shown in **Inset 2**.

Inset 1: Key components of the LionLink Project



Inset 2: Location of the LionLink Project



1.4 What is an interconnector?

1.4.1 Interconnectors are high-voltage, primarily subsea cables that connect our electricity system with neighbouring countries, allowing us to import or export energy depending on supply. By sharing energy between countries when supply is high, interconnectors help strengthen the security and reliability of different energy systems, and lower consumer bills.

1.4.2 National Grid Ventures already operate six interconnectors across the United Kingdom with a combined capacity of 7.8 gigawatts, comprising BritNed, Interconnexion France-Angleterre1, Interconnexion France-Angleterre 2, Viking Link, North Sea Link and Nemo Link.

1.4.3 At the moment, offshore wind farms and interconnectors operate separately, connecting to the shore individually. LionLink will be a first of its kind technology, by connecting not only two nations, but also offshore wind, supplying more low-cost renewable energy into the system.

1.4.4 The Proposed Scheme is the extent of the Project which is the subject of the application for development consent, being the part located within British jurisdiction.

1.5 Who is National Grid?

1.5.1 National Grid are an energy company who own the high-voltage electricity transmission network in England and Wales. Under the umbrella of National Grid are three separate businesses, one of which, National Grid Ventures, develops and invests in clean energy projects. The Applicant for the Proposed Scheme, National Grid Lion Link Limited, is part of National Grid Ventures.

1.6 Why is LionLink needed?

1.6.1 The UK is rapidly transforming its energy system, moving away from fossil fuels and toward clean, low-carbon technologies.

1.6.2 International electricity interconnectors are a key part of this strategy. They enable the sharing of renewable energy between countries, improving system resilience, reducing costs and making energy more sustainable.

1.6.3 By enabling the rapid transfer of electricity between markets, interconnectors enable energy to be imported and exported depending on the needs of the market and in line with market prices. Interconnectors are also an effective tool to support the intermittent nature of renewable energy and help to support the network when demand is high.

1.6.4 GB has experienced success from existing interconnectors, which have connected energy between GB and Belgium, Denmark, France, Ireland and the Netherlands.

1.6.5 Offshore Hybrid Assets (OHAs) are seen as the next generation of interconnector, that will connect offshore wind farms to multiple countries.

1.6.6 In addition to facilitating the sharing of energy between countries, OHAs will also help to speed up the connection of offshore wind and maximise the use of wind generation. They will also reduce the impact on local communities by reducing the amount of connection points and onshore infrastructure required to connect this clean energy to the shore. The North Sea holds significant potential for both the UK and Europe to achieve significant increases in offshore wind energy.

1.6.7 The Project is an Offshore Hybrid Asset. Ofgem has made an initial project assessment and consider that the Project is likely to be in the interest of GB consumers, and therefore Ofgem has decided to grant the project a Pilot OHA regulatory regime in principle. This decision is supported by National Electricity System Operator's (NESO) System Impact Assessment Report.

1.6.8 The UK Government has recognised the significant role that international electricity interconnectors play in facilitating a secure, stable and clean energy system (Ref 1, Ref 2, Ref 3, Ref 4). Accordingly, the Government's National Policy Statements acknowledge the importance and benefits of increasing levels of interconnection as part of national planning policy, and there is wide energy policy support for increased interconnection development.

1.6.9 The objective of the Project is to connect the British and Dutch NTSs, as well as facilitating a connection to Dutch offshore wind generation, for the purpose of achieving the energy security and supply benefits that come with a project of this scale. The Project would continue to boost interconnector capacity, and contribute towards the UK Government's commitment of reaching net zero by 2050.

1.6.10 The Project therefore delivers on core aspects of the UK Government's energy strategy (Ref 1): it supports a reduction in carbon emissions; contributes towards addressing the current unreliable nature of renewable energy supply and it provides the security, stability and cost savings that are associated with interconnectors. It is a step towards a more coherent and therefore more efficient electricity transmission network. This is supported by the Initial Project Assessment decision and subsequent conditional amendment provided by Ofgem in agreeing the Regulatory parameters in which the Project will operate.

1.6.11 When determining the connection point for the Project, NESO, which oversees the strategic planning of Great Britain's electricity grid, assessed a range of environmental, technical, and cost factors. Following discussions with NGV, NESO identified East Suffolk as the optimal connection point for the Project in Great Britain. In 2017, NESO granted a connection agreement for the Project to link to a new substation in the Leiston area . This has been re-confirmed through a modification to the connection agreement in June 2025. The Applicant considers the connection point to be appropriate and consentable, and from an electricity system perspective is also consistent with NESO's East Anglia Study (Ref 5).

1.7 What is a Development Consent Order?

1.7.1 A Development Consent Order is a form of consent which is issued by the Secretary of State, under the Planning Act 2008, which provides the framework for the delivery of nationally significant infrastructure projects.

1.7.2 It allows the entity which is seeking to undertake the development, referred to as 'the applicant', to develop the project and includes (among other things) permission to construct and operate the development, alongside powers to compulsorily acquire land and/or rights in land, where required, and deemed marine licences for any offshore works.

1.7.3 An application for development consent is being sought by the Applicant for the Proposed Scheme.

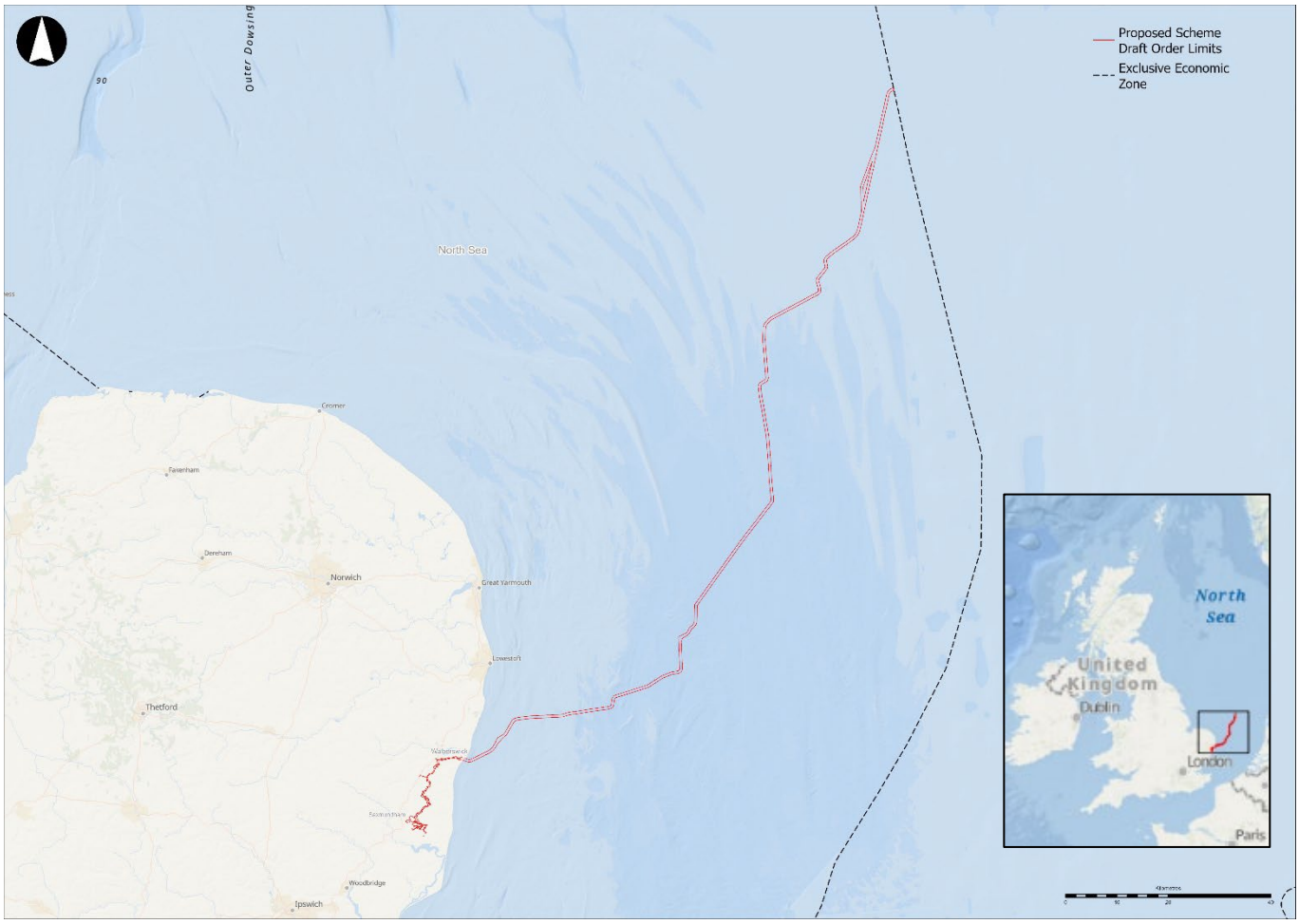
2 The Proposed Scheme

2.1 Introduction

2.1.1 The components of the LionLink Project within the United Kingdom territory which make up the Proposed Scheme comprise:

a. a substation, named Kiln Lane Substation, north of Friston, Suffolk;
b. underground cables carrying High Voltage Alternating Current electricity between Kiln Lane Substation and a Converter Station;
c. a Converter Station east of Saxmundham, Suffolk;
d. underground cables carrying High Voltage Direct Current electricity between the Converter Station and a Landfall site;
e. a Landfall, the site for which is south of Walberswick, Suffolk; and
f. offshore subsea cables carrying High Voltage Direct Current electricity from the Landfall south of Walberswick, Suffolk on the United Kingdom coast, to the edge of the United Kingdom Exclusive Economic Zone.

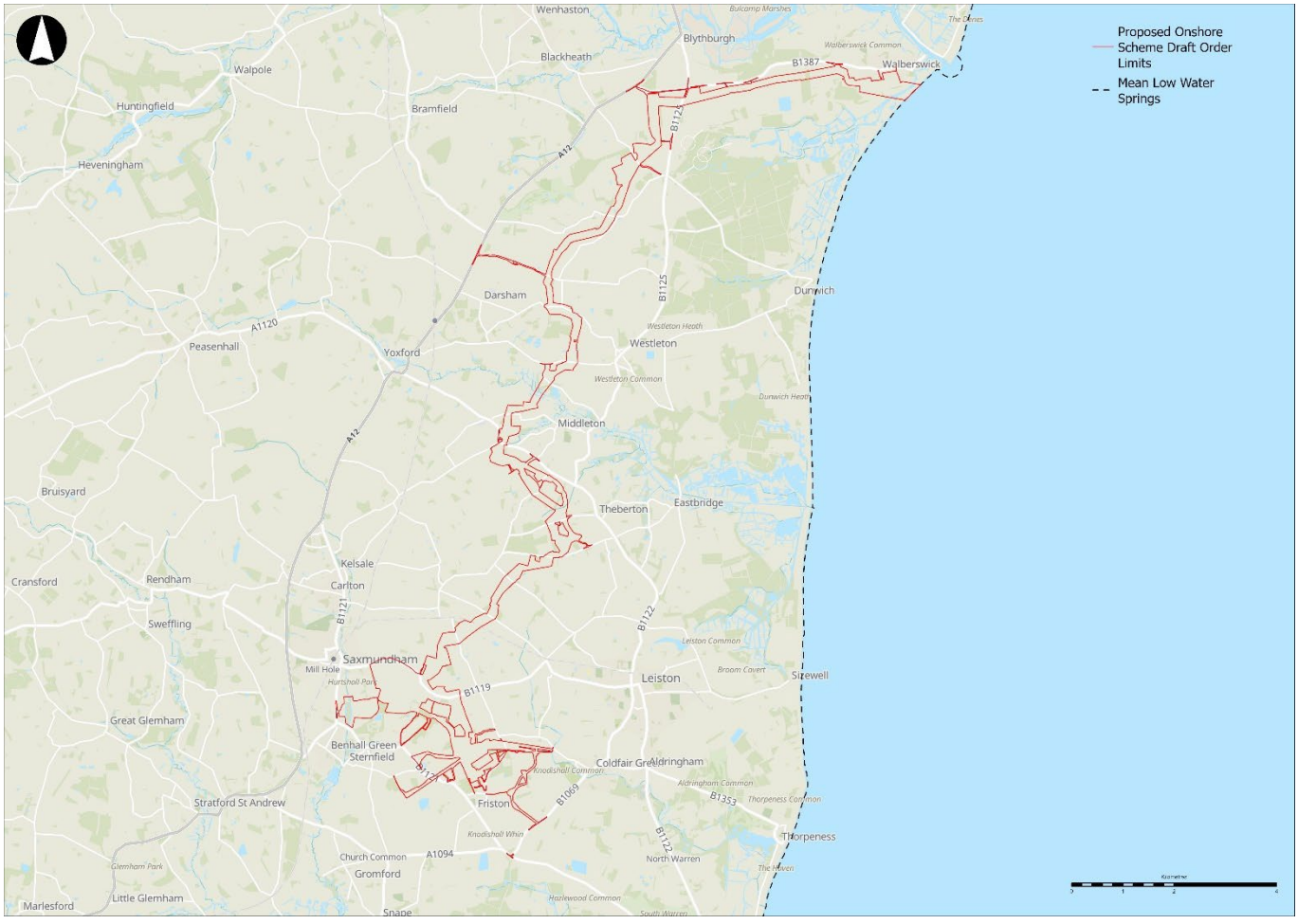
Inset 3: Site location of the Proposed Scheme



2.1.2 The Proposed Scheme is divided into two main elements: the Proposed Onshore Scheme and the Proposed Offshore Scheme. The interface between the onshore and offshore elements is called the Landfall, which is where the cables come ashore.

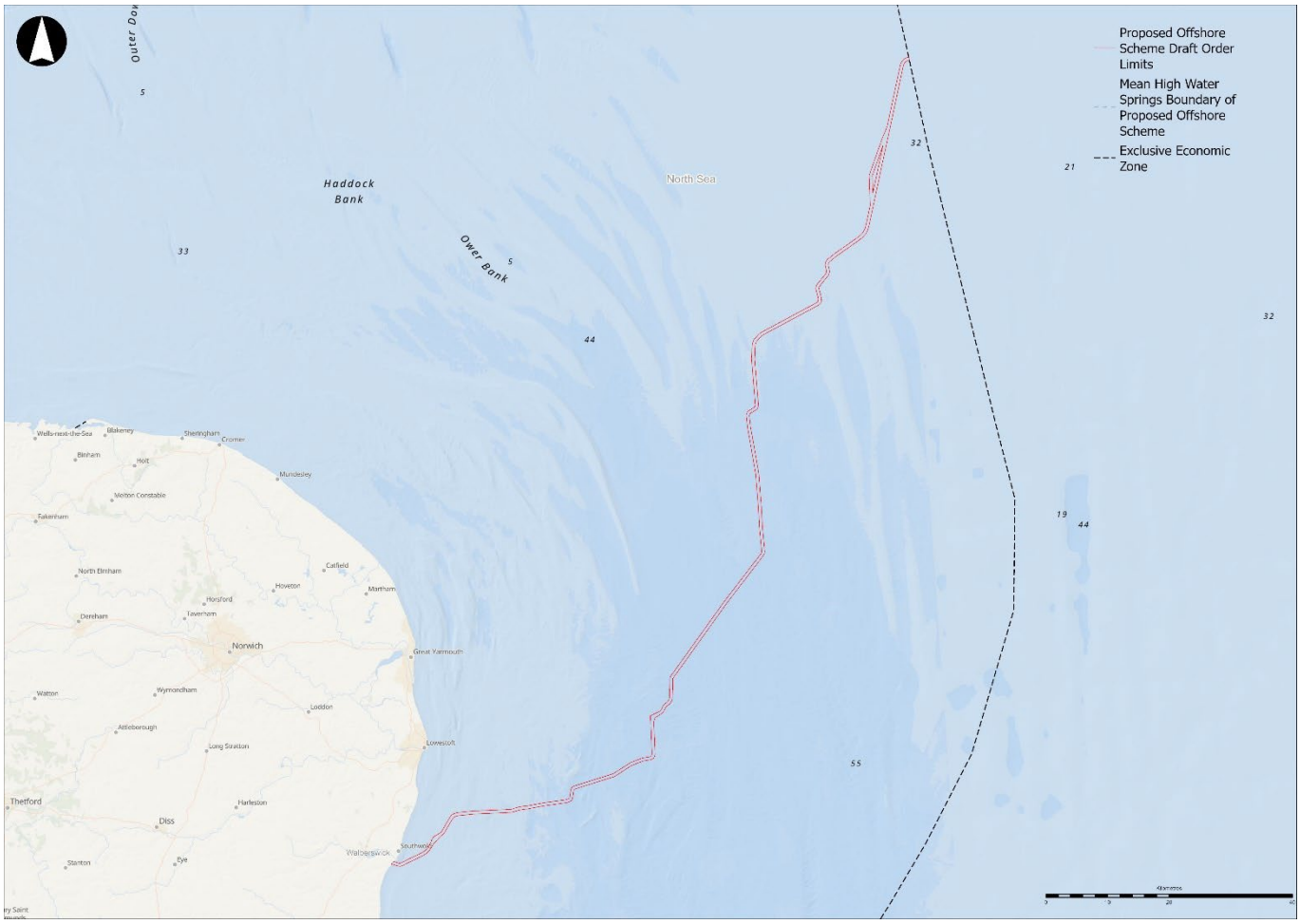
2.1.3 The Draft Order Limits[1], also known as redline boundaries of the Proposed Onshore Scheme and Proposed Offshore Schemes, are shown in **Inset 4** and **Inset 5**, respectively.

Inset 4: Redline boundary of the Proposed Onshore Scheme



[1] Draft Order Limits are the geographical boundary within which a proposed infrastructure project must be constructed and can be temporarily or permanently used. They set the maximum area for both the main development and any associated temporary works, such as construction access and material storage.

Inset 5: Redline boundary of the Proposed Offshore Scheme



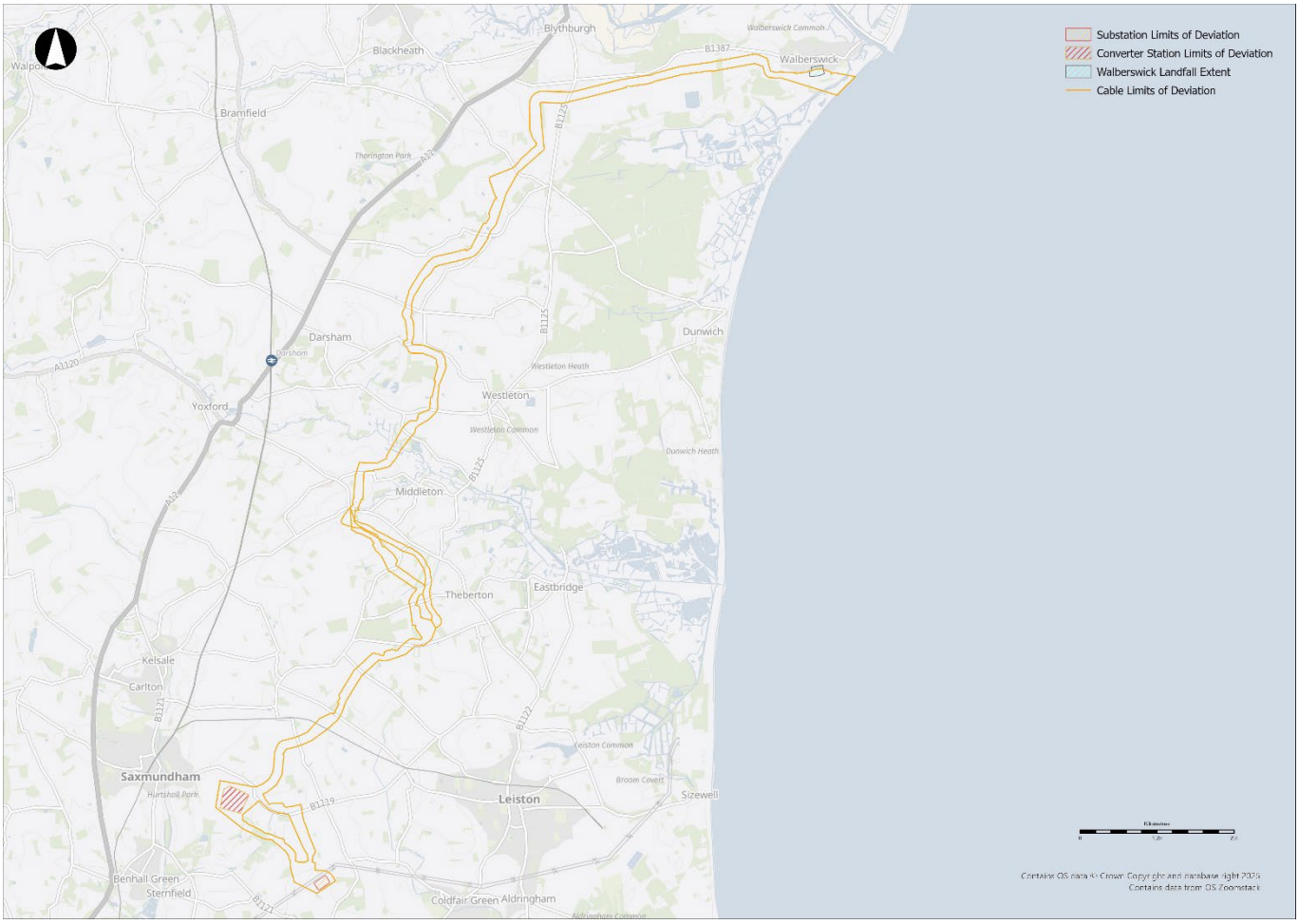
2.2 Proposed Onshore Scheme

Site and surroundings

2.2.1 The Proposed Onshore Scheme would be located in rural Suffolk. The Proposed Onshore Scheme would be primarily within agricultural land, which is interspersed with hedgerows and small woodland blocks. It would span an area from the north of Friston, where the Kiln Lane Substation would be located, to the northwest through underground cables, leading to where the Converter Station would be located east of Saxmundham. Underground cables would then be placed in a corridor east of the A12 (**Inset 6**), to a Landfall site south of Walberswick.

2.2.2 The Proposed Onshore Scheme would pass in proximity to towns and villages and intersect public rights of way. The route of the underground cables would be beneath sensitive environments such as the Suffolk Coast and Heaths National Landscape and the internationally designated Minsmere to Walberswick Heaths & Marshes, which is a Ramsar Site, a Special Area of Conservation, and Special Protection Area. These designations reflect the rare habitat and associated species found there. It is also designated as a Site of Special Scientific Interest which is a national designation.

Inset 6: Site location of the Proposed Onshore Scheme components



Inset 7: Saltmarsh within Minsmere Special Protection Area, Special Area of Conservation, and Site of Special Scientific Interest avoided by trenchless construction methods

Proposed Scheme components

2.2.3 The Proposed Onshore Scheme would include the components as set out below.

Kiln Lane Substation

2.2.4 A substation is a key part of an energy development that assists with managing and distributing power safely and efficiently. It acts as a hub where electricity is received from an energy project and then sent out to homes and businesses at the correct voltage.

2.2.5 The Kiln Lane Substation would either be constructed as part of the Proposed Scheme including buildings, changes to existing overhead lines, and outdoor equipment needed to safely manage and control the flow of electricity. Or by another energy project pursued by Scottish Power Renewables (i.e., either the East Anglia ONE North Offshore Wind Farm Order 2022, or the East Anglia TWO Offshore Wind Farm Order); if built separately, the Applicant would need to extend it to accommodate the Proposed Scheme.

2.2.6 The Kiln Lane Substation would comprise a maximum building height of 16m. It would be located north of Friston and would be the connection point to the United Kingdom's electricity network. The Kiln Lane Substation would be located within a fenced and secured site;

Underground High Voltage Alternating Current Cables

2.2.7 Approximately 2.2km of 400 kilovolt cables would be buried underground linking the Kiln Lane Substation to the proposed Converter Station.

The Converter Station

2.2.8 This component of the Proposed Scheme would be located east of Saxmundham. The Converter Station would convert alternating current electricity, which is used in to power homes, to direct current electricity, which is more efficient for transportation over long distances, and vice versa. The Converter Station site would include up to seven buildings (including a main building up to 26m high), outdoor areas with electrical equipment, and roads or paths for access. The Convertor Station would be contained within a fenced and secured site;

Underground High Voltage Direct Current Cables

2.2.9 Approximately 20 kilometres of 525 kilovolt cables connecting the Converter Station to the Landfall site. Aside from small permanent location markers, there would be no remaining above ground indication of the underground cables; and

The Landfall site

2.2.10 Located south of Walberswick, this would be where the onshore high voltage direct current cables transition to offshore high voltage direct current cables. Once built, there would be no visible infrastructure left on the beach or shoreline.

Inset 8: Image of an example converter station

Relationship with other projects in the same geography

2.2.11 The Applicant has been working with other parties to identify coordination opportunities. In particular, those parties looking to deliver energy infrastructure developments in the same geography as the Proposed Scheme.

2.2.12 Nationally Significant Infrastructure Projects proposed near to the Proposed Scheme include:

a. East Anglia ONE North Offshore Wind Farm Order 2022 and the East Anglia TWO Offshore Wind Farm Order 2022, being promoted by Scottish Power Renewables;
b. Sizewell C (Nuclear Generating Station) Order 2022, which was promoted by NNB Generation Company Limited; and
c. Sea Link, a transmission infrastructure development being promoted by National Grid Electricity Transmission.

2.2.13 Coordination undertaken to date has included the sharing of site survey information and data, co-locating infrastructure, and exploring the potential for coordinating the physical delivery of the infrastructure. The deliverability of coordination is still being explored, based on current known information about other proposed projects, and the Applicant will continue to engage with other

parties to ensure that the benefits of coordination can be realised where possible.

2.2.14 Kiln Lane Substation has been consented as part of other development consent orders (East Anglia ONE North Offshore Wind Farm Order 2022, or the East Anglia TWO Offshore Wind Farm Order). It is expected that Kiln Lane Substation will be delivered under the existing consents by 2028. The Applicant has been in discussions with National Grid Electricity Transmission, the future operator of the substation, to agree the connection of the Proposed Scheme to the approved Kiln Lane Substation. The current capacity at the substation, in the form already consented, is insufficient to accommodate the Proposed Scheme, therefore additional extension works would be needed. The Applicant is currently also seeking consent for the full build-out of Kiln Lane Substation, to ensure secured deliverability of the Proposed Scheme in the unlikely scenario that the Kiln Lane Substation is not delivered by National Grid Electricity Transmission pursuant to the Scottish Power Renewables East Anglia 1 North and East Anglia 2 consents.

2.2.15 National Grid Electricity Transmission submitted an application for consent for the Sea Link project in March 2025. There has been collaboration between both projects to minimise environmental and community impacts, including by progressing with a co-located converter station site, a shared converter station access road, and potential for sharing underground High Voltage Alternating Current cable routes.

2.2.16 A coordination opportunity has been identified for the underground High Voltage Direct Current Cable corridor in the vicinity of Theberton and Annesons Corner, where the Proposed Scheme could align its underground High Voltage Direct Current Cable corridor with the proposed Sizewell Link Road component of the Sizewell C development consent.

2.3 Proposed Offshore Scheme

Site and surroundings

2.3.1 The Proposed Offshore Scheme would extend from the Landfall site south of Walberswick across the Southern North Sea to the United Kingdom-Netherlands maritime boundary, covering approximately 182 kilometres (see **Inset 5**). It would traverse varied seabed conditions, including sand waves and existing infrastructure, within the United Kingdom territorial waters and the Exclusive Economic Zone.

Proposed Offshore Scheme components

2.3.2 The Proposed Offshore Scheme would include the following components:

a. Two high voltage direct current submarine cables: These cables would form a dual-cable system, working together to transmit up to 2 gigawatts of electricity between the United Kingdom and the Netherlands. The cables will be laid in a single trench for efficiency and protection;

b. One dedicated metallic return cable, laid in the same trench as the submarine cables. This cable would provide operational resilience by allowing each high voltage direct current cable to operate independently in the event that one fails, therefore helping to maintain partial transmission capacity;
c. One fibre optic cable, laid in the trench with the other offshore cables, which would enable real time communication and control between the United Kingdom and Dutch converter stations, supporting system monitoring and data transfer; and
d. Associated external cable protection, which would include protective coverings like rock layers or concrete mattresses to keep the cables safe in places where they either cannot be buried or where they cross other infrastructure.

2.4 Construction

Proposed Onshore Scheme

2.4.1 Subject to the development consent being granted, construction works would be expected to start in 2028, and estimated to be completed in 2032.

2.4.2 Construction of the Proposed Onshore Scheme would likely follow a phased approach, with works taking place in multiple locations at the same time.

2.4.3 Post-consent surveys would be undertaken before construction, if required, to update any findings from the assessments undertaken before the application for development consent is granted, to ensure construction is informed by the latest conditions.

2.4.4 'Enabling works', which are activities that take place before the main construction works begin, would include putting up site fencing, clearing vegetation, and establishing temporary accesses and haul roads and construction compounds.

2.4.5 Main construction works of the key components of the Proposed Scheme would involve:

a. Kiln Lane Substation: either building an extension to an existing substation building and equipment or, should the substation not be built out in advance of the Proposed Scheme, construction of the full substation, localised changes to overhead power lines, and installation of a permanent access road and drainage systems. The full build of Kiln Lane Substation would also involve activities such as top soil stripping, the installation of foundations for new structures, and the layout of steelwork.
b. Underground High Voltage Alternating Current and High Voltage Direct Current Cables: these would be installed either by digging open trenches or by using trenchless methods, such as tunnelling machinery, to lay cables underground and under roads, rivers, and environmentally sensitive areas. Along the cable route, cable connection points called joint bays, and inspection points would be installed.
c. The Converter Station: reshaping the existing land (due to the uneven ground), laying foundations, constructing steel structures and supporting buildings, and installing electrical systems; and

d. The Landfall site: a technique called horizontal directional drilling, which is a type of underground tunnelling, would be used to place protective ducts under the coastline. These would contain the cables which would be pulled through the protective ducts from offshore to connect to the cables onshore.

Inset 9: Example of open trench cable installation

2.4.6 Temporary work areas, access roads, and widened entrances would be needed during construction to allow vehicles and workers to get to and from the site.

2.4.7 After construction, the land used for the cable installations and Landfall site would be restored to its original state.

2.4.8 The maximum workforce estimated for the peak day within the peak month of works (when the most activities are scheduled across the whole of the Proposed Onshore Scheme area) is estimated at up to 669 personnel.

2.4.9 Working hours will generally be from 07:00 to 19:00 on weekdays, and from 07:00 to 17:00 on Saturdays, Sundays and Bank Holidays. The construction working hours exclude start up and close down activities which will take place up to one hour either side of the construction working hours. These activities include staff arrival, briefings, checking plant, loading equipment, compound general maintenance activities, debriefing, storing equipment and plant, and staff leaving site.

Proposed Offshore Scheme

2.4.10 Construction works for the Proposed Offshore Scheme would be divided into four main stages:

a. Pre-installation and route preparation: this would include unexploded ordnance surveys and clearance, boulder removal, the clearing of debris, and works to prepare the seabed for cable burial;
b. Landfall works: Tunnels would be drilled from the onshore Landfall out to sea, with protective ducts installed for the cables;
c. Cable installation: the two high voltage direct current cables, one dedicated metallic return cable and one fibre optic cable would be laid in a single trench in the seabed using various techniques dependent on conditions along the proposed cable route; and
d. Crossings and protection: the cable route would cross other existing infrastructure, for example pipelines and cables. Cable burial would not be possible in these places, so protective crossing point structures would need to be installed. At present it is estimated that there would be 18 such infrastructure crossings.

2.4.11 Specialised vessels to lay cables, barges, jack-up barges, and support vessels would be deployed, with operations running 24/7 where feasible for a duration of 36 months, between 2028 and 2032.

Inset 10: Example of cable pull in

2.5 Operation

Proposed Onshore Scheme

2.5.1 The Proposed Onshore Scheme would operate under National Grid standards and procedures. Kiln Lane Substation would be remotely controlled and monitored, supported by weekly on-site inspections, minor maintenance works every six months, and major maintenance works every two years. The proposed Converter Station would run continuously to convert alternating current and direct current power flows and would usually have up to 12 staff during weekdays.

2.5.2 The underground High Voltage Alternating Current and High Voltage Direct Current Cables would transmit electricity between Kiln Lane Substation, the proposed Converter Station, and the proposed Landfall. The cables would be visually inspected monthly, with more detailed inspections every 18 - 24 months. Repair works would be required should direct damage or a fault occur.

2.5.3 The proposed Landfall site would be reinstated to its original use as an agricultural field at the end of the construction, and would require only occasional inspections, with no permanent access roads. Agreements would be made with landowners to maintain access to High Voltage Direct Current and High Voltage Alternating Current Cable route areas and the Landfall.

Proposed Offshore Scheme

2.5.4 The Proposed Offshore Scheme would operate with minimal intervention once installed, as the cables and protection measures proposed are designed for long-term reliability. Routine maintenance is not anticipated, but periodic surveys would monitor the cable burial depth and condition of any external protection, with additional inspections to be conducted after severe weather events.

2.5.5 If a fault were to occur, repairs would involve locating and retrieving the affected cable section, splicing in a replacement, and reburying or protecting the cable section. These operations would use crewed specialised vessels, and could take several weeks depending on the conditions.

2.6 Decommissioning

2.6.1 Decommissioning of the Proposed Scheme is not anticipated. However, the design life of the Proposed Scheme components is approximately 40 years. The lifespan of components of the Proposed Scheme could be extended through regular maintenance and refurbishment.

Proposed Onshore Scheme

2.6.2 In the event that decommissioning occurs, all above-ground infrastructure, such as the Kiln Lane Substation and the proposed Converter Station, would be dismantled, with any equipment recycled or disposed of in line with regulations. Permanent access roads and foundations may be retained for future use by other developers. Underground ducting and High Voltage Alternating Current and High Voltage Direct Current cables would likely remain buried in place.

2.6.3 Temporary compounds and enabling works similar to those used during construction would be required, and land no longer needed would be reinstated under an agreed restoration plan. The decommissioning phase would be expected to take about two years.

Proposed Offshore Scheme

2.6.4 The decommissioning process would reverse cable installation, involving the retrieval of the buried or protected cables where feasible; however, some sections or protective materials may be left in place should removal pose a greater environmental or safety risk. The seabed would be restored as far as is practicable.

3 Summary of alternatives considered

3.1 Introduction

3.1.1 In accordance with the Environmental Impact Assessment Regulations of 2017[2], reasonable alternatives considered for the Proposed Scheme, alongside the reasons for selecting the preferred options are described.

3.1.2 Two rounds of non-statutory consultation were undertaken to inform this process. The first in late 2022, and second in late 2023 allowed the Applicant to gather feedback from local communities and interested parties. The feedback gathered through these consultation processes influenced the development of the design of the Proposed Scheme.

3.1.3 In addition, there has been and continues to be engagement with environmental and other stakeholders to discuss technical matters.

3.1.4 Strategic consideration has taken account of the wider development context in shaping the options for the Proposed Scheme including other projects, for example, East Anglia ONE North, East Anglia TWO, Sea Link, and Sizewell C.

3.2 Strategic proposal

3.2.1 The first step in planning the Proposed Scheme was to find the best places to connect the electricity link between the United Kingdom and the Netherlands. In 2017, the Applicant looked at several possible connection points on the United Kingdom side, focusing on the south-east coast due to its proximity to the Netherlands. Five sites were considered: Grain, Norwich Main, Rayleigh Main, Sizewell, and Kiln Lane. Kiln Lane was chosen because it provided the best developer and transmission capital costs, as well as the fewest technical and environmental constraints.

3.2.2 At the same time, the Applicant worked with TenneT, the Dutch electricity operator, to identify a suitable offshore converter station connection point. They agreed that areas near large, planned wind farms in Dutch waters, such as Ijmuiden-Ver and Nederwiek, would be the most practicable.

3.3 Option identification

3.3.1 The next step was to identify preferred options for each component of the Proposed Scheme: the Converter Station, the Landfall site, and onshore and offshore cable routes. A summary of the reasons the preferred options for each component is set out below:

a. For the converter station, four sites were assessed. The chosen site is close to the Kiln Lane Substation, offering opportunities to share infrastructure with

[2] The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations), Available at: https://www.legislation.gov.uk/uksi/2017/572/contents

other projects and is in a location where the natural slope of land, and existing vegetation would help reduce visual impact.

b. For the landfall site, four locations were considered. Walberswick emerged as the preferred option because it allows a shorter onshore cable route, has fewer environmental risks and lower construction complexity.
c. For the onshore cable corridor, the preferred route connects Walberswick with the chosen Converter Station site while avoiding sensitive habitats where possible.
d. For the offshore cable corridor, of the three route options considered, the route with the shortest overall distance to the Dutch connection point, with fewer infrastructure crossings and lower environmental impacts was chosen.

3.4 Design evolution

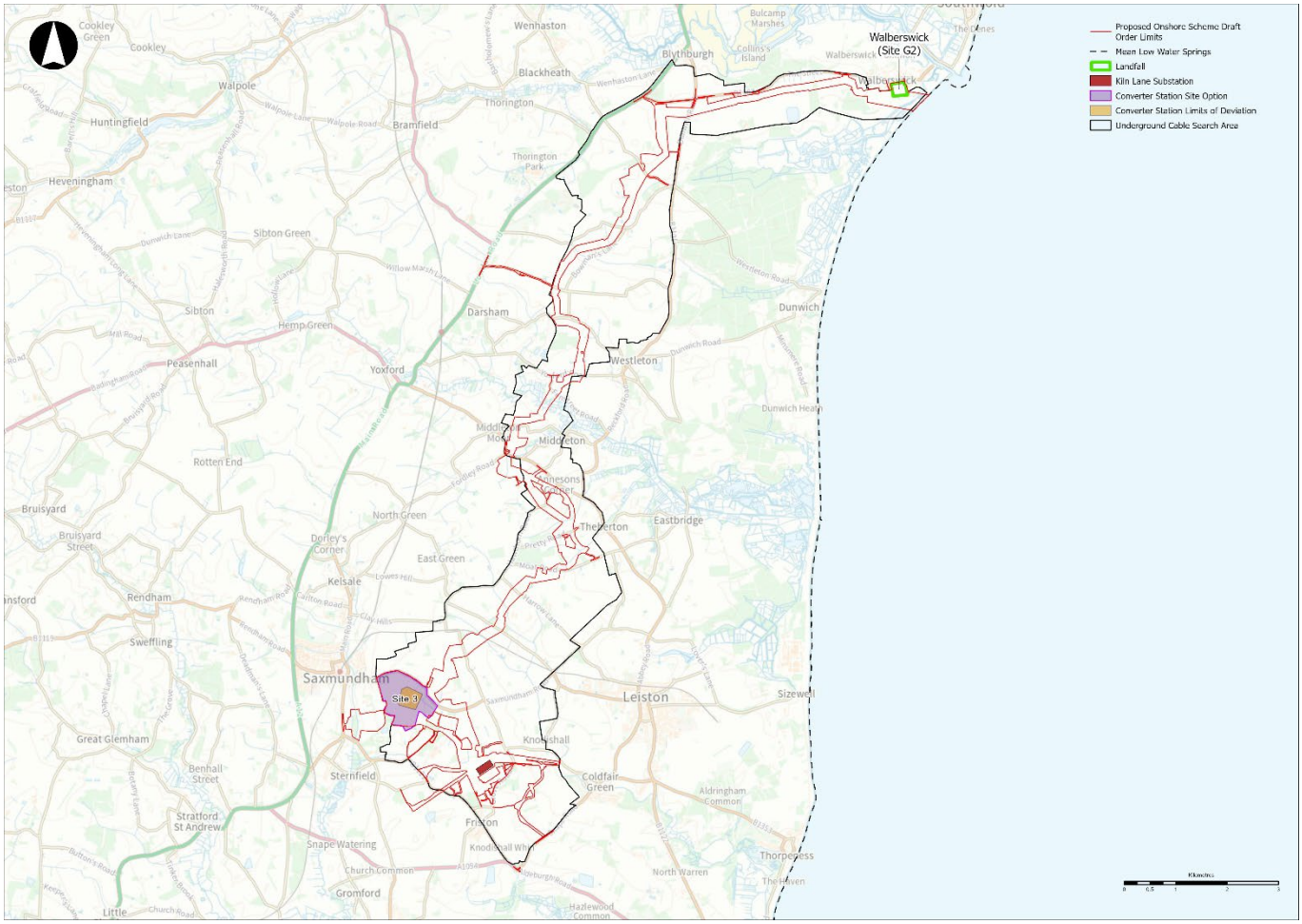
3.4.1 After selecting the preferred options, the design was refined to make it more efficient, reduce environmental impacts, and respond to stakeholder feedback.

3.4.2 For the proposed Converter Station, the layout was adjusted to work better with other projects like Sea Link, reducing the need for complex cabling and allowing space for landscaping to soften visual impacts. Access routes were reviewed, and the preferred option selected coordinated access between the Proposed Onshore Scheme and the Sea Link application, to avoid major road upgrades and minimise disruption.

3.4.3 The onshore cable routes were narrowed from wide corridors to more defined alignments, avoiding sensitive habitats, veteran trees, and flood zones where possible. Trenchless construction methods were confirmed for crossing protected areas, like the internationally designated Minsmere-Walberswick Heaths & Marshes (described in paragraph 2.2.2), to prevent habitat loss.

3.4.4 For the proposed Landfall site, the location has been refined since the scoping stage, to reduce visual impacts on nearby homes and to reduce complexity in construction. Offshore surveys identified seabed features that could affect installation, such as sandwaves or boulder fields and sensitive seabed habitats, so the route was adjusted accordingly to avoid these.

Inset 11: Proposed Scheme preferred option



4 Approach to the Environmental Impact Assessment process

4.1 Environmental Impact Assessment scoping

4.1.1 The scoping stage of the Environmental Impact Assessment process defines what environmental topics and issues should be assessed for the Proposed Scheme. In March 2024, a Scoping Report[3] was submitted to the Planning Inspectorate, outlining the Proposed Scheme's construction, operation and decommissioning activities, and identifying which topics should be included or excluded from the Environmental Impact Assessment.

4.1.2 The Planning Inspectorate consulted statutory bodies, local authorities, and other stakeholders before issuing a Scoping Opinion in April 2024[4]. This Scoping Opinion sets out the key issues and information requirements for the assessment within the Environmental Statement.

4.2 Stakeholder engagement

4.2.1 For the Proposed Scheme two rounds of non-statutory consultation were conducted (see **Paragraph 3.1.2**). The first, in late 2022, involved public exhibitions, webinars and a virtual event. The second, in late 2023, repeated these activities and gathered further feedback on additional and further refined options. Feedback received as part of these non-statutory consultation processes influenced the Proposed Scheme design, which formed the basis of the Preliminary Environmental Information Report. In addition, there has been direct and continued engagement between the Applicant and environmental stakeholders, such as the Environment Agency, Natural England, Historic England, local stakeholders, such as Local Planning Authorities Suffolk County Council and East Suffolk Council, to address technical questions and scoping issues. Each technical chapter of the Preliminary Environmental Information Report records these discussions to date and any outstanding matters.

4.3 Preliminary environmental information report approach and methodology

4.3.1 The Preliminary Environmental Information Report presents an early-stage assessment of the likely environmental effects of the Proposed Scheme. This provides an overview of the Proposed Scheme, and presents findings of this preliminary environmental assessment as part of the Statutory Consultation so

[3] Scoping Report can be found here: https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN020033-000046-LION%20-%20Scoping%20Report%20-%20Main%20Text.pdf

[4] Scoping Opinion can be found here: https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN020033-000103-LION%20-%20Scoping%20Opinion.pdf

that consultees can develop a greater understanding of the Proposed Scheme and potential effects. Effects can be adverse or beneficial and are assessed in terms of how 'significant' they would be. The Environmental Impact Assessment is primarily concerned with 'likely significant effects' and not those unlikely to be significant.

4.3.2 The Environmental Impact Assessment will continue prior to submission of the application for development consent, and its findings reported in an Environmental Statement.

4.3.3 Given the size of the Proposed Scheme, and the continuing design refinement, the Environmental Impact Assessment has assessed maximum design features. This is line with the 'Rochdale Envelope'[5] approach and uses a reasonable 'worst case' scenario of what is proposed, to ensure the effects on the environment are fully considered and impacts are not underestimated despite the design not being entirely finalised at this stage.

4.3.4 Each technical assessment considers what exists at the site now, predicts potential effects during construction, operation and decommissioning of the Proposed Scheme, and evaluates their significance using relevant industry criteria. Predicting where significant adverse effects are likely to arise enables a review and, as far as possible, allows for identification of potential mitigation measures and/or modification of the design or construction methods to reduce those effects, to ensure that impacts on the local community and environment are minimised as far as possible. This is reflected in the plans showing the Proposed Scheme.

4.3.5 The plans are supported by written design principles that have been informed by and relied on in the assessment process. In addition, control measures[6] have been developed and are set out in an Outline Onshore Code of Construction Practice and a draft Offshore Construction Environmental Management Plan.

4.3.6 Through an iterative assessment process, there may be further measures, termed additional mitigation, that can be secured through the planning process to address significant adverse effects on the environment.

4.3.7 Opportunities for environmental enhancement and preliminary monitoring proposals are also included.

4.3.8 There are other developments that are being progressed in the area. These will be factored into the assessment to identify if there may be an escalation in the anticipated environmental effects by these projects acting together.

[5] For further information on this approach, refer to the Planning Inspectorate guidance on the Rochdale Envelope available at: https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-advice-note-nine-rochdale-envelope/nationally-significant-infrastructure-projects-advice-note-nine-rochdale-envelope

[6] Control measures are practical steps taken during construction to manage and reduce environmental impacts such as those required by existing legislation or standard industry practices.

4.4 Environmental Statement

4.4.1 Feedback received through Statutory Consultation will help inform the development of the Proposed Scheme. This will be subject to a further Environmental Impact Assessment, which will be set out in an Environmental Statement to be submitted with the application for development consent.

4.4.2 The Environmental Statement will report the final findings of the Environmental Impact Assessment process, and be submitted as part of the application for development consent.

4.4.3 The Environmental Statement will report how relevant feedback from stakeholder engagement and Statutory Consultation on findings presented within the Preliminary Environmental Information Report have informed further design refinement of the Proposed Scheme.

5 Summary of Preliminary Environmental Information Report findings

5.1 Aspects assessed

5.1.1 The preliminary assessment considers the aspects of the environment set out in **Table 1**.

Table 1: Aspects assessed in the Preliminary Environmental Information Report for the Proposed Scheme

Proposed Scheme Components	Aspects
Propose Onshore Scheme	Agricultural Land and Soils
	Air Quality
	Ecology and Biodiversity
	Geology and Contamination
	Health and Wellbeing
	Historic Environment
	Hydrology, Hydrogeology, Flood Risk and Drainage
	Landscape and Visual
	Material Assets and Waste
	Noise and Vibration
	Socio-Economics, Recreation and Tourism
	Traffic and Transport
Proposed Offshore Scheme	Marine Physical Environment
	Intertidal and Subtidal Benthic Ecology
	Fish and Shellfish
	Intertidal and Offshore Ornithology
	Marine Mammals

Proposed Scheme Components	Aspects
	Shipping and Navigation
	Commercial Fisheries
	Other Marine Users
	Marine Archaeology
Site-wide	Climate Change and Carbon
	Cumulative effects

5.1.2 Each aspect of the assessment has identified the relevant environmental receptors, their sensitivity to change, and identified likely effects on these receptors based on a predicted change due to the construction, operation and maintenance, and decommissioning of the Proposed Scheme. For each aspect, a summary of the Environmental Impact Assessment findings at this stage is provided, with further details available in the Preliminary Environmental Information Report.

5.1.3 In all cases, the final assessment of the Proposed Scheme will be provided in the Environmental Statement, which is to be submitted as part of the application for development consent and will take account of stakeholder engagement.

5.2 Onshore findings

Agricultural land and soils

5.2.1 An assessment of impacts to agricultural land and soil as a result of the Proposed Onshore Scheme has been conducted, focusing on the temporary and permanent loss of agricultural land, loss of or damage to soil resources, and impacts on agri-environment schemes.

Construction

5.2.2 Construction of the Proposed Onshore Scheme, based on a worst case assessment and without mitigation, may result in significant adverse effects due to the temporary loss of approximately 620 hectares of agricultural land whilst construction works take place. Land would predominantly be required temporarily during the construction phase, however, given the scale of the Proposed Onshore Scheme, it is considered that this temporary loss of land would be an adverse effect which is considered **significant**.

5.2.3 In addition, the Kiln Lane Substation and proposed Converter Station, and their respective permanent access roads would require a permanent change of land use and therefore loss of agricultural land, which is considered a **significant** adverse effect. Without mitigation, the Proposed Scheme would have significant

effects on the soil resource due to soil disturbance arising from construction activities (e.g., compaction), which is considered to be a temporary **significant** effect during the construction phase.

Operation and maintenance

5.2.4 Operation and maintenance effects on agricultural land and soil resources have been scoped out[7] of the assessment and agreed with the Planning Inspectorate via the Environmental Impact Assessment scoping process (for example due to the small scale and temporary nature of operational maintenance activities).

Decommissioning

5.2.5 Decommissioning phase effects are **not anticipated to be significant**, as it is assumed that:

a. The Kiln Lane Substation site, and the proposed Converter Station site would remain permanently in non-agricultural use and therefore there would be no further effects on agricultural land or soils to those already identified in the construction phase;
b. The proposed Underground Cables will likely remain in-situ, and therefore there would be no further effects on agricultural land or soils; and
c. The proposed Landfall Site will be returned to agricultural use after temporary decommissioning activities.

Residual effects

5.2.6 Mitigation measures would include careful route refinement to reduce land loss, post-construction restoration of land and soil, and the implementation of an Outline Soil Resources Management Plan alongside the Outline Onshore Code of Construction Practice. Further, the principles of the Outline Onshore Code of Construction Practice would continue to apply to maximise the likelihood of successful reinstatement of land and soil profiles in relation to the proposed Underground Cable routes and Landfall site. These measures are expected to reduce residual effects on soil resources to be **not significant**, while the effects due to loss of agricultural land would remain **significant**.

5.2.7 Agricultural Land Classification surveys are ongoing and will inform the full assessment reported within the Environmental Statement.

Air quality

5.2.8 The air quality assessment has considered the potential impacts as a result of the Proposed Onshore Scheme. Key sources of emissions include construction dust, traffic, and non-road mobile machinery. Baseline air quality across the study

[7] This associates with the scoping stage of an Environmental Impact Assessment, where the scope and level of detail of the environmental information to be included is determined. 'Scoping out' refers specifically to the exclusion of certain environmental topics or receptors from an assessment, on the basis that they are unlikely to be significantly affected by the Proposed Scheme.

area is generally good, with pollutant concentrations well below the national standards.

Construction

5.2.9 With the implementation of mitigation measures such as dust suppression (for example, reducing airborne dust by spraying water in the air), use of low-emission machinery, and site layout planning, adverse effects from construction dust on nearby homes and on ecological habitats and species are **not anticipated to be significant**. As such, no additional mitigation or monitoring is currently proposed.

5.2.10 Potential environmental effects related to construction traffic upon human and ecological receptors could not be determined as part of the Preliminary Environmental Information Report as more detailed modelling is required; this will be presented within the subsequent Environmental Statement.

Operation and maintenance

5.2.11 Potential air quality impacts during the operational phase have not yet been assessed as further design refinement, including specification of emergency operation generators, is ongoing for the proposed Converter Station and the Kiln Lane Substation. This information will be presented as part of the subsequent Environmental Statement.

Decommissioning

5.2.12 The works which would take place during decommissioning of the Proposed Onshore Scheme are expected to be of a similar scale (or less extensive) to that associated with the construction phase. Therefore, **no significant adverse effects** are anticipated at decommissioning.

Ecology and biodiversity

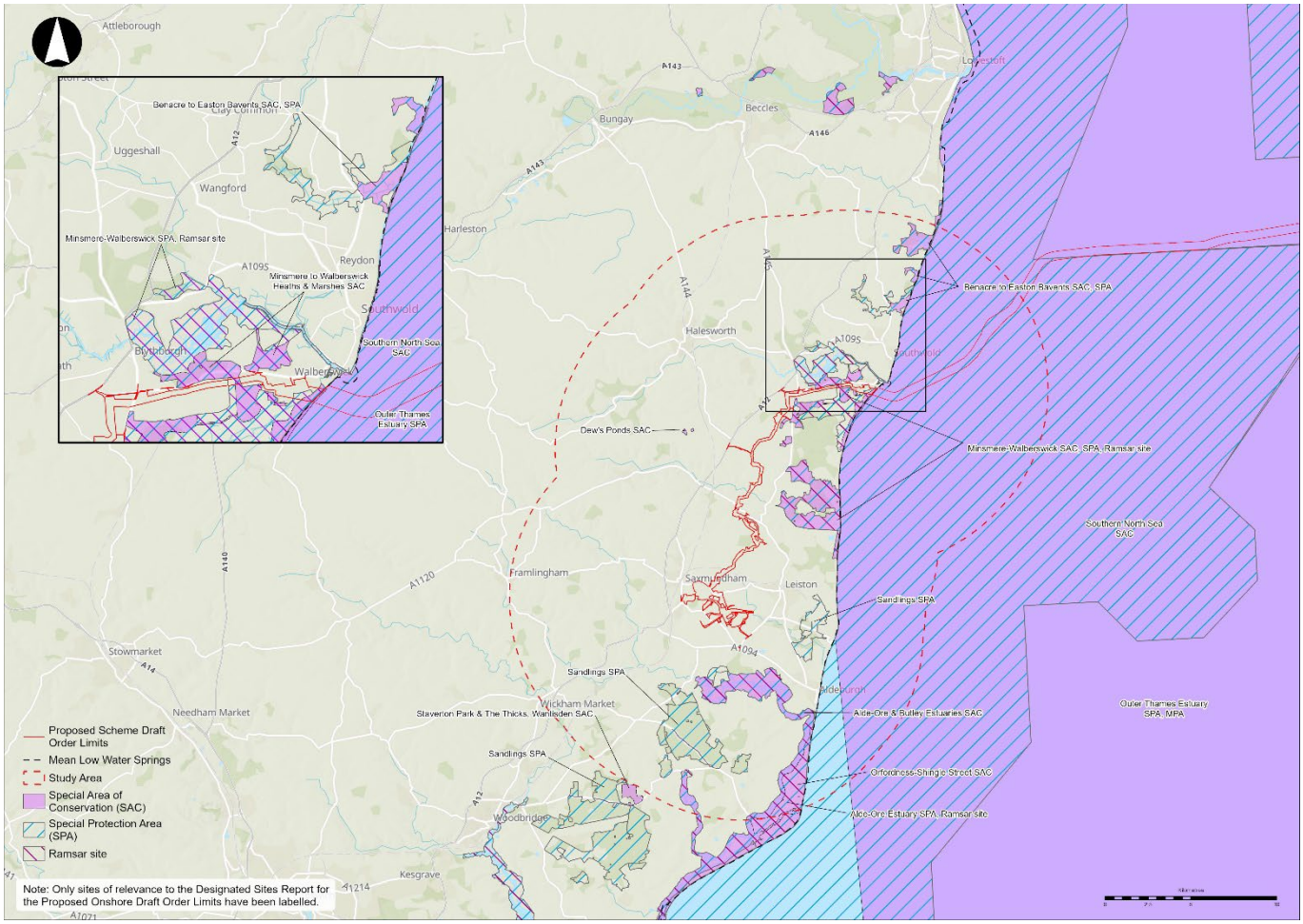
5.2.13 The ecology and biodiversity assessment has considered the potential impacts of the Proposed Onshore Scheme on a wide range of sensitive ecological features, including internationally and nationally designated sites, priority habitats, and protected species. Extensive surveys and stakeholder engagement has been conducted to identify and understand the local wildlife and habitats.

5.2.14 There are multiple ecological statutory designated sites of international importance within the study area (which is defined as 10km for most sites and 30km for sites designated for bats – see **Inset 12**). To help with the presentation of the assessment in the chapter, these statutory designated sites have been grouped together and include:

a. Minsmere – Walberswick statutory designated sites;
b. Marine statutory designated sites;
c. Pakefield, Benacre and Easton Bavents statutory designated sites;
d. Alde-Ore statutory designated sites;
e. Statutory designated sites east and south of Friston; and

f. Other statutory designated sites.

Inset 12: Nature conservation designated sites of international importance



Construction

5.2.15 Embedded mitigation[8] measures established as part of the Proposed Onshore Scheme include the use of trenchless cable installation methods under sensitive habitats, 'micro-siting'[9] to avoid veteran trees, and the establishment of habitat buffers, all with the intention of minimising environmental effects.

5.2.16 The assessment has found that there are **unlikely to be significant effects** at an international scale.

5.2.17 Localised temporary adverse effects during construction have been identified, including potential effects associated with habitat loss, and disturbance to protected species. The habitat loss of mature trees, hedgerows and woodland

[8] Embedded mitigation measures are measures that are intentionally included within the design of the Proposed Scheme in order to assist in protecting the environment. Embedded mitigation measures are not added as a result of the Environmental Impact Assessment, they are part of the Proposed Scheme from the start. For example, an embedded mitigation measure would be choosing a layout that avoids sensitive habitats or wildlife areas.

[9] Micro-siting refers to the precise placement and orientation of a structure of infrastructure element within a defined area.

during the construction phase are considered to be adverse effects which are **significant** at a County level. Further, during the construction phase, the deterioration and potential indirect loss of veteran trees is considered to be significant at the National scale; however, bespoke tree management and protection measures form additional mitigation such that **significant effects are not considered to be likely**.

5.2.18 Where these effects cannot be mitigated, compensation measures[10] are being developed as part of the Environmental Impact Assessment. Opportunities to incorporate environmental enhancements, including biodiversity net gain, have been identified through the design development process to date and will be progressed and reported in the Environmental Statement.

5.2.19 During operation and maintenance, a sensitive lighting strategy is being developed for the Kiln Lane Substation to maintain a dark east-to-west corridor for bat foraging and commuting to avoid significant adverse effects. **No significant effects** are anticipated.

5.2.20 Monitoring is proposed to be undertaken to track the success of implemented mitigation and identify interventions if needed.

Operation, maintenance and decommissioning

5.2.21 After mitigation, **no significant effects** are anticipated for ecological features during the operational and maintenance and decommissioning phases.

Geology and contamination

5.2.22 The assessment has considered the potential impacts on geology, geodiversity and land contamination as a result of the Proposed Onshore Scheme, with key issues including the risk of disturbing contaminated land, impacts on groundwater and human health, and potential exacerbation of coastal erosion.

5.2.23 There are no designated geological sites within the Draft Order Limits, however, baseline data shows that the Proposed Onshore Scheme would cross a Principal Aquifer (important at the strategic scale (e.g., regional) as defined by the Environment Agency and British Geological Survey). Nearby potential contamination sources include historic landfills, infilled pits, and former military sites.

5.2.24 The design incorporates embedded measures, such as avoiding known landfill sites, using trenchless installation techniques at the proposed Landfall to protect the coastline and potential future erosion, and implementing pollution prevention and health and safety controls.

[10] Compensation measures are provided where practicable when adverse effects cannot be avoided or sufficiently reduced through mitigation measures.

Construction

5.2.25 Construction activities associated with the Proposed Onshore Scheme have the potential to release new and existing contaminants into groundwater (e.g., by excavating the ground). However, the embedded design and control measures and monitoring aligned with legal requirements contained within the Outline Onshore Code of Construction Practice would prevent significant effects during construction. **No significant effects** are anticipated.

Operation, maintenance and decommissioning

5.2.26 **No significant effects** are anticipated during operation and maintenance, or decommissioning, as ground disturbance would be minimal and any contamination would have been addressed during construction.

Health and wellbeing

5.2.27 The assessment has examined health and wellbeing impacts through key determinants such as:

a. Environmental amenity – which comprises aspects of the physical environment that contribute to the quality of public and private spaces.
b. Active living – which comprises intentional and unintentional physical activity.
c. Community access – which relates to accessibility of healthcare, community and public services that has a direct positive effect on mental and physical health.
d. Employment.

5.2.28 Baseline studies show that the population in the study area, which includes rural communities in East Suffolk, generally experience good health and low levels of deprivation, although there are pockets of vulnerability and an aging population.

5.2.29 Embedded mitigation and control measures from other environmental topic assessments are relevant to the health and wellbeing assessment (i.e., some embedded design measures to address potential noise impacts have the ability to minimise the impacts of the Proposed Scheme on health and wellbeing). Such measures include noise barriers, and dust suppression measures (e.g., by supressing airborne dust by spraying water in the air), traffic management measures, diversions for public rights of way, and clear communication strategies. Opportunities to reduce potential impacts from construction traffic, including noise and delays on local routes, will be explored further as part of ongoing design and assessment work. These may include general traffic management approaches and screening where appropriate. Opportunities to reduce potential impacts from noise during construction and operation will be explored as part of ongoing design and assessment work.

Construction

5.2.30 Construction traffic, noise, air quality and visual impacts may reduce the perceived quality of the environment. Further, during periods of construction,

artificial lighting may diminish the tranquillity of the environment. Temporary diversions and realignments of public rights of way would occur. At this stage of the assessment, **significant effects** are anticipated for receptors around the proposed Landfall site with regard to environmental amenity, and access to community facilities (including for vulnerable groups) during the construction phase. As such, consideration will be given to mitigation measures that could help minimise disruption, particularly in relation to potential traffic delays, access to essential services, and to noise. All such measures will be explored as part of the ongoing EIA and will be presented in the subsequent Environmental Statement.

5.2.31 However, the assessment has concluded that the remaining effects for the assessed health determinants across the Proposed Onshore Scheme elements during construction and decommissioning phases would be minor adverse and temporary (**not significant**).

5.2.32 Employment during construction is assessed to offer minor beneficial population level health effect which is considered to be **not significant**. Operation and maintenance

5.2.33 The assessment has 'scoped out' effects on health and wellbeing during operation and maintenance, as significant effects were not considered to be likely, as agreed with the Planning Inspectorate through the Environmental Impact Assessment Scoping process.

Decommissioning

5.2.34 Furthermore, the assessment has identified that effects during the decommissioning phase are likely to mirror those with the construction phase.

Historic environment

5.2.35 The assessment has considered potential impacts of the Proposed Onshore Scheme on the historic environment, including designated heritage assets, non-designated archaeological remains, and historic landscape character.

5.2.36 Baseline surveys and data collection identified numerous heritage assets, including over 200 designated assets within 1 kilometre of the Proposed Onshore Scheme, and several non-designated archaeological sites.

5.2.37 The design incorporates measures to minimise impacts through careful routing, embedded mitigation, and landscape reinstatement. These include the protection of heritage assets, implementation of archaeological strategies, and further safeguards through construction and archaeological mitigation plans. Mitigation measures (including landscaping proposals) are still under development at this stage and not included as part of the preliminary assessment. All such measures will be presented within the subsequent Environmental Statement.

Construction

5.2.38 As part of the assessment methodology, effects as a result of permanent construction impacts (for example construction of a building) are considered in the scope of the construction assessment only. It is recognised that permanent construction impacts are likely to exist in the operational phase (for example the impacts on setting[11] as a result of the Proposed Scheme) but these are not included in the operational assessment to avoid double counting of effects. The scope of assessment for operational effects is limited to impacts due to operational activities that are new or additional to impacts included in the construction assessment.

5.2.39 **Significant effects** during construction relate to permanent changes to the setting of the following heritage assets around the Kiln Lane Substation site and the proposed Converter Station site:

a. Hurts Hall (Grade II listed);
b. Church of St Mary (Grade II* listed);
c. Woodside Farmhouse (Grade II listed);
d. High House Farm (Grade II listed); and
e. Little Moor Farm (Grade II listed).

5.2.40 Through excavation and recording[12], adverse effects on archaeology are **not anticipated to be significant**. Other potential effects on heritage assets and historic landscape character are assessed as **not significant**.

Operation, maintenance and decommissioning

5.2.41 **No significant effects** are anticipated during operation and maintenance, or decommissioning.

5.2.42 Monitoring of works (if required) may be carried out during the construction phase, to ensure the success of the archaeological mitigation strategy.

Hydrology, hydrogeology and drainage

5.2.43 This assessment considered impacts from the Proposed Onshore Scheme on surface water, groundwater, water-dependent terrestrial ecosystems, water resources, and flood risk.

5.2.44 The study area includes rivers, as well as minor watercourses and drainage ditches. The Proposed Onshore Scheme overlies Principal and Secondary[13] Aquifers in a water-stressed region, with private water supplies and licenced

[11] In this context, 'setting' refers the surroundings in which a heritage asset is experienced. This includes not just what is seen around a heritage asset, but also how the area feels, sounds and functions in its environment.

[12] Where construction works are anticipated to disturb below-ground archaeological remains, 'recording' means that archaeologists will carefully investigate and document anything found before it is excavated from its location. This process is guided by a 'Written Scheme of Investigation', which is a formal plan agreed with local authorities and heritage experts.

[13] A Secondary Aquifer is a rock or soil layer that can hold and allow groundwater to move, but usually only provides small or local water supplies, not large-scale public water. They are less productive than Principal Aquifers.

abstractions. Some areas face high surface water flood risk, and Friston has a history of flooding as a result of rainfall.

Construction, operation and maintenance, and decommissioning

5.2.45 Impacts to surface water quality and quantity, groundwater quality and quantity, and flood risk could occur during the construction phase (from activities such as excavation and compaction arising from construction plant); however, the assessment has concluded that with embedded design and control measures in place (e.g., routing to avoid sensitive water environment receptors, avoidance of medium and high risk flooding areas where feasible, trenchless construction methodology, and implementation of Sustainable Drainage Systems[14]), effects are **not likely to be significant** for hydrology, hydrogeology and drainage across all Proposed Onshore Scheme phases.

Landscape and visual

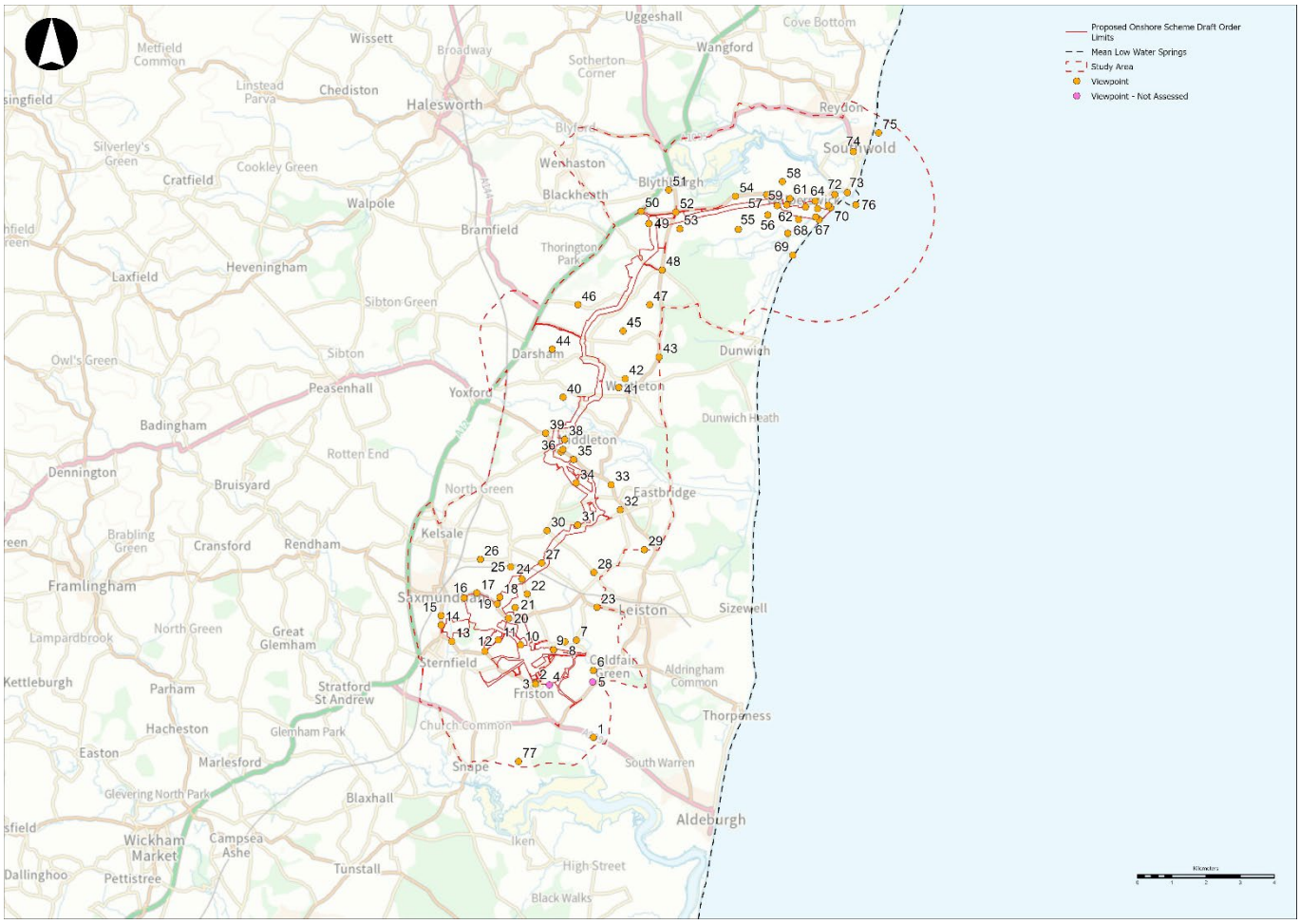
5.2.46 This assessment considered impacts from the Proposed Onshore Scheme on landscape character and visual amenity.

5.2.47 The study area has been informed by modelling where the Proposed Scheme may be visible from (using 'zones of theoretical visibility'[15]), representative viewpoints (see **Inset 13**) and fieldwork surveys carried out to date.

[14] Sustainable Drainage Systems are modern approaches to managing surface water to reduce flood risk, improve water quality, and enhance the environment. Instead of quickly diverting rainwater into sewers, Sustainable Drainage Systems slow it down and treat is using natural processes, for example filtering through soil, storing in ponds or swales, or allowing it to soak into the ground.

[15] A zone of theoretical visibility is a computer generated tool that shows where a proposed development *might* be seen from, based purely on landform and elevation.

Inset 13: Landscape viewpoints



5.2.48 Baseline conditions considered in the assessment include:

a. Topography and hydrology;
b. Geology and soils;
c. Landcover and vegetation patterns;
d. Land use and settlement;
e. Movement and connectivity;
f. Tourism and recreation;
g. Tranquillity;
h. Night-time lighting;
i. Landscape designations;
j. National landscape designations;
k. Suffolk & Essex Coast & Heaths National Landscape;
l. Suffolk Heritage Coast;
m. Other relevant designations;
n. National Character Areas;
o. Regional, county, district and local landscape character assessments; and
p. Visual baseline, including public rights of way, promoted long distance routes and public open space.

Construction

5.2.49 During construction, temporary adverse effects are anticipated which are considered to be **significant**. These are associated with activities such as the establishment of construction compounds and haul roads, earthworks and excavation, temporary use of construction plant and cranes, temporary displacement of arable land and changes to land use and lighting for night-time working). The effects include a reduction in existing tranquillity, and visual disturbance for locals and visitors. **Significant** residual effects arising from the construction have been identified for some visual receptors such as users of public rights of way, residents of local communities and road users.

5.2.50 Further, the preliminary assessment has concluded that although construction activity (such as a jack up barge[16], and vessels) would be visible and would temporarily affect the character of the nearshore waters, the impact would **not be significant** due to the localised and temporary nature of the works, and further supported by the fact that such activity is already a feature of the seascape.

Operation and maintenance

5.2.51 Once operational, most adverse effects will diminish as new tree planting becomes established, and the land is restored. By year 15 of operation, most adverse effects are expected to become minor or negligible (**not significant**), with localised moderate adverse (**significant**) effects remaining near permanent infrastructure, such as the Kiln Lane Substation.

5.2.52 **Significant** residual effects are predicted during the operation and maintenance phase upon Landscape Character Areas and Local Landscape Character Areas, associated with the removal of existing vegetation where trenchless construction methodologies are not proposed. As such, there may be some changes where trees and larger shrubs cannot be replaced in the same locations they have been removed from. Mitigation measures are therefore being developed as part of the ongoing Environmental Impact Assessment.

5.2.53 No operational residual effects have been assessed in the Seascape Character Area as once construction is complete and the Proposed Scheme is operational, there would be no permanent above-ground infrastructure in the nearshore waters or visible offshore elements that would alter the seascape character.

5.2.54 The Proposed Scheme is not expected to compromise the distinctive natural features of the National Landscape. Long term management plans and ongoing monitoring of environmental enhancements seeking to protect and, where possible, improve the area's landscape character and visual amenity over time are being developed.

[16] A jack up barge is a type of mobile platform used in offshore construction, especially for work in shallow waters. It has long legs that can be lowered to the seabed to lift the platform above the water surface, creating a stable work area unaffected by waves.

Material assets and waste

5.2.55 The assessment has considered the impacts of the Proposed Onshore Scheme on material resources, such as aggregates, soils, concrete and waste.

5.2.56 Embedded design measures include using a waste management framework which prioritises the prevention, and reduction of material excavation, before their reuse. This framework would be detailed and implemented during construction through a Materials Management Plan and Site Waste Management Plan. Additional measures may include sourcing sustainable materials, off-site construction, and segregation of waste streams.

Construction

5.2.57 The construction phase would require quantities of materials, such as aggregates, cement, asphalt, and steel. It is estimated that the volume of materials needed for the construction of the Proposed Onshore Scheme represents a negligible portion of regional and national material availability. Construction would generate excavated material; the majority of which would, where feasible, be reused as part of the Proposed Onshore Scheme. As with the majority of construction projects, waste will be generated; however associated effects are considered to be negligible due to the capacity that existing landfills have to receive construction waste. The effect on waste infrastructure is assessed as **not significant**.

Operation and maintenance

5.2.58 Operation and maintenance effects have been 'scoped out' of the assessment, as significant effects were not considered likely through the Environmental Impact Assessment Scoping process.

Decommissioning

5.2.59 The preliminary assessment has concluded that impacts from the decommissioning phase are unlikely to be worse and/or materially different from the construction materials/waste impacts.

Noise and vibration

5.2.60 The assessment considered the potential noise and vibration impacts as a result of the Proposed Onshore Scheme on sensitive receptors.

5.2.61 The predominantly rural context of the study area is characterised by relatively low background sound levels and main sources of noise include distant traffic, farming, and natural sources like birds and the sea. The relatively quiet environment is considered particularly sensitive to changes in noise.

5.2.62 Embedded mitigation measures included in the construction noise assessment incorporate best practicable means to mitigate impacts, such as careful selection of construction machinery, placement of acoustic barriers, and restricted working

hours where appropriate. At this stage, the assessment presents a precautionary approach with no additional mitigation measures beyond the embedded mitigation. Additional mitigation measures will be further defined and included in the assessment in the Environmental Statement.

Construction

5.2.63 During construction, daytime activities are assessed to be **unlikely to result in significant effects** and therefore do not require additional mitigation over and above the embedded and control measures. Continuous 24-hour horizontal directional drilling works at the Landfall site would be needed during construction (as there will be instances where when the drill begins its work, it cannot stop). However it is not anticipated that 24-hour working will be required to be continuous for the entire period of these construction activities. Longer periods may be necessary in exceptional circumstances, such as unforeseen delays or emergencies. A temporary **significant** adverse effect at night-time for nearby properties in Walberswick have been identified based on a reasonable worst-case assessment. As such. additional mitigation measures are being developed as part of the ongoing Environmental Impact Assessment to minimise effects as far as possible. All such measures will be presented in the subsequent Environmental Statement.

5.2.64 The assessment of potential effects at sensitive receptors arising from construction traffic noise and vibration, will be undertaken as part of the Environmental Statement.

Operation and maintenance

5.2.65 Operational noise from the proposed Converter Station and Kiln Lane Substation is anticipated to be **not significant**, as embedded mitigation such as acoustic enclosures around noisy plant (e.g., transformers), and noise attenuation and screening (e.g., for air handling units and cooling towers) has been incorporated into the design of the Proposed Scheme. For the identified receptors, the predicted operational noise levels do not exceed the existing background sound level or levels are well below the World Health Organisation guidelines for health and quality of life. Therefore **no significant** residual effects are considered likely.

5.2.66 No significant construction or operational vibration effects are anticipated, and operational traffic noise is expected to be minimal. Furthermore, maintenance activities during the operation and maintenance phase have been considered; and due to their nature and duration, supported by the fact that they would be scheduled during daytime hours, **no significant effects** are anticipated.

Decommissioning

5.2.67 If the Proposed Scheme is decommissioned, the works that would take place during this phase are expected to be similar (or less extensive) than those required for the construction phase. It is unlikely that decommissioning activities

at the proposed Landfall site would need to take place during the night-time; therefore, associated impacts are anticipated to be lesser than those associated with construction. The assessment presented for the construction phase is therefore representative of the construction phase.

Socio-economics, recreation and tourism

5.2.68 The assessment has considered the potential impacts of the Proposed Onshore Scheme on employment, the labour market, worker accommodation, public rights of way, recreational routes, community facilities, visitor/tourism facilities, local businesses, and development land.

5.2.69 Control measures include trenchless installation of cables to maintain access to public rights of way and recreational routes, managed public rights of way diversions, maintaining access to properties and businesses, reinstating land which is used temporarily to its original condition, and applying best practicable means for noise and traffic control measures comprised within the Outline Onshore Code of Construction Practice.

Construction

5.2.70 Construction is anticipated to generate temporary employment benefits; the assessment upon employment and labour market will be presented as part of the subsequent Environmental Statement, when the necessary information is available. Analysis undertaken as part of the ongoing Environmental Impact Assessment indicates that there is sufficient capacity in the local accommodation market to temporarily house workers, **no significant effects** are anticipated.

5.2.71 Public rights of way and recreational routes will remain accessible through managed diversions, while community facilities, visitor attractions, and most businesses are expected to experience only minor disruptions. One local business in proximity to the proposed Converter Station may experience an adverse effect which is considered **significant** due to associated land being located partially within the Draft Order Limits (where a proposed permanent access road would be located). Further discussions will take place with the associated landowner as the design of the Proposed Scheme progresses and mitigation is considered further to minimise effects as far as possible.

5.2.72 Assessment on agricultural businesses will be undertaken following greater maturity of the design and reported in the Environmental Statement.

Operation and maintenance

5.2.73 During the operation and maintenance phase, only negligible effects are expected which are **not considered to be significant**, as employment will be limited to maintenance activities.

Decommissioning

5.2.74 Decommissioning impacts are anticipated to be similar to or less than those during construction.

Traffic and transport

5.2.75 The assessment has considered the potential impacts of the Proposed Onshore Scheme on traffic and transport.

5.2.76 A preliminary qualitative[17] assessment of the likely significant effects in relation to traffic and transport has been undertaken using professional judgement, informed by analysis of the baseline conditions, and supported by site surveys.

5.2.77 Detailed transport modelling and assessment will be set out in the subsequent Environmental Statement, when the required data has been fully captured and the design is further developed.

5.2.78 The Proposed Onshore Scheme includes embedded mitigation and control measures such as trenchless crossings under existing roads and railway lines, construction traffic management, monitoring, and travel plans to minimise impacts and promote sustainable travel during construction and minimise adverse effects as far as possible. A full assessment of traffic flows, cumulative impacts with other projects, and further mitigation measures as appropriate will be reported in the Environmental Statement.

Construction

5.2.79 The preliminary qualitative assessment has concluded that there is potential for **significant** effects at a limited number of road links and junctions during the construction phase. These effects are associated with congestion and delays for road users, highway safety (based on safety concerns raised by Suffolk County Council), traffic severance for non-motorised users of the road network, and on pedestrian and cyclist amenity. Traffic modelling will be undertaken to clarify and update the qualitative assessment, and will be presented in the subsequent Environmental Statement, along with a further Outline Code of Construction Practice and Outline Construction Traffic Management Plan that would contain control measures to manage and minimise effects on the highway network as far as possible. Further additional mitigation will be developed as part of the Environmental Impact Assessment (if required) with the intention of reducing effects to a level that is not significant. The construction of the Proposed Onshore Scheme would also require the temporary diversion of public rights of way, which is assessed as likely to give rise to **significant** effects. Additional mitigation measures are being developed with the intention of minimising

[17] A 'qualitative' assessment refers to looking at the characteristics and general trends of the road network (in this case), rather than quantitative modelling and statistical calculations. The modelling assessment will be presented in the Environmental Statement.

potentially significant effects and will be presented within the subsequent Environmental Statement.

Operation and maintenance

5.2.80 The operation and maintenance phase of the Proposed Scheme has been assessed as unlikely to have any substantial impacts due to the minimal level of traffic anticipated during this phase of the Proposed Scheme. The assessment is therefore confined to walkers, cyclists and horse riders of public rights of way who may experience increased journey distance due to the permanent diversions/realignment of the public rights of way.

5.2.81 Detailed assessment work will be undertaken as part of the Environmental Impact Assessment process to inform the design.

5.3 Offshore findings

Marine physical environment

5.3.1 The assessment has considered the potential impacts of the Proposed Offshore Scheme on the marine physical environment, including seabed and coastal morphology (i.e. the shape and features of the shoreline), sediment, and water quality. Baseline data shows a dynamic seabed dominated by sand and gravel, with sand waves present along parts of the route, and generally good water and sediment quality.

5.3.2 Potential adverse effects as a result of construction include temporary seabed disturbance and short-term increase in suspended sediment concentrations (i.e. the amount of particles in the water) from sand wave clearance and cable installation. Modelling predicts these effects will be short-lived, localised, and within natural variability, with **no significant adverse effects** on designated sites, bathing waters, or water quality. During operation and maintenance, the risk of cable exposure from coastal erosion is low due to deep burial at landfall, and any temperature increase in seabed sediment is negligible. Decommissioning impacts are expected to be similar or smaller than those during construction.

5.3.3 Embedded mitigation includes trenchless landfall installation, cable burial where feasible, local reuse of excavated material, and controlled use of external protection, with compliance secured through an Offshore Construction Environmental Management Plan and Marine Pollution Contingency Plan. No residual effects are expected following the implementation of these design and control measures.

Intertidal and subtidal benthic ecology

5.3.4 This assessment covers the impacts of the Proposed Offshore Scheme on marine habitats and species living on or in the seabed, focusing on both the intertidal zone (the area exposed at low tide) and the subtidal zone (always

underwater). Comprehensive surveys have shown that the seabed along the route is dominated by sand and mixed sediments, supporting a diverse range of marine life. While some areas contain features of conservation interest, none currently meet the criteria for highly protected habitats.

5.3.5 Construction activities could produce adverse effects such as the loss and disturbance of seabed habitats, increased suspended sediments, and underwater noise, potentially harming sensitive species and habitats. Operation and maintenance could also result in habitat loss from cable protection, localised heating, and electromagnetic fields affecting organisms. Decommissioning effects are expected to be similar to those during construction.

5.3.6 To minimise effects, embedded mitigation measures include trenchless installation cables at landfall to avoid disturbing sensitive intertidal habitats, bundling and burying cables where possible to reduce electromagnetic and thermal effects, and micro-siting to avoid important seabed features. The cable route has been carefully selected to avoid direct impacts, and management plans will be in place to address pollution risks and biosecurity. With the proposed mitigation in place, any effects will be minor or negligible, and **no significant adverse effects are expected**.

Fish and shellfish

5.3.7 The assessment considers the potential impacts of the Proposed Offshore Scheme on fish and shellfish in the Southern Sea, from the Suffolk Coast to the United Kingdom-Netherlands boundary. The study area supports a diverse range of species, including commercially important species such as whelk, crab, lobster, and sole. It also supports several prey species such as herring and sandeel which support marine mammals and seabirds. The area also contains important spawning and nursery grounds for several species.

5.3.8 Potential adverse effects during construction, operation and maintenance, and decommissioning include temporary disturbance of the seabed, changes in water quality from suspended sediments, underwater noise, electromagnetic fields from buried cables, and minor temperature increases in seabed sediments. These effects are predicted to be localised, short-term, and within natural variability. Sensitive species, such as herring and sandeel, were specifically considered, with findings indicating that there were suitable habitats within the study area. Effects on these habitats are limited and highly localised compared to surrounding areas and therefore adverse effects are expected to be **not significant**.

5.3.9 A range of embedded design and control measures are proposed, including bundling and burying cables, minimising the use of cable protection, and following best practice for construction and vessel operations. **No significant adverse effects** on fish or shellfish populations are predicted, and no additional mitigation or monitoring is required at this stage.

Intertidal and offshore ornithology

5.3.10 An assessment of the potential significant impacts on marine and coastal birds as a result of the Proposed Scheme has been conducted. Baseline studies confirm the presence of a diverse range of species, including divers, waders, seaducks, gulls and auks, many of which are protected under national and international legislation.

5.3.11 The predominant adverse effects identified for both the construction and operation and maintenance phase are disturbance and displacement of sensitive bird species, particularly the red-throated diver, due to construction vessel activity within the Outer Thames Estuary Special Protection Area during winter. Other effects include short-lived, localised adverse impacts on foraging efficiency from temporary increases in suspended sediments. Changes in prey availability are considered **unlikely to be significant**, and no transboundary adverse effects are expected.

5.3.12 Embedded mitigation measures include trenchless cable installation at landfall, construction planning to coordinate activities and therefore minimise vessel numbers and duration, and adherence to best practice protocols for vessel operation in sensitive areas. With these measures in place, **no significant adverse effects** are anticipated for most bird species; however, a **temporary significant adverse effect** is predicted for the red-throated diver within the Outer Thames Estuary Special Protection Area during winter due to construction activities causing disturbance and displacement. Further mitigation will be considered during consultation with statutory bodies.

Marine mammals

5.3.13 The assessment has examined the potential impacts of the Proposed Offshore Scheme on marine mammals, including whales, dolphins, porpoises, seals and otters.

5.3.14 Construction of the Proposed Offshore Scheme may result in underwater noise from vessels and geophysical surveys, minor risk of collision between marine mammals and vessels, visual disturbance to otters, and temporary changes to prey availability due to seabed disturbance. During operation, adverse effects are much reduced: occasional maintenance activities and surveys generate lower levels of underwater noise and decreased vessel activity, electromagnetic fields from the buried cables will dissipate rapidly and are not expected to cause harm, and any disturbance to prey species is considered negligible. Decommissioning activities and effects would be similar to those for construction, but over a shorter duration, lessening their impact.

5.3.15 Mitigation measures include cable burial, minimising external cable protection, routing to avoid sensitive habitats, vessel speed restrictions, and strict adherence to best practice guidance for underwater noise and marine mammal protection. With these measures in place, these effects are expected to be **not significant**.

No additional mitigation or monitoring is currently required, although further assessment of cumulative effects with other projects will be undertaken for the final assessment.

Shipping and navigation

5.3.16 The assessment has looked at the impacts on shipping and navigation as a result of the Proposed Offshore Scheme. The assessment area extends from the proposed landfall at Walberswick into the United Kingdom-Netherlands Exclusive Economic Zone boundary. Baseline studies identified a busy marine environment, including international shipping routes, a deep-water route, local traffic, recreational craft and fishing vessels.

5.3.17 Potential adverse effects during construction include temporary disruption to vessel routes, increased collision risk with project vessels, and reduced access to Walberswick Harbour during horizontal directional drilling works. Risks of anchor interaction and fishing gear snagging were also considered. During operation, adverse effects are limited to occasional maintenance activities, with minor risks from anchor interaction, gear snagging, and electromagnetic interference on magnetic compasses near landfall. Decommissioning impacts are expected to be similar or less than those during construction.

5.3.18 A range of embedded mitigation measures will minimise impacts, including cable burial where feasible, external protection only where necessary, guard vessels, navigational safety plans, and clear communication to mariners. With these measures in place, all effects have been assessed as **not significant**. No additional mitigation is required beyond standard industry practice.

Commercial fisheries

5.3.19 The assessment has looked at the potential impacts on commercial fisheries as a result of the Proposed Offshore Scheme. The cable route crosses areas actively fished by both United Kingdom and European Union vessels, with a diverse range of gear types used. There are no nationally or internationally designated marine protected areas within the study area which restrict commercial fishing activity. Fishing activity occurs year-round, with seasonal peaks depending on species.

5.3.20 Construction activities may include temporarily restricting access to fishing grounds, the displacement of fishing activity, changes in species distribution, and sediment disturbance; however, these are anticipated to be minor and **not significant**. Operation and maintenance adverse effects are expected to be minimal, with occasional maintenance causing short term, localised disruption. Decommissioning effects are anticipated to mirror those of construction but over a shorter duration.

5.3.21 Mitigation and control measures include the bundling and burying of cables, minimising seabed disturbance, adhering to best practice guidance, proactive communication with mariners, the use of guard vessels, and the appointment of a

Fisheries Liaison Officer. Monitoring, including post-lay surveys, and ongoing engagement with stakeholders would communicate compliance with management plans. **No residual significant effects** are expected, with no additional mitigation proposed.

Other marine users

5.3.22 The Proposed Offshore Scheme has been assessed for potential impacts on other marine users. Baseline studies identified 23 existing subsea cables, nine disposal sites, four aggregate extraction areas, and active oil and gas infrastructure within the study area. Recreational use is concentrated near the proposed landfall at Walberswick, where bathing waters, sailing, and crabbing are popular. No aquaculture, carbon capture, or natural gas storage sites were identified.

5.3.23 Construction activities for the Proposed Offshore Scheme may cause temporary restrictions on access for infrastructure owners and recreational users, as well as localised seabed disturbance from cable installation and protection works. During operation, adverse effects are limited to occasional maintenance activities and the long-term presence of buried or protected cables, which could constrain future seabed use. Decommissioning effects are expected to be similar or less than those for construction.

5.3.24 Mitigation measures include cable burial and bundling, adherence to International Cable Protection Committee guidelines, crossing agreements, guard vessels, communication with mariners, and comprehensive management plans to minimise seabed disturbance, navigation risks and user conflicts. With all measures in place, all predicted effects have been assessed as **not significant**. No additional mitigation or monitoring is proposed beyond those embedded.

Marine archaeology

5.3.25 A preliminary assessment has been undertaken to identify potential impacts on marine archaeology. The key receptors considered include submerged prehistoric landscapes, seabed features such as shipwrecks and aircraft crash sites, and intertidal heritage assets.

5.3.26 Potential adverse effects during construction include direct damage to the seabed and sub-seabed heritage assets from trenching, cable installation, and vessel anchoring, alongside indirect effects from sediment disturbance. During operation, maintenance activities such as cable repair, re-burial, and additional cable protection could cause localised seabed disturbance, while decommissioning could result in similar effects to those during construction but on a smaller scale.

5.3.27 Embedded mitigation measures include horizontal directional drilling at landfall, micro-siting to avoid sensitive features and Archaeological Exclusion Zones and implementing archaeological planning documents. With these measures in place,

no significant residual effects are anticipated for any phase of the Proposed Offshore Scheme, with no additional monitoring or mitigation proposed.

5.4 Site-wide findings

Climate change and carbon

5.4.1 A preliminary assessment of greenhouse gas emissions and climate change resilience for the Proposed Scheme has been undertaken, covering construction, operation and maintenance, and decommissioning of both onshore and offshore elements. Climate projections for East England include faster sea level risk, milder winters, hotter summers, and more extreme weather, all of which could affect the Proposed Scheme.

5.4.2 Findings indicate that the majority of greenhouse gas emissions will occur during construction, primarily from embodied carbon within materials for the proposed Converter Station and the Kiln Lane Substation. Preliminary estimated emissions for the Proposed Scheme are approximately 145,000 tonnes of carbon dioxide equivalent (tCO_2e) during construction, 4,200 tCO_2e during operation and maintenance, and 16,500 tCO_2e during decommissioning.

5.4.3 Greenhouse gas emissions associated with the offshore components of the Proposed Scheme, and certain onshore elements have not yet been assessed in detail. This will be completed as part of the Environmental Impact Assessment and reported in the Environmental Statement, including overall greenhouse gas emissions and a statement of significance.

5.4.4 An assessment of risks arising from future climate change projections has not been undertaken at this stage; a full Climate Change Risk Assessment and In-combination Climate Change Impact Assessment will be presented as part of the subsequent Environmental Statement.

5.4.5 Embedded mitigation has been considered throughout the design development of the Proposed Scheme, for example route selection to minimise carbon emissions. Control measures include the identification of low carbon and/or reduced resource consumption solutions, use of materials with higher recycled content, the re-use of recovered materials from the Draft Order Limits as part of the Proposed Scheme, and measures to mitigate against the impacts of climate change (for example, weather forecasting and emergency procedures).

5.4.6 Further mitigation and monitoring requirements will be developed as necessary.

Cumulative effects

5.4.7 As part of the Environmental Impact Assessment process, two categories of effects are considered for the cumulative effects assessment:

a. Intra-project effects (also known as combined effects), which considers how different effects identified across the environmental topics as a result of the

Proposed Scheme may interact and could combine to a bigger effect for a receptor or receptors.

b. Inter-project effects (also known as cumulative effects), by the Proposed Scheme and other developments. The other developments included are those that are both reasonably foreseeable in terms of delivery (for example have planning consent) and are relevant geographically where environmental impacts could act together to create a more significant overall effect. A long-list of developments has been identified, and a short-list of developments will be taken forward for assessment as part of the Environmental Impact Assessment process.

5.4.8 The cumulative effects assessment will be carried out during the Environmental Impact Assessment process and will be reported on as part of the Environmental Statement.

6 Next steps

6.1 What happens next?

6.1.1 Once this stage of consultation concludes, we will review feedback received, helping to shape the design and construction planning of the Proposed Scheme. Where possible, this will further reduce adverse environmental effects and embed environmental enhancements.

6.1.2 Drawing on this consultation feedback, as well as ongoing engagement with regulators such as the Environment Agency, the assessment will be updated reflecting design refinements, and additional information gathered from site visits and surveys.

6.1.3 The final assessment will be reported in an Environmental Statement, which will accompany the application for development consent. The Environmental Statement will include a Non-Technical Summary.

6.2 Have your say

6.2.1 The statutory consultation period is from January to March 2026.

6.2.2 Feedback received by this point, using the response channels stated below, will be carefully considered as the proposals for the project are refined.

a. Online response form: You can give your feedback by completing our online response form, available at nationalgrid.com/lionlink.
b. Email us: If you prefer to send us your comments via email, you can send them to info@lionlink.nationalgrid.com.
c. Paper feedback form: You can download and print a paper copy of our feedback form from our website and post it, or a letter containing your feedback, to Freepost NGV LionLink. You can also pick up a paper feedback form from any of the public information events or deposit points listed above. Alternatively, you can request for a feedback form to be sent to you in the post.
d. Call us: If for any reason you are unable to provide written feedback, then we may be able to accept your comments by telephone. You can call us on 0800 083 1787 to discuss.

6.3 Who to contact if you would like information or documents in an alternative format?

6.3.1 We are committed to making information accessible to all users. If you or someone you know needs any information or documents in an alternative format, such as large print, Braille, or audio tape, get in touch using the above contact details.

Glossary and abbreviations

Term	Description
AC	Alternating Current
Applicant	National Grid Lion Link Limited
CO_2	Carbon dioxide
Converter Station	A converter station changes electricity between alternating current (AC), which we use in our homes, to direct current (DC) which is more efficient for transporting electricity long distances.
DC	Direct Current
Development Consent Order (DCO)	An order made under the Planning Act 2008, as amended, granting development consent for a development. It grants consent to develop the approved project and includes (among other things) powers to compulsorily acquire land and rights where required and deemed marine licences for any offshore works.
Environmental Impact Assessment Scoping Report	The EIA Scoping Report defines the scope and methodology of the EIA process for a particular project or development.
Environmental Impact Assessment (EIA)	The EIA is a systematic process that evaluates the potential environmental effects of a proposed project or development.
Environmental Statement (ES)	The ES is a document that sets out the likely environmental impacts of the project. The ES is the main output of the EIA process. The ES is published as part of the DCO application.
Exclusive Economic Zone	An area of the ocean extending up to 200 nautical miles from a country's coast, where the country has sovereign rights to explore, exploit, conserve and manage natural resources like fish, oil, and wind.
Landfall	Location where offshore High Voltage Direct Current cables meet onshore High Voltage Direct Current cables.
m	Metres
Preliminary Environmental Information Report (PEIR)	The PEIR describes the Proposed Scheme and sets out the potential impacts, considering the environmental, social, and economic effects and the mitigation measures proposed to reduce impacts. The PEIR is published at the Statutory Consultation stage for information and feedback.
Proposed Onshore Scheme	is the term used when referring to the onshore components of the Proposed Scheme. Onshore Scheme components include: • Kiln Lane Substation; • Underground HVAC Cables; • Converter Station; • Underground HVDC Cables; and

Term	Description
	• Landfall.
Scoping Opinion	is a document issued by the Planning Inspectorate, on behalf of the Secretary of State, that outlines issues that should be addressed within the Environmental Impact Assessment. A Scoping Opinion also considers feedback from consultees.
Substation	the connection point for the electricity to enter/exit the British National Electricity Transmission System.
tCO_2e	Tonnes of carbon dioxide equivalent
Territorial waters	the area of sea adjacent to a state's coast that is considered part of its territory and subject to its sovereignty.
The Project	is the collective term used to refer to the proposal for all aspects (onshore and offshore) of the proposed interconnector between Great Britain and the Netherlands.
The Proposed Scheme	is the term used when referring to the United Kingdom scheme components of the Project, not including the Dutch components. This includes both the onshore and offshore scheme components which are within English territorial waters and up to the United Kingdom Exclusive Economic Zone boundary at sea.
Underground High Voltage Alternating Current (HVAC) Cables	Transmission cables which connect between the Converter Station and Substation
Underground High Voltage Direct Current (HVDC) Cables	Transmission cables which connect the Converter Station to the Landfall site, and then offshore.

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