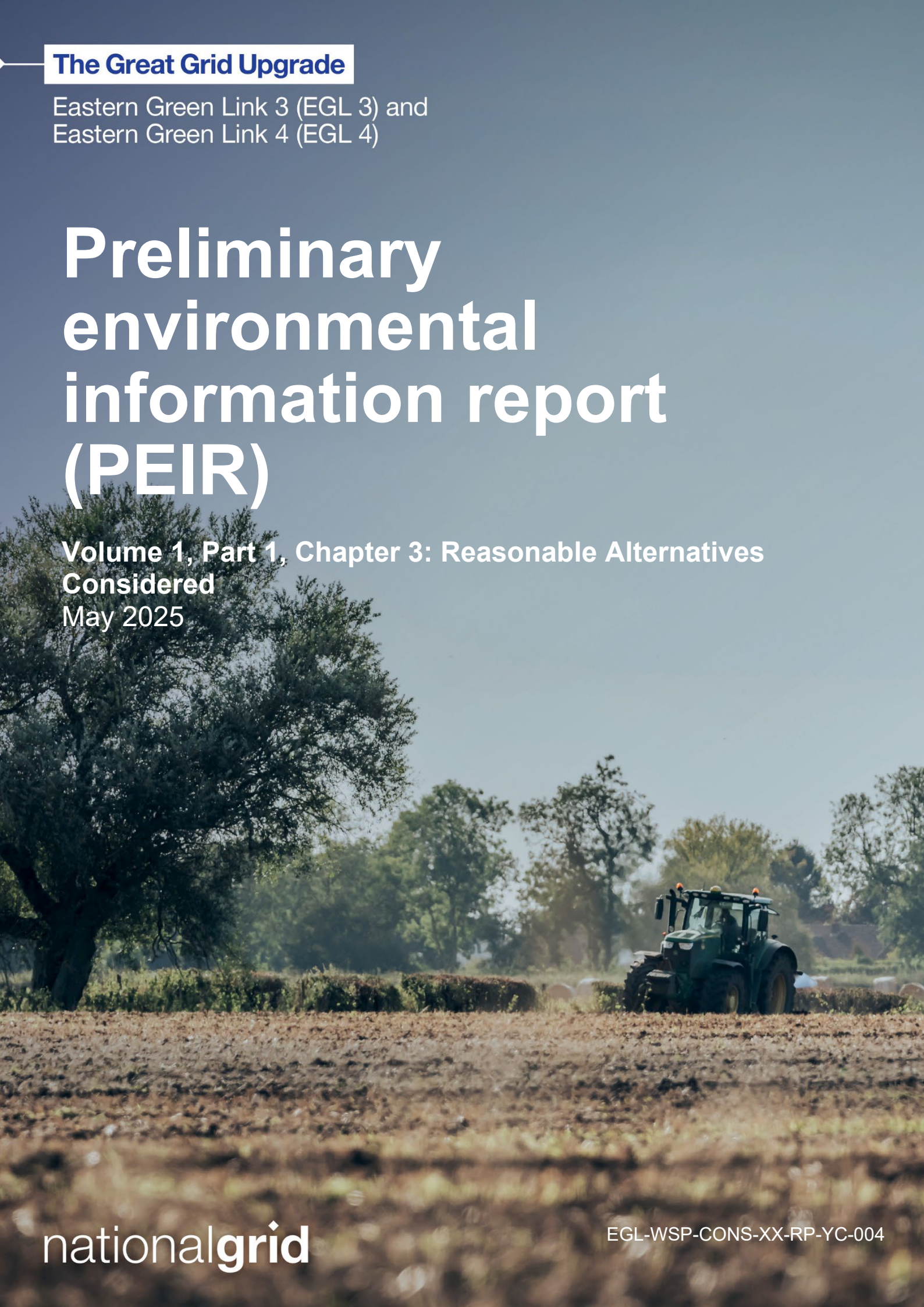
The Great Grid Upgrade

Eastern Green Link 3 (EGL 3) and
Eastern Green Link 4 (EGL 4)

Preliminary environmental information report (PEIR)

Volume 1, Part 1, Chapter 3: Reasonable Alternatives Considered

May 2025



nationalgrid

EGL-WSP-CONS-XX-RP-YC-004

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3.1 Introduction

3.1.1 This chapter of the Preliminary Environmental Information Report (PEIR) presents a summary of the site selection process and consideration of the main alternatives undertaken to date for the Projects. This chapter provides the following information:

- **Section 3.3** describes the Project development process and outlines the approach taken to defining spatial boundaries and emerging options.
- **Sections 3.4** summarises the strategic options that have been considered for the Projects.
- **Section 3.5** describes the routeing and siting conclusions as presented at non-statutory consultation held in 2024.
- **Section 3.6** describes the main alternatives presented at non-statutory consultation which are not taken forward to statutory consultation and provides an indication of the main reasons for the chosen option(s).
- **Section 3.7** describes the reasonable spatial and geographical alternatives that have been considered for the Projects between the non-statutory and statutory consultation periods based on received feedback and more detailed technical and environmental work.
- **Section 3.8** identifies the future steps to be undertaken to refine the Projects prior to application submission.

3.1.2 This chapter should be considered alongside the following chapters found in **Volume 1, Part 1**:

- **Chapter 1: Introduction**.
- **Chapter 4: Description of the Projects**.

3.1.3 This chapter should be considered alongside the following figures found in **Volume 3, Part 1**:

- **Figure 3-1: EGL 3 Emerging Preference following marine route options appraisal**.
- **Figure 3-2: EGL 4 Emerging Preference following marine route options appraisal**.
- **Figure 3-3: Anderby Creek Landfall Graduated Swathe**.
- **Figure 3-4: Graduated Swathe Landfall to Bilsby**.
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- **Figure 3-13: Walpole Converter Station Graduated Swathe**.

3.2 Legislative and Policy Context

3.2.1 **Volume 1, Part 1, Chapter 2 Regulatory and Policy Overview** sets out the overarching policy relevant to the Projects and alternatives, comprising National Policy Statement (NPS) for Energy (EN-1) and Electricity Network Infrastructure (EN-5) (Ref 3.1), the Infrastructure Planning (Environmental Impact Assessment) Regulations (2017) (Ref 3.2) and the National Grid Electricity Transmission plc (NGET)'s statutory duties as part of the Electricity Act (1989) (Ref 3.3). These have been considered during the appraisal process for the Projects alongside the environmental, technical and economic considerations, which have influenced the optioneering and design evolution process.

3.2.2 Schedule 4 of the Infrastructure Planning (Environmental Impact Assessment) Regulations (2017) (Ref 3.2) states that an Environmental Statement (ES) should include:

"A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects."

3.2.3 Whilst there is no statutory requirement to include an assessment of alternatives in the PEIR, the Planning Inspectorate's Advice Note Seven recommends that an ES:

"Explains the reasonable alternatives considered and the reasons for the chosen option taking into account the effects of the Proposed Development on the environment".

3.2.4 While there is no statutory requirement to include an assessment of alternatives in the PEIR, the consideration of alternatives is an integral part of the ongoing development of the Projects. This chapter includes a description of the reasonable alternatives, including design and technical alternatives considered at each stage of the development of the Projects and provides an indication of the chosen option(s) including a comparison of the environmental effects. Alternatives will continue to be considered in the development of the Projects and will be reported in the ES.

3.2.5 In agreeing the scope of the Environmental Impact Assessment (EIA) with the Planning Inspectorate, the Scoping Report for the Project presented the main alternatives considered form the Corridor Preliminary Routeing and Substation Siting Study (CPRSS) 2024 (Ref 3.4). Upon providing their scoping opinion, the Planning Inspectorate commented that "*Paragraph 3.4.5 of the Scoping Report refers to the Lincolnshire Connection Substation (LCS) as being proposed by the Grimsby to Walpole project, however the Scoping Report project description refers to the LCS as being part of EGL 3 and 4 also. The ES should provide clarity on which elements are included within the Proposed Development only and which are in both applications, and which are related developments but outside the* Development Consent Orders *(DCO)*

process. The ES should clearly set out how they have been assessed accordingly. The timings of construction of all components should be used to inform the assessment". Since the submission of the Scoping Report, the three-ended high voltage direct current (HVDC) link connecting to the LCS was excluded from the English Onshore Scheme components for statutory consultation. On this basis, the preliminary information within this PEIR does not provide further information on the three-ended HVDC link connecting to LCS, however, **Sections 3.6** and **3.7** outline how the removal of these have influenced the design evolution of the English Onshore Scheme.

3.3 Design Development Process

3.3.1 The approach to the design and routeing of new electricity transmission lines, including the consideration of alternatives to the Projects, such as alternative routes, sits in the context of National Grid's Approach to Consenting (Ref 3.5). This outlines the development process for major infrastructure projects, from initial inception to consent and construction. This is a robust and transparent process that is used to compare main alternatives and to assess the positive and potentially adverse effects they may have, across a wide range of criteria, including environmental, socio-economics, technical and cost factors.

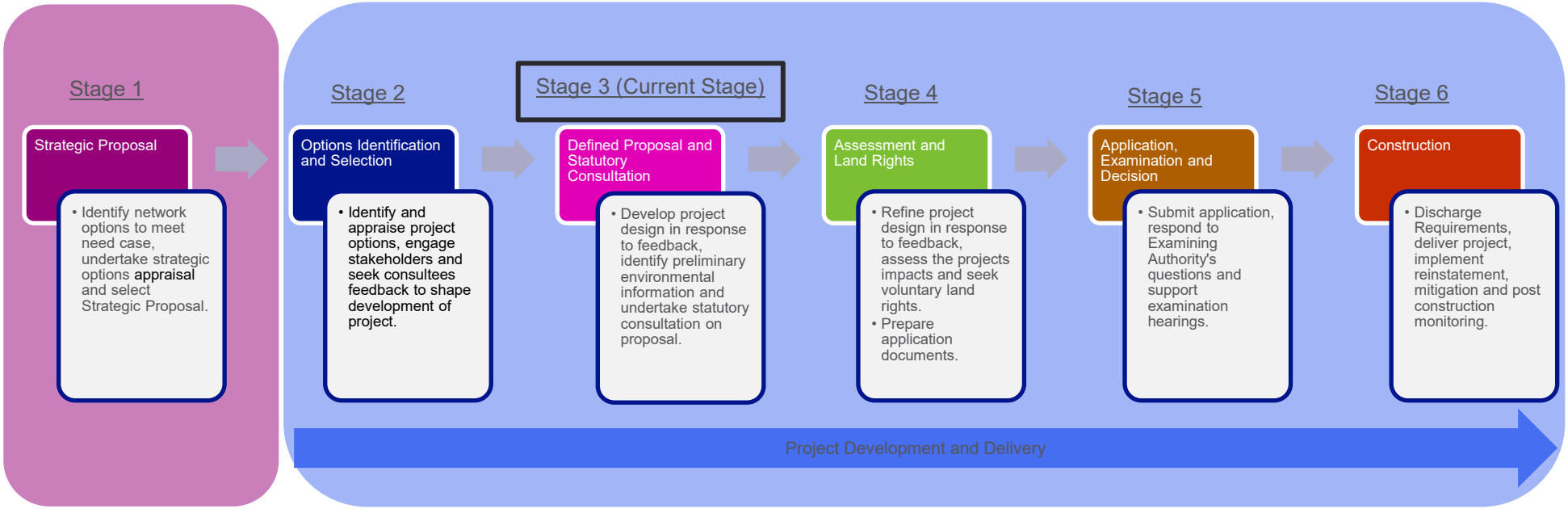
3.3.2 **Plate 3-1** presents an overview of NGET's approach to project development and delivery, as set out in National Grid's Approach to Consenting, and summarises the main objectives of each stage of the consenting process. National Grid's Approach to Consenting comprises the following six stages:

- Stage 1: Strategic Proposal.
- Stage 2: Options Identification and Selection.
- Stage 3: Defined Proposal and Statutory Consultation (this stage).
- Stage 4: Assessment and Land Rights.
- Stage 5: Application, Examination and Decision.
- Stage 6: Construction.

3.3.3 The following sections provide a summary of the work undertaken to date for the stages completed for the Projects. Specifically, the following is described:

- **Section 3.4** – describes the process and outcomes associated with Stage 1.
- **Section 3.5** – describes the Stage 2 process for identifying main alternatives and how these were selected.
- **Section 3.6** – identifies the options selected at Stage 2 but not taken through to Stage 3.
- **Section 3.7** – outlines the process and outcomes associated with the evolution of the Projects from Stage 2 to Stage 3.

Plate 3-1: National Grid's Approach to Consenting



3.4 Stage 1: Strategic Options

Strategic Options Identification Process: The Projects

3.4.1 National Energy System Operator (NESO) previously National Grid Energy System Operator (ESO) leads an annual review cycle which identifies how much electricity can be carried on the transmission network and where future capacity is required. As part of the ESO recommendation for the Projects, a need was identified for two new 2 gigawatts (GW) HVDC links between Scotland and the South Humber area. The boundary requirements and geographical scope of the Projects were based on the ESO's Future Energy Scenarios (FES) (Ref 3.6) and the Electricity Ten Year Statement (ETYS) (Ref 3.7). In July 2022 the ESO published the Pathway to 2030 Holistic Network Design (HND) report (Ref 3.8) and the Network Options Assessment (NOA) 2021/22 Refresh (Ref 3.9). The ESO's Holistic Networks Design (HND) and 2021/2022 NOA Refresh restated the recommendations for the development of two new 2 GW subsea HVDC links on the East Coast between Scotland and the South Humber region. The ESO also published the Beyond 2030 report, which builds on top of the HND and makes a set of network recommendations throughout the 2030s. The report restated the recommendations for the development of Eastern Green Link 3 (EGL 3) and Eastern Green Link 4 (EGL 4).

3.4.2 Based on the strong recommendations identified and the Need Case for the Projects, a do-nothing scenario was not investigated, and NGET commenced their optioneering process to determine how best to achieve reinforcements identified in the ESO's recommendations. The first two stages (Strategic Proposal and Options Identification and Selection) have informed the identification of the English Onshore Scheme illustrated as the Preferred Corridor and Preferred Siting Zones for the non-linear infrastructure. Similarly, a Marine Route Options Appraisal (Ref 3.10) and (Ref 3.11) and continued stakeholder engagement were undertaken to identify the emerging preferences for the offshore routes, which concluded with the definition of the English Offshore Scheme.

3.4.3 At both stages, NGET has considered a range of technical, economic, environmental and social factors, including feedback from stakeholders, consistent with its statutory duties to develop and maintain an efficient, co-ordinated and economical system of electricity distribution as identified in Section 9 of the Electricity Act (1989) (Ref 3.3).

Strategic Options Identification Outcomes: The Projects

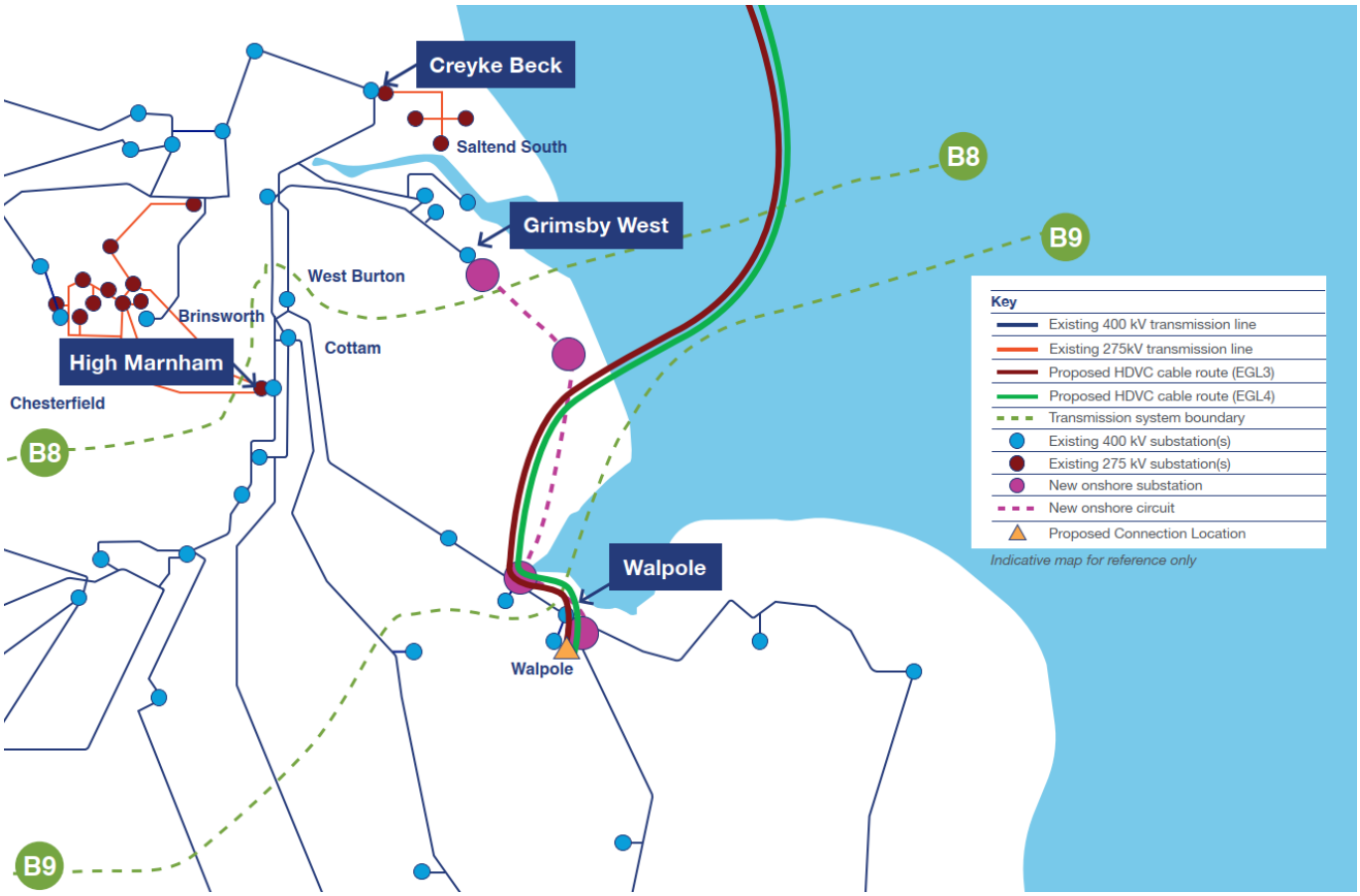
3.4.4 Several strategic options were identified and documented in the Strategic Options Report (SOR), which could meet NGET's need case for the Projects as well as enable NGET to meet its statutory duties (Ref 3.12). Initially, a 'long list' of options was identified connecting several potential 'start' and 'end' points. These included connection points at, or close to, existing or already planned substations. These options were then appraised and filtered to obtain a short list of options (referred to as EGL options (EGL OPP1 to EGL OPP7)), which were subject to a detailed appraisal against a range of technical, cost and programme issues and environmental and socio-economic features.

3.4.5 The SOR identified a strategic option comprising EGL 3 and EGL 4 HVDC links south of the B9 transmission boundary to or near a Main Interconnected Transmission System substation (identified as a new substation at Walpole). This is referred to as EGL OPP6

New Walpole Substation (referred to in this PEIR as Walpole B Substation) in the SOR and is shown below in **Plate 3-2**.

3.4.6 The Walpole B Substation was identified as a common connection point for the EGL OPP6 and the Grimsby to Walpole Project (Ref 3.13). The Grimsby to Walpole Project is being developed by NGET to reinforce the electricity transmission system to help deliver the UK Government's Net Zero targets. It forms part of a major programme of reinforcement of the electricity transmission system to accommodate substantial increases in northsouth power flows. The SOR confirms that although the proposed Walpole B Substation is currently included as part of the Grimsby to Walpole Project, it also forms a common connection point for the Projects, and the need for Walpole B Substation exists as a part of either the Projects or the Grimsby to Walpole Project. Therefore, Walpole B Substation would form part of their respective DCOs.

Plate 3-2: EGL OPP6 new Walpole B Substation potential strategic option.



3.4.7 One of the key conclusions of the environmental and socio-economic appraisals of the potential strategic options EGL OPP1 to EGL OPP7 was that all of the strategic options have the potential for environmental and socio-economic effects. Some of the effects identified are largely common to all of the potential strategic options, particularly with respect to the marine and coastal environment where subsea cables are routed and come ashore. Each of the potential strategic options considered (EGL OPP1 to EGL OPP7) could make landfall on the Lincolnshire coastline. Subject to site selection for any of the potential strategic options making landfall on the Lincolnshire coast could impact the same coastal ecological designations, however, these were recognised as potentially avoidable subject to landfall selection as well as cable construction methods.

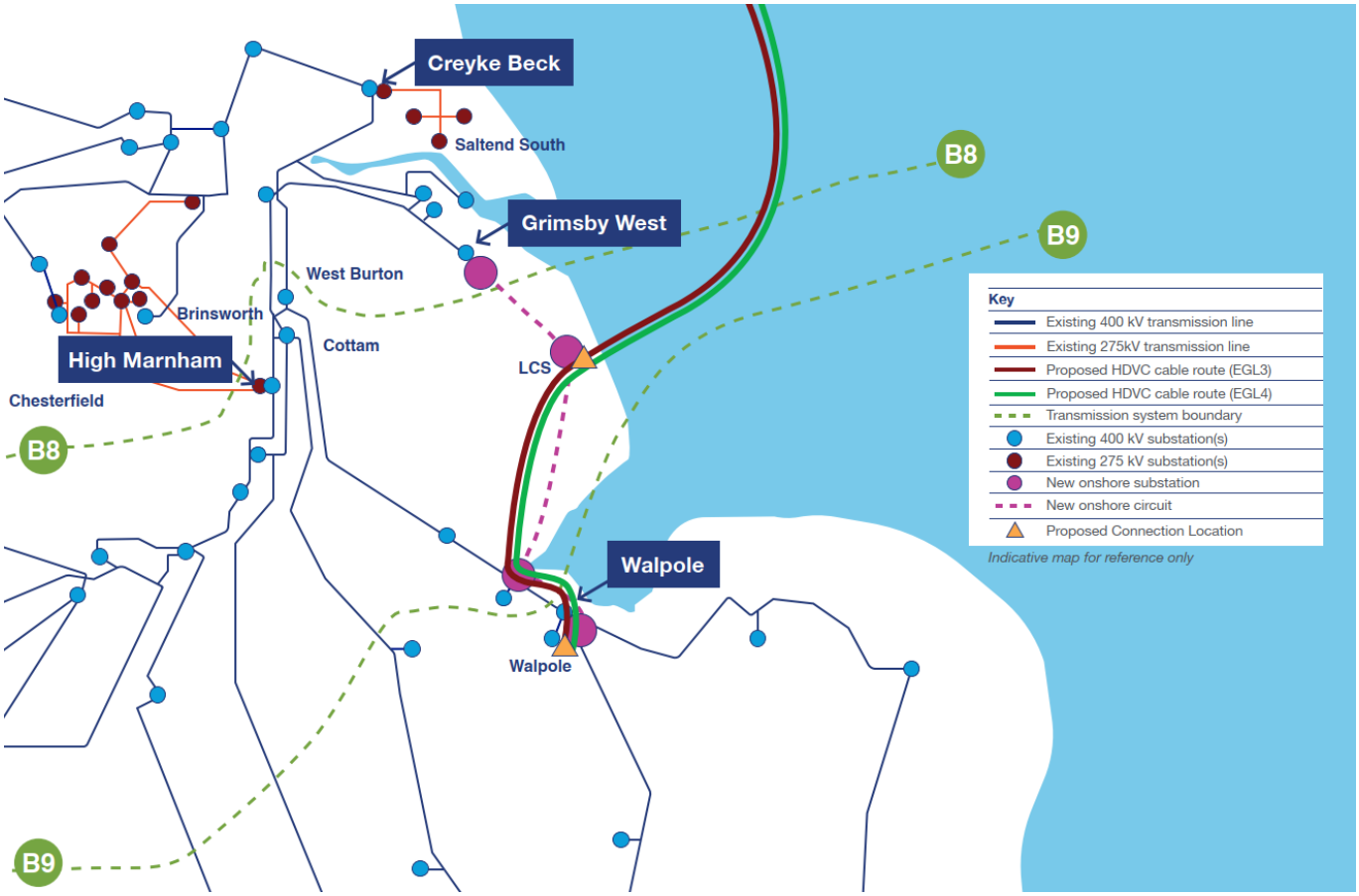
As part of this appraisal, a landfall on the north Norfolk coastline for one strategic option (OPP6 – Walpole B Substation via a landfall on the Norfolk coastline) was also appraised. However, this option was less preferable to an option with a landfall on the Lincolnshire coastline, due to the presence of a range of statutory landscape, ecological and historic environment designations and potential additional impacts on these, some of which were identified to be permanent. Further details on the environmental and socio-economic conclusions can be found in Section 14 of the SOR.

3.4.8 One of the options, described as EGL OPP7 (shown below in **Plate 3-3**) within the SOR, identified the potential for one of the HVDC links (i.e. either EGL 3 or EGL 4) to form a three-ended HVDC link by connecting to the LCS (proposed by the Grimsby to Walpole Project) first, before continuing to Walpole B Substation. The SOR noted that the option of making one of either EGL 3 or EGL 4 a three-ended HVDC link in England would increase capacity from the LCS in the future without the need for additional circuits in the near term, subject to the successful delivery of the Grimsby to Walpole Project. It stated that to construct this three-ended HVDC Link additional infrastructure, comprising a switching station and a converter station, would be required in the vicinity of one of the LCS located southwest of Mablethorpe in East Lindsey.

3.4.9 The SOR noted that there was not a current requirement for this three-ended HVDC link in England to meet the need case for EGL 3 and EGL 4. However, NGET considered that the option (EGL OPP6) developed for EGL 3 and EGL 4 would have the ability to be changed to provide a three-ended HVDC link to the LCS in England, in the future should additional capacity be required.

3.4.10 The environmental and socio-economic appraisal also identified an opportunity for reduced environmental and socio-economic effects compared to other strategic options due to its proximity to the coast and opportunities for shorter, more direct routes. There are fewer statutory ecological or historic environment designations in the area and those that are present can be avoided with careful routeing and site selection. Underground HVDC cable route routeing towards Walpole B Substation was also not considered to be highly constrained in terms of environmental designations. However, it was recognised that a three-ended HVDC link involves a larger construction area and would be expected to have a greater environmental and socio-economic impact relative to the other options.

Plate 3-3: EGL OPP7 Walpole B Substation with Three-ended HVDC Link potential strategic



3.4.11 From a marine perspective, landing the HVDC link in Lincolnshire was deemed the only strategic option. Options to route the HVDC offshore cables through the Wash or landing in north Norfolk were assessed to be unfeasible due to the highly constrained nature of this area environmentally, technically and economically. Not least, there are a number of sensitive nearshore designations, a large number of required infrastructure crossings, and it would require a greater length of cable. Lessons learned from previous projects that have landed cables in the Wash and north Norfolk were also considered.

Summary

3.4.12 Stage 1, as described above, resulted in several key outcomes. Initially, a long list of options was identified, connecting several potential start and end points, including connection points at or near existing or planned substations. These options were appraised and filtered to obtain a shortlist of options (EGL OPP1 to EGL OPP7 as defined above). These were subject to a detailed appraisal against a range of technical, environmental, socio-economic, cost and programme factors. Of the shortlisted items, EGL OPP6, which involves the construction of Walpole B Substation was identified as the preferred option. The Walpole B Substation was identified as a common connection point for the EGL OPP6 and the Grimsby to Walpole Project.

3.4.13 The environmental and socio-economic appraisals of the potential strategic options highlighted that all options have the potential for environmental and socio-economic effects, particularly with respect to the marine and coastal environment where subsea cables are routed and come ashore. The appraisal also identified an opportunity for reduced environmental and socio-economic effects compared to other strategic options

due to the proximity to the coast and opportunities for shorter, more direct routes. The preferred option, EGL OPP6, was recognized for its potential to mitigate impacts through careful routeing and siting as well as specific measures such as landscape planting.

3.4.14 With the outcomes of the Stage 1 process defined, the Projects moved to the second stage of NGET's project development process, which defined the location of the Projects infrastructure. The processes and outcomes associated with this Stage are reported in **Section 3.5**.

3.5 Stage 2: Options Identification and Selection

Option Identification Process: English Onshore Scheme

Corridor and Preliminary Routeing and Siting Study

3.5.1 The CPRSS' was undertaken to further define the location of the infrastructure (see **Chapters 5 – 11 of the CPRSS**) within a defined study area[1] (Ref 3.4).

3.5.2 The focus of the CPRSS was on the routeing of new underground cables and siting of the new landfall, converter stations, substation and switching station infrastructure in the study area. A stepped approach as illustrated on was undertaken in line with NGET's Approach to Consenting (Ref 3.5), and comprised the following (see also **Plate 3-4**):

- Step 1: Defining the study areas.
- Step 2: Scope of environmental topics and data gathering.
- Step 3: Ascribe a weight to confirm and 'heat map'.
- Steps 4 – 6: Identifying and defining siting zones, siting areas and corridors.
- Steps 7 - 8: Options appraisal and selection of preferred options.

1 An area within which a range of potential corridor options, station siting zones or areas for the new infrastructure was considered.

Plate 3-4: CPRSS Methodology

Options Identification (Steps 1 to 3)

3.5.3 Following completion of the first two stages, which defined the study area (Stage 1) and gathered the environmental features and technical constraints and opportunities (Stage 2), a series of heat maps were produced in Step 3 and subsequently used to undertake a Geographical Information System (GIS) 'corridor analysis'. The GIS tool helps to identify potential corridors which are likely to have the least potential for adverse impacts on those aspects of the environment that can be mapped. It finds routes across the heat map surface to connect the start and end points of the Projects which have the least interaction with environmental features.

Options Considered (Steps 4 to 6)

3.5.4 The corridors generated through the GIS analysis provided a starting point for the Projects' environmental specialists. They worked with the wider Projects team as appropriate to identify technically feasible preliminary corridors that respond to the geographical features that have been identified. The options identified were then subject to review by the front end engineering design (FEED) Contractor who used their professional judgement to recommend amendments (i.e., to park, refine or expand) to the corridors. For example, where possible, corridors were refined to limit interactions with nationally designated sites in line with the policy tests as set out in NPS EN-1 (Ref 3.1), or refined to avoid (or include areas where an alignment could avoid) flood zones of medium risk (Flood Zone 2) and high risk (Flood Zone 3), in line with the policy tests (sequential and exception tests) as set out in NPS EN-1 (Ref 3.1). These recommendations were reviewed and implemented by the environmental specialists including landscape specialists to ensure that changes were made in a manner consistent with the main environmental considerations.

3.5.5 The outcome of Step 4 was a set of early corridors, siting zones and siting areas which were subject to further analysis in Step 5 which included a further review by NGET and the FEED Contractor to confirm the technical feasibility and ensure that key issues, and the interaction of features and constraints, had been fully considered. The conclusions of this step were further informed by field observations at Step 6.

Options Selected (Steps 7 to 8)

3.5.6 In Step 7, the landfalls, corridors, siting zones and siting areas agreed in Step 6 are subject to Options Appraisal in accordance with NGET's Approach to Consenting (Ref 3.5). The overall objective throughout the Options Appraisal was to take full consideration of all known environmental factors to minimise the risk of significant adverse impacts on the environment and communities whilst also considering technical and economic considerations.

3.5.7 Following options appraisal of the landfalls, corridors, siting zones and siting areas (**Chapter 6 to Chapter 9 in the CPRSS**), an end-to-end review was undertaken between the landfalls and Walpole (and via the LCS). This review considered the Preferred Corridor, Preferred Siting Zones and siting area in the context of the wider end-to-end solution. The reasoning and justification for progressing each individual element were tested to ensure that it remained robust when considered in the context of the whole route. The wider end-to-end solution review also incorporated cost and programme performance, as reported in **Chapter 12 of the CPRSS**. A challenge and review workshop were also held and attended by NGET, the FEED Contractor and the environmental specialists. The purpose of the workshop was to review environmental preferences and, in accordance with EN-1 and EN-5 (Ref 3.1), balance these against technical and cost inputs to reach a conclusion on the Preferred Corridor, Preferred Siting Zones and siting areas. The aim was to conclude upon options in the form of a Preferred Corridor for the underground cables and Preferred Siting Zones for the non-linear infrastructure, which provide the optimum balance of efficiency and economy, whilst having appropriate regard to environmental and socio-economic impacts.

3.5.8 Following the selection of the Preferred Corridor and the Preferred Siting Zones, a preliminary routeing exercise was undertaken to identify where it might be more appropriate to locate the required permanent infrastructure within the Preferred Corridor and Preferred Siting Zones. To indicate the more or less likely location of the proposed infrastructure, this was indicated by a graduated 'swathe' which took into consideration

environmental and socio-economic features, technical constraints, and other requirements, including the NPS EN-1EN-5 (Ref 3.1). The graduated swathes indicated the broad areas where the proposed new infrastructure is likely to be located. The darker areas of the graduated swathe indicated a greater preference for the location of the required infrastructure.

3.5.9 For non-linear infrastructure, such as the converter stations, a similar process was followed, with darker areas of the Preferred Siting Zones used to identify suitable locations (known as 'siting areas'), again based upon a combination of design requirements and the need to avoid major features and constraints.

3.5.10 The Preferred Corridor and Preferred Siting Zones were consulted on with the stakeholders, landowners and members of the public. The non-statutory consultation provided an opportunity to seek feedback on the English Onshore Scheme and the associated Preferred Corridor and Preferred Siting Zones. The graduated swathes and siting areas allow flexibility such that feedback could be considered and the design developed accordingly. Further information on the justification behind the selection of these locations and a description of the graduated swathes are provided in the CPRSS.

Option Identification Process: English Offshore Scheme

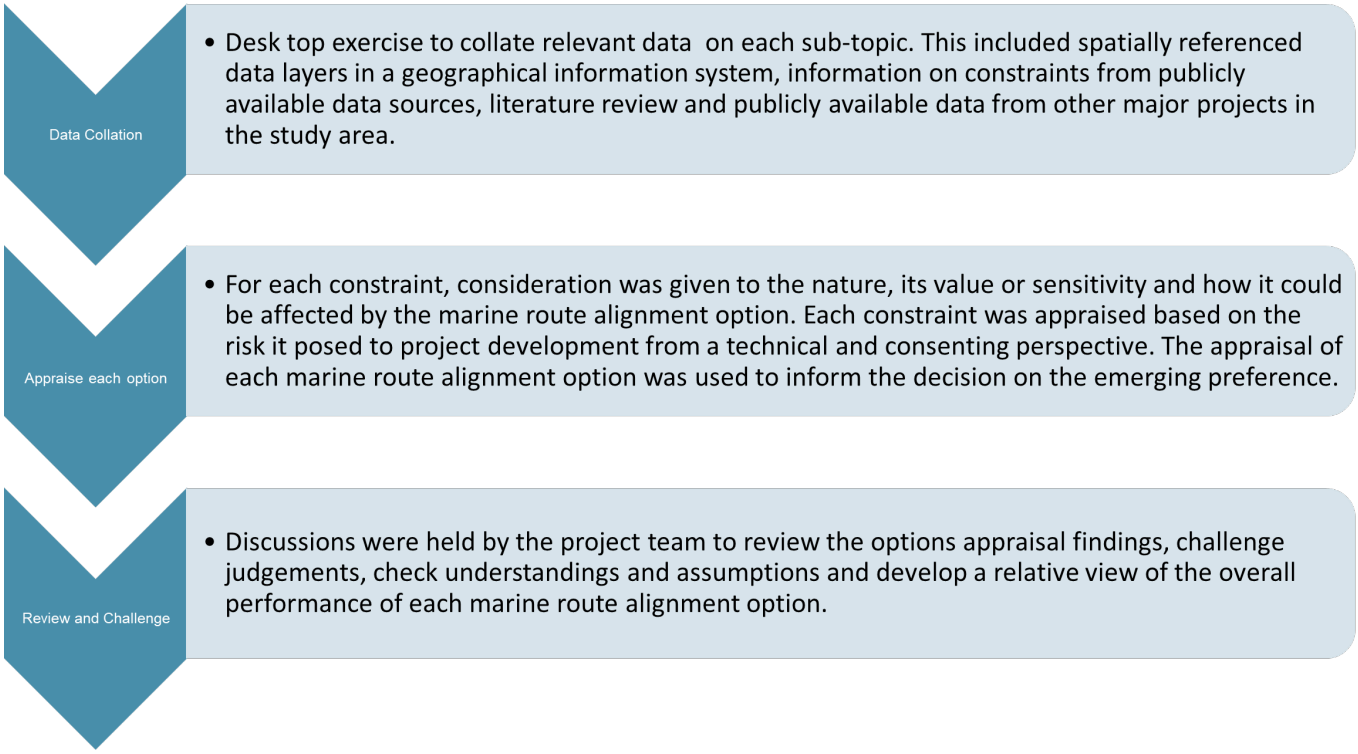
Marine Route Options Appraisal

3.5.11 The Marine Options appraisal process can be applied at any stage throughout project development but is typically used when considering strategic options (during the strategic proposal phase) and preliminary marine cable route options (during the option identification and selection phase). The aim of the approach is to identify, in an auditable, robust, transparent and consistent manner, emerging preferences for siting and routeing infrastructure. Consultation with stakeholders is also undertaken to assist in reaching these decisions.

3.5.12 The Marine Route Options Appraisal (Ref 3.10 and 3.11) included consideration of four topic areas; environment, socio-economic, technical and cost. Within these topic areas, there was a list of sub-topics which align with best practice informed by the requirements of the EIA Regulations.

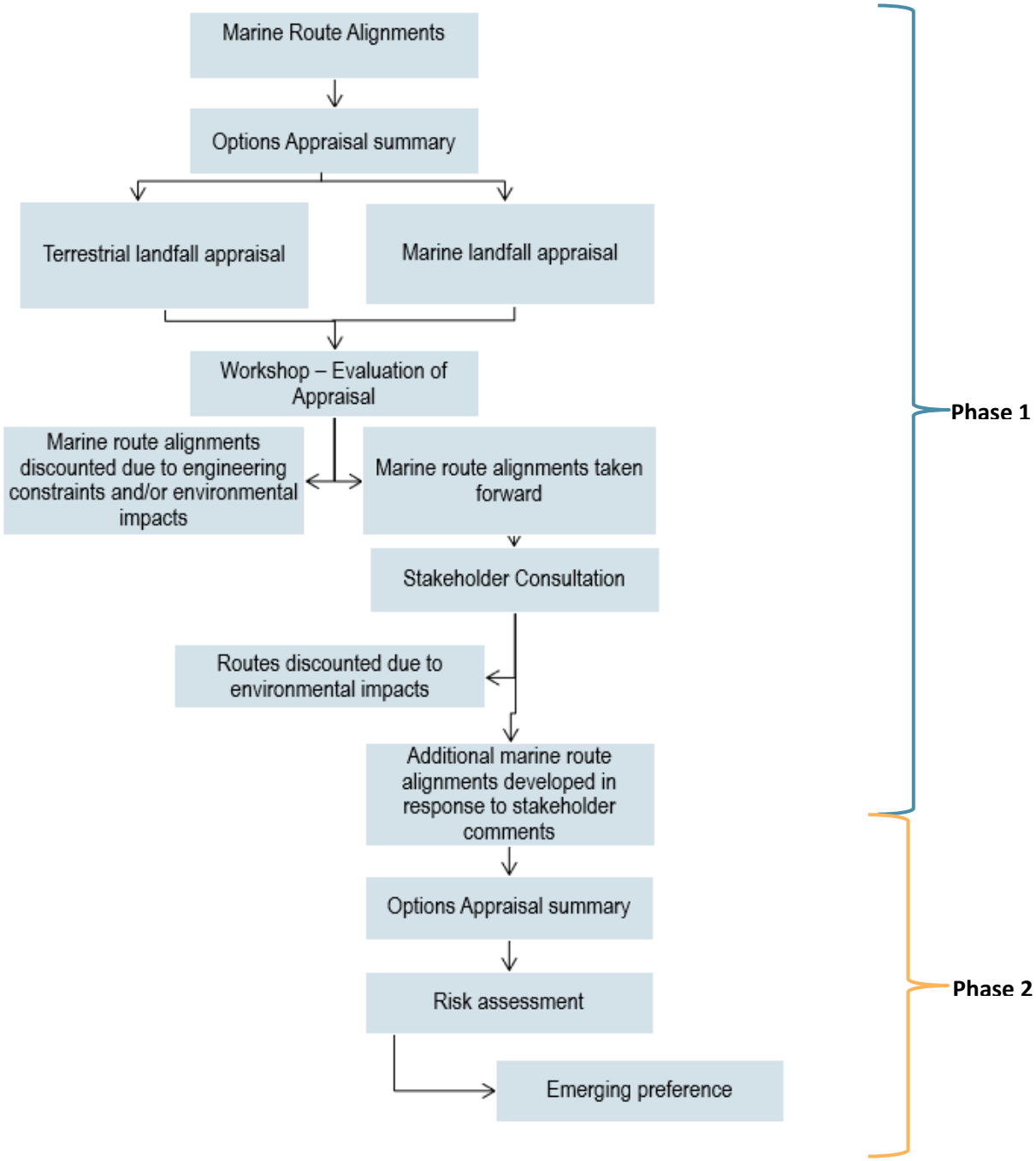
3.5.13 The appraisal process was completed following the stages presented in **Plate 3-5**.

Plate 3-5: Marine route options appraisal



3.5.14 As described above, an iterative, phased process was used to appraise the marine route alignments. This consisted of workshops with the Projects team, key marine statutory stakeholders and industry (i.e., other marine users) before a decision workshop on which options should be taken forward. This process resulted in two phases of marine route alignments before the emerging preferences were selected for each of EGL 3 and EGL 4. Each project was appraised independently whilst in the knowledge that they would be progressed along similar timescales. This process is summarised in **Plate 3-6.**

Plate 3-6: Overview of phased approach to marine route alignment and landfall appraisal



3.5.15 The objective of the options appraisal was to identify the shortest marine cable routes possible to ensure the cables can be buried along their extent, minimise the length of cable needed, reduce the manufacturing and construction costs, and minimise the environmental footprint of the English Offshore Scheme. The options appraisal was also designed to:

- Avoid statutory environmentally sensitive areas, where possible.
- Avoid areas which would represent restrictions to vessel movement e.g. anchorages, restricted navigation channels.
- Avoid areas of archaeological importance and wrecks.

- Avoid existing offshore infrastructure e.g. Offshore Wind Farms (OWF), oil and gas infrastructure, marine aggregate extraction areas, and aquaculture sites.
- Minimise the crossings of in-service cables and pipelines. Where it is not possible to avoid a crossing altogether, then seek to optimise the crossing angle and to ensure that navigational safety or water depth is not adversely affected.
- Avoid hazardous seabed features e.g., mobile sediments or bedrock outcrops and sub crops.
- Minimise any impact on third party considerations such as seasonal fishing activities or local tourism.

3.5.16 The process takes into account the Planning Inspectorate's Advice Note Seven (Ref 3.1) on the consideration of alternatives and the effects of the development on the receiving environment.

3.5.17 A comparative appraisal was carried out to review the landfall locations and the marine route alignments and appraise these based on the likelihood of gaining consent. Landfall and route options presenting the lowest risk of consent not being granted lead to emerging preferences.

3.5.18 Marine route alignments were developed in two distinct areas: landfall and an offshore section. The marine route alignments began at the English landfalls and merged to a common point approximately 100 km offshore. From the first common point in English waters, the marine route alignments extended to another common point in Scottish waters before splitting into further options leading to the different landfalls in Scotland. This led to two offshore marine route alignments being developed (Offshore Route A and Offshore Route B) and six marine route alignments to English landfall from each offshore route.

3.5.19 Following the conclusion of the SOR for potential landfall locations, these were then taken forward to the initial stage of the options appraisal process where the features' constraints were identified and assessed and a comparative appraisal performed. Each landfall was appraised based on its own merits, technically and environmentally, taking into consideration any information available from other major developments in the region.

3.5.20 For the purposes of the appraisal, the landfall was considered to include the marine route alignment through the nearshore coastal area, from where, if appropriate the marine route alignments branched from a common offshore route, ensuring a feasible way of accessing the landfall from the marine environment. This is further described in the section below for the English Onshore Scheme.

3.5.21 The marine route alignments were each similarly appraised based on its own merits, on technical, environmental and socio-economic factors. They were also appraised in combination with the merits of the associated landfall (in Scotland and England) and co-joining marine route alignments, to prove that the end-to-end solution meets the objectives of the Projects.

Options Selection: English Onshore Scheme

3.5.22 The below section provides a summary of the comparative appraisals and options selection and describes the selected options relevant to the evolution of the following components of the English Onshore Scheme:

- Landfall.

- New HVDC underground cables for the English Onshore Scheme between the landfall and Walpole.
- Two new Walpole converter stations and Walpole B Substation.

3.5.23 The selected options described below were presented as part of the non-statutory consultation, the details of which are provided in **Section 3.6**.

Landfall

3.5.24 A preliminary landfall search area was identified between the southern coast of the Humber Estuary and northwest corner of The Wash. Within this area three landfall study areas were identified on the Lincolnshire coastline: Horseshoe Point, Theddlethorpe Beach and Anderby Creek. From a technical and environmental perspective, the Horseshoe Point Landfall study area was the least preferred. Reasons for this included limited space due to existing infrastructure and a Ministry of Defence (MoD) Practice and Exercise Area, as well as environmental sensitivities such as the presence of designated sites and species. Consultation with stakeholders also identified that the Horseshoe Point Landfall study area is part of a pilot project for the re-introduction of seagrass and oysters. Disruption to this important pilot project would have implications for its success as well as additional costs for restoration. Due to the combination of these factors and the availability of suitable alternatives, Horseshoe Point was therefore discounted as a potential landfall location.

3.5.25 From the remaining options, Anderby Creek Landfall was identified as the Preferred Landfall location over Theddlethorpe. From an environmental and technical perspective, the Anderby Creek Landfall has comparatively fewer statutory ecological designations and is likely to be more feasible in terms of the length of trenchless cable that would need to be installed to avoid direct disturbance to the statutory ecological designations, as well as the Environment Agency tidal flood defences (which are present at both Landfall study areas). However, it was acknowledged within the CPRSS that due to the multiple existing and proposed landfalls at Anderby Creek (e.g. Outer Dowsing OWF), a proposed landfall in this area has the potential for cumulative effects on the ecological environment and communities.

3.5.26 Recognising that the preferential balance may alter as a result of further environmental and technical studies; it was decided that both landfall options would be taken forward as emerging preferences to allow sufficient flexibility for the design to evolve. For example, although Anderby Creek Landfall was marginally preferred, it was recognised that further technical studies may identify a suitable design solution at Theddlethorpe i.e. one which mitigates the potential impacts upon the statutory designated ecological sites and tidal flood defences, which may drive a preference towards Theddlethorpe.

Connection between the Landfall and River Welland

3.5.27 As described in **Chapter 7 of the CPRSS**, 26 underground cable corridors (1-23 and 35-37) were defined and reviewed between the Landfall study areas (at Theddlethorpe and Anderby Creek) and the River Welland. The Preferred Corridor between the landfalls to River Welland comprised the following corridors:

- Theddlethorpe Landfall via corridors 1, 3, 6, 7, 8, 16, and 21 to the River Welland.
- Anderby Creek Landfall via corridors 3, 4, 5, 6, 7, 8, 16, and 21 to the River Welland.

3.5.28 This combination of corridors was appraised and was found to provide a comparatively direct connection between the landfall (at either Theddlethorpe or Anderby Creek),

where required via a new LCS converter station, and to the River Welland. A comparative review of the corridors is described below.

3.5.29 Corridors south and east of Boston (corridors 9, 10, 11, 14, and 18) were least preferred due to limited routeing flexibility, technical complexity, and potential ecological and water environment impacts. These corridors faced several features and constraints, including the presence of the Outer Dowsing OWF underground cables, the need to cross The Haven and Hobhole Drain, and the proximity to The Wash, which comprises multiple designated sites.

3.5.30 Corridors 35, 36, and 37 are also not preferred as they require extensive routeing within the Lincolnshire Wolds, leading to temporary adverse impacts and technical challenges. These corridors would cross steeper terrain, necessitating significant earthworks and the use of specialist equipment. Additionally, the Viking Link Interconnector already routes through the Lincolnshire Wolds, utilising the most suitable terrain.

3.5.31 Corridor 8 was preferred over corridor 7 due to its shorter route, fewer ecological impacts, and lower potential for interaction with other projects. Corridor 8 also has a lower potential for interaction with Flood Zones 2 and 3 and avoids the heavily constrained and technically complex area north of the A158.

3.5.32 Corridors 12, 13, 15, 16, 17, and 19 were evaluated, with corridor 17 being more constrained and requiring additional railway crossings. Corridors 20 and 22 were less preferred than corridor 21 due to their longer routes and increased technical complexity.

3.5.33 Overall, the Preferred Corridors were those that offer shorter, more direct routes with fewer environmental and technical challenges.

Connection between River Welland and Walpole

3.5.34 As detailed in **Chapter 8 of the CPRSS**, the corridors 31, 32, 33 and 34 were the emerging preferences for the HVDC underground cables from the River Welland to Walpole when considered in isolation. These corridors were identified as preferred as they offer a direct connection to siting zones WLP1 through 5 (with the potential to route along the A17), thereby minimising the potential for adverse impacts whilst avoiding an additional crossing of the North Level Main Drain and avoiding potential technical complexities associated with routeing near to the proposed 400 kV overhead line corridor for the Grimsby to Walpole Project.

3.5.35 A comparative review of the corridors is described below.

3.5.36 Corridors 24 and 28 were identified as less preferred within the CPRSS. This was primarily due to the extended length of corridors 24 and 28 (approximately 10 km longer than the next longest corridor) which would increase the potential environmental impacts, especially those on the landscape and heritage receptors southwest of Wisbech.

3.5.37 Corridors 25, 26 and 27 were also considered less preferred due to the increased length of the corridor required for the crossing of the A151 and additional crossings of both the existing 2WS and 4ZM 400 kV overhead lines.

3.5.38 Corridors 29 and 30 were also considered less preferred due to the marginally longer routes compared to corridors 31, 32, 33 and 34 due to the divergence of the corridors to the south of Sutton St James and Tydd St Giles, before entering the Walpole siting area. Both corridors also require a greater number of crossings of roads and drains.

3.5.39 Overall, the Preferred Corridors were those that offered shorter, more direct routes with fewer environmental and technical challenges.

Walpole B Substation and Converter Stations

3.5.40 The Walpole siting zones were developed through the definition of a study area (Step 1), mapping and weighting of features (Step 2 and Step 3), and an iterative identification, review and refinement process (Steps 4, 5 and 6) (Ref 3.4 and 3.13). They were developed to accommodate two converter stations (one for each of the EGL 3 and EGL 4 Projects) each of which could require areas in order of 350 m by 300 m (approximately 11 hectares (ha)) and Walpole B Substation (to be consented as part of the EGL 3 and EGL 4 or the Grimsby to Walpole Project), which could extend approximately 800 m by 200 m (approximately 16 ha). A comparative review of the Walpole siting zones is described below.

3.5.41 WLP4 and WLP5: These siting zones were preferred because they are closer to the 400 kV 4ZM overhead line and the existing Walpole substation, despite requiring more road infrastructure. However, the Rose and Crown Solar Farm may pose a technical challenge for WLP5.

3.5.42 WLP6: This siting zone is outside of Flood Zones 2 and 3 but within an area of extensive field drainage. It performed slightly worse than WLP4 and WLP5 from a technical perspective.

3.5.43 The least preferred Walpole siting zones were WLP1, WLP2, and WLP3 due to the concentration of existing infrastructure, which limited siting flexibility and increased construction complexity. These siting zones would also require crossing the North Level Main Drain and a gas main, adding to the technical challenges.

3.5.44 The appraisal identified siting zones WLP4, WLP5, and WLP6 as Preferred Siting Zones compared to the other options identified. Each of these siting zones presents different opportunities for siting; WLP5 and WLP4 would reduce the length of diversions of the 4ZM overhead line and limit the spread of impacts into the surrounding areas, whereas WLP6 is likely to result in a spread of potential effects (most notably landscape and visual) into the surrounding areas but is wholly located outside of Flood Zone 3 areas (albeit upon a denser drainage network). When considering the emerging preferences for the HVDC underground cables from River Welland to Walpole, corridors 31, 32, 33 and 34 were identified as preferred as they offered a direct connection to siting zones WLP1 through 5, thereby minimising the potential for adverse impacts. Corridor 24 was identified as least preferred as using this corridor to reach siting zone WLP6 would require between approximately 6 km and 12 km (subject to detailed alignments) of additional underground cable infrastructure. In addition, this would also result in two additional crossings of the main rivers (South Holland Main Drain and the River Nene) and an additional crossing of the A47 main road.

3.5.45 Overall, it was identified that siting zones WLP4 and WLP5 performed slightly better than siting zone WLP6 from a technical perspective given their closer proximity to the 400 kV 4ZM overhead line and better entries for the HVDC underground cables, despite more road infrastructure being required. It was further identified that both siting zones WLP4 and WLP5 offered the greatest opportunity to limit the extent of potential environmental effects by co-location of the new Walpole converter stations with the Walpole B Substation. Co-location was expected to also reduce the technical complexity during construction and operation and limit the length of connections for the Projects and the proposed Grimsby to Walpole Project. Given the above considerations and given that both siting zones WLP4 and WLP5 overlap with the emerging corridors

(corridors 31, 32, 33 and 34) between the River Welland and Walpole, a combination of siting zones WLP4 and WLP5 (resulting in WLP4/5) was identified as the emerging preference for the converter stations and substation, and a hybrid zone ('WLP4/5') was taken through to non-statutory consultation as the Preferred Siting Zone (Ref 3.4 and 3.12).

3.5.46 Having identified a preference for siting zones WLP4 and WLP5, the corridors and Walpole Siting Zones emerging as preferred were again reviewed alongside each other. Following this, corridor 33 was widened at the intersection with corridor 34, to the west of Sutton Bridge, thereby offering a shorter, more direct route from the A17 and towards Walpole via corridor 34.

New LCS Converter Station and Direct Current Switching Station (DCSS)

3.5.47 Of the 13 siting zones considered (DC1-DC13) the zone identified as most suitable for the LCS Converter Station and DCSS, which would form a three-ended HVDC link for either EGL 3 or EGL 4 (should this become a future requirement for the Projects), was siting zone DC5. This siting zone offered the best opportunity to limit potential landscape and visual effects in combination by aiming to co-locate infrastructure near the preferred LCS 400 kV substation (proposed as part of the Grimsby to Walpole Project). Siting at DC5 was considered to also help reduce the potential for other environmental and socio-economic effects whilst minimising the length of underground HVDC cable required (from identified landfall) as well as technical complexity during construction and operation. A comparative review of the siting zones is described below.

3.5.48 Siting zones DC1, DC7, DC8, DC9 and DC11 were identified as least preferred in the CPRSS due to the limited flexibility for siting, and therefore potential increased technical complexity for siting within these zones. The limited flexibility for siting within these zones meant that potential environmental and socio-economic impacts cannot be avoided or adequately mitigated.

3.5.49 Siting zones DC4, DC12 and DC13 were less preferred as these siting zones would increase the deviation and, therefore, increase the length of HVDC underground cable connections from the landfall and on to the new Walpole converter stations. This additional length of underground cabling would increase the risk of encountering technical constraints and increase the likelihood of potential adverse environmental and socio-economic impacts.

3.5.50 Overall, siting zone DC5 was identified as the preferred option for the three-ended HVDC link taken to non-statutory consultation.

Development of the graduated swathe

3.5.51 Following the identification of the Preferred Corridor and Preferred Siting Zones, a 'graduated swathe' was identified. The Preferred Landfall study areas, Preferred Corridor, Preferred Siting Zones and graduated swathe within these were taken forward and consulted upon as part of the non-statutory consultation. The detailed plans showing the location of the graduated swathe can be found in Appendix B of the CPRSS (Ref 3.4).

Option Selection: English Offshore Scheme

3.5.52 The marine route alignments appraisal concluded with an emerging preference being identified and taken forward for surveys are shown in **Volume 3, Part 1, Figures 3-1**

and 3-2. Marine route alignments were developed in two distinct areas: landfall and an offshore section. The selection of the landfall was a joint decision with the development requirements of the English Onshore Scheme and is described in **Section 3.4** above.

3.5.53 The emerging preferences were taken forward for surveys, with the marine survey data, up to the landfall, then utilised for further development of the route to microsite the centreline around challenging ground conditions and environmentally sensitive features including any identified archaeological features.

3.5.54 Two marine route alignments were investigated for each of EGL 3 and EGL 4 within the English Offshore Scheme. For both EGL 3 and EGL 4, there were marine routes identified that largely avoided the Marine Conservation Zone (MCZ), routeing to the east of the Holderness Offshore MCZ and an alternative marine route that routed through the Holderness Offshore MCZ. Survey data was collected along both marine routes to inform the decision-making process and stakeholder engagement undertaken to establish their views and understand the risks for each of the routes proposed. Consideration of all features and constraints, survey data and stakeholder engagement informed the decision to route to the east of the Holderness Offshore MCZ and provides the optimal routeing balancing, technical, environmental, economic and socio-economic factors.

3.5.55 For EGL 3, the marine route to the east of the MCZ completely avoids any interaction with the MCZ. For EGL 4, the draft Order Limits for the marine route to the east of the MCZ overlaps with the southeastern corners of the MCZ for 9.5 km, clipping the northern part of the Silver Pit Glacial Tunnel feature, and overlap for a further 1.5 km in the northeastern corner overlapping the broad scale habitats of the MCZ. This is unavoidable due to the presence of other infrastructure. The overlap with the MCZ is, however, minimised as far as possible.

3.5.56 Following completion of all offshore surveys, landfall decision and MCZ routeing decision draft Order Limits were developed for EGL 3 and EGL 4 encompassing all activities required to be undertaken for the cable construction.

Summary

3.5.57 Stage 2 as identified above resulted in several outcomes for the English Onshore Scheme and English Offshore Scheme which are summarised below. The selected options were further developed using feedback collected from the non-statutory consultation and additional environmental baseline information and technical studies gathered since the non-statutory consultation. The defined proposals are described in **Volume 1, Part 1, Chapter 4: Description of the Projects** and will be subject to statutory consultation. This process forms Stage 3 of NGET's Approach to Consenting (Ref 3.5). The outcomes associated with Stage 3 are reported in **Sections 3.6** and **Sections 3.7** of this chapter.

3.5.58 Following completion of Stage 3 and the statutory consultation, feedback received will inform the development of the Projects to form the detailed components of the Projects for which NGET will apply for development consent. The results of the EIA will be reported in the ES which will be submitted in support of the application. Through voluntary negotiations, agreements to acquire land, permanent rights over land or to obtain temporary land rights will also be sought with affected landowners.

English Onshore Scheme

3.5.59 For the English Onshore Scheme, the Preferred Landfall was both Theddlethorpe and Anderby Creek. The Preferred Siting Zone for the LCS converter station was DC5, should a future requirement of a three-ended connection be required. The Preferred Siting Zone at Walpole was the hybrid siting zone WLP4/5. The corridor emerging as preferred included corridors 1 and 3 from a new landfall at Theddlethorpe and corridors 4 and 5 from a new landfall at Anderby Creek. The corridors emerging as preferred from either of the new landfalls, via a new LCS converter station, if required, would also include a combination of corridors 6, 7, 8, 16, 17, 21, 31, 32, 33 and 34 to reach the Preferred Siting Zone at Walpole (WLP4/5).

English Offshore Scheme

3.5.60 For the English Offshore Scheme, the Preferred Landfall was consistent with the English Offshore Scheme with both Theddlethorpe and Anderby Creek progressing for further assessment. Emerging preferences for the marine route alignments offshore included options to route through or around the Holderness Offshore MCZ but avoided all other marine designations with the exception of the English landfall which cannot avoid the Greater Wash SPA.

3.5.61 The English Offshore Scheme was not formally consulted on during the non-statutory consultation due to this being progressed under a separate consenting regime at that time, however, information with respect to the marine route alignments was provided during the non-statutory consultation for the context of the wider project. After the non-statutory consultation, the consenting strategy was updated to include the English Offshore Scheme within the DCO, and separate Deemed Marine Licences will be sought for EGL 3 and EGL 4. **Section 3.6** is therefore relevant to the English Onshore Scheme only.

3.6 English Onshore Scheme Options not taken forward at the Statutory Consultation

3.6.1 An overview of the Preferred Corridor, Preferred Siting Zones and associated graduated swathe from Anderby Creek Landfall to Walpole solution was presented at the non-statutory consultation held from 23rd April 2024 to 15th July 2024. The feedback received during consultation has been carefully reviewed and considered, informing the ongoing technical work on the technical design and the EIA process. A non-statutory consultation feedback report will set out the feedback received and how NGET has responded to this.

3.6.2 As part of the non-statutory consultation, the Preferred Corridor was split into eight sections to make it easier to give feedback about specific areas. The eight sections of HVDC underground cable, routeing between the landfalls and Walpole, are listed below.

- Section 1: Landfall – LCS converter station.
- Section 2: LCS converter station – Welton le Marsh.
- Section 3: Welton le Marsh – Little Steeping.
- Section 4: Little Steeping – Sibsey Northlands.
- Section 5: Sibsey Northlands – Hubbert's Bridge.
- Section 6: Hubbert's Bridge – Moulton Seas Ends.

- Section 7: Moulton Seas Ends – Foul Anchor.
- Section 8: Foul Anchor – Walpole.

3.6.3 This section provides a summary of the English Onshore Scheme options which are no longer taken forward at the statutory consultation. These changes are made in response to feedback received through the non-statutory consultation and ongoing technical and environmental studies, and changes brought by the Projects teams during iterative reviews of the evolving design. These are identified below and where relevant are broken down into Preferred Corridor sections for ease of location reference.

Section 1: Landfall - LCS Converter Station

LCS Converter Station and DCSS in the East Lindsey Area of Lincolnshire

3.6.4 As identified in the non-statutory consultation documents and **Section 3.4** above, the Preferred Sitting Zone for the new LCS Converter Station and DCSS was siting zone DC5. The primary elements forming a three-ended HVDC link include the following:

- A new converter station in the East Lindsey area of Lincolnshire, in the vicinity of one of two 400 kV LCS, proposed by the Grimsby to Walpole Project.
- A new switching station in the vicinity of one of the proposed LCS in East Lindsey (described in this report as the DCSS).
- Associated underground HVDC cables from the DCSS to the proposed LCS converter station and high voltage alternating current (HVAC) cables between the LCS Converter Station and one of the proposed LCS considered as part of the NGET Grimsby to Walpole Project.

3.6.5 During the non-statutory consultation, several consultation responses were received in response to the Preferred Siting Zone for the LCS Converter Station and DCSS. Specifically, several respondents raised concerns about the siting of converter stations near Bilsby and Alford areas due to the existing rural character of the area, the adjacent Lincolnshire Wolds, existing heritage assets and potential residential amenity impacts. All these features and constraints were considered as part of the routeing and siting work which resulted in the selection of the Preferred Siting Zone for the LCS converter station and DCSS. As outlined in the CPRSS and SOR, the project infrastructure associated with the three-ended HVDC link was optional and was subject to further studies and discussions with the ESO. Based on these, the three-ended HVDC link and its associated infrastructure are confirmed as not required for the Projects and have been excluded from the English Onshore Scheme components for statutory consultation. Therefore, the comments provided on the LCS converter station and DCSS siting zone were not considered further as part of the English Onshore Scheme design evolution and are not described in this chapter.

3.6.6 Following the removal of the infrastructure associated with the three-ended HVDC link as part of the Projects, several design changes have been progressed to seek to amend the HVDC cable route to avoid routeing to an LCS converter station. A description of these changes and decision making associated with the English Onshore Scheme presented at the statutory consultation is provided in **Section 3.7**.

Theddlethorpe Landfall

3.6.7 Since the non-statutory consultation, a further detailed review of both the Theddlethorpe and Anderby Creek Landfall options was undertaken by NGET and the Projects team. This review focussed on the factors considered particularly relevant in reaching a decision on the Preferred Landfall Option. These comprised the following:

- Trenchless Crossing and Horizontal Directional Drilling (HDD).
- Stakeholder Feedback both during and after non-statutory consultation.
- Potential impacts on the statutorily designated sites such as Special Protection Areas (SPA) and Site of Special Scientific Interest (SSSI).
- Potential for Cumulative Effects.
- Flood Risk.
- Terrestrial Routeing Complexity.
- Third party ownership.

3.6.8 The review identified that Anderby Creek Landfall is the preferred option for the following reasons:

Trenchless Crossing and Horizontal Directional Drilling

3.6.9 A detailed analysis of trenchless crossing methods at both Theddlethorpe Landfall and Anderby Creek Landfall was undertaken. This identified that it was feasible to implement a landfall trenchless crossing at either landfall location. However, it was noted that generally shorter trenchless crossings, namely HDD, offer numerous advantages that make them a more practical and cost-effective option.

3.6.10 The review identified an absence of existing information regarding feasibility of trenchless crossings at the Theddlethorpe Landfall and the need for a longer HDD crossing when compared to the Anderby Creek Landfall. An exit point on the beach would also be required at the Theddlethorpe Landfall outside of the Saltfleetby-Theddlethorpe Dunes & Gibraltar Point Special Areas of Conservation (SAC) but within the Humber Estuary SPA and Ramsar, within the Greater Wash SPA, and within the Saltfleetby - Theddlethorpe Dunes SSSI and the Lincolnshire Coronation Coast National Nature Reserve (NNR), adding to the consenting complexity.

Stakeholder Feedback both during and after non-statutory consultation

3.6.11 In December 2023 and January 2024, NGET submitted Marine Non-Statutory Environmental Appraisal Scoping Reports for the English Offshore Scheme to the Marine Management Organisation (MMO), this was prior to the decision to bring the offshore scheme within the DCO. In addition, engagement with Natural England occurred during 2023 and 2024, covering both offshore and onshore works. Responses from both stakeholders provided shared views around the need to avoid as far as practical the Saltfleetby to Theddlethorpe Dunes & Gibraltar Point SAC and Saltfleetby – Theddlethorpe Dunes SSSI. These designated sites cannot be avoided should the Theddlethorpe Landfall have been chosen, indicating that derogation requirements of the Habitats Regulations would apply. These requirements were appraised as part of the consideration of potential impacts on the statutory designated sites described further below.

Potential impacts on the Statutorily designated sites such as SPA and SSSI

3.6.12 As part of the trenchless crossing work required, it would be necessary to carry out ground investigation works before confirming whether HDD is feasible at either landfall. Similar to the considerations of the trenchless crossing factor detailed above, Theddlethorpe Landfall was considered to be less preferred than Anderby Creek Landfall. This was on the basis that Likely Significant Effects (LSE) arising from ground investigation surveys could not be ruled out for a Theddlethorpe Landfall. LSE could trigger Adverse Effects on the Integrity (AEOI) on the qualifying features of those Habitats Sites and the derogation requirements of the Habitats Regulations would then apply. Alongside other factors, these would require demonstration that there were no alternative solutions to the delivery of the surveys, which would have a lesser or no effect on Habitats Sites. It was considered that a successful case for derogation is unlikely to be made for Theddlethorpe Landfall due to the greater number of designated sites supporting a greater and more diverse range of qualifying interests when compared to Anderby Creek Landfall.

Cumulative Effects

3.6.13 To identify if there are any potential cumulative environmental effects which may be a differentiating factor for either landfall option, a review of other proposed developments in the area surrounding the landfall locations. This review identified Theddlethorpe Landfall to be less preferred due to the proximity of the Viking Carbon Capture and Storage Project which was more likely to result in cumulative effects than projects near the Anderby Creek Landfall.

Flood Risk

3.6.14 Both landfalls contain tidal flood defences (primarily sand dunes), and advice received from the Environment Agency requested that direct impacts on the tidal flood defences be avoided. It was considered in the CPRSS that Theddlethorpe would require comparatively longer lengths of trenchless cable construction, which may result in greater impacts on tidal flood defences and is likely to be less feasible from a technical perspective compared to Anderby Creek Landfall. Theddlethorpe Landfall also has comparatively more drains than Anderby Creek Landfall. Therefore, from a freshwater perspective, Anderby Creek Landfall was identified as the Preferred Landfall at that time. However, further investigation of flood risk was considered relevant to ensure Anderby Creek Landfall is still the Preferred Landfall from a flood risk perspective.

3.6.15 Since the CPRSS, additional flood information was requested from the Environment Agency which was reviewed and considered as part of the decision making. The data received confirmed that the dominant source of flood risk is tidal and that at both sites existing flood defences, in the form of the coastal dunes and earth embankments, provide a high standard of protection. Both landfalls were identified to be at residual risk of flooding under defence overtopping and breach scenarios, however, the predicted extent of flooding was identified to be less extensive at the Anderby Creek Landfall than at the Theddlethorpe Landfall.

Terrestrial Routeing Complexity

3.6.16 For this factor, a review of potential onshore cable routes from a technical perspective from the two landfalls up to the point where they converge was carried out. It considered a range of criteria including the length of the cable, accessibility for construction, the number of crossings and the technical difficulties of achieving these. The Theddlethorpe

Landfall was identified as the least preferred option when considered against the length of the route and the number of crossings required. In addition, Anderby Creek Landfall was preferred for construction vehicle accessibility, due to its proximity to larger roads such as the A16.

Third party ownership

3.6.17 Based on the latest available information, no material differentiators between the two landfalls were identified as both are within third party ownership and will be subject to voluntary acquisitions as needed.

Overall Rating

3.6.18 The Anderby Creek Landfall was shown to be the most preferable for most factors outlined above, excluding land ownership, which had no preference. This has been selected as the Preferred Landfall based on technical feasibility that seeks to limits potential impacts on environment. As the Theddlethorpe Landfall has not progressed through to statutory consultation, the following **Section 3.7** focuses on the development of the Preferred Corridor from Anderby Creek Landfall only. The Preferred Landfall progressed to statutory consultation and presented in this PEIR is described in **Volume 1, Part 1, Chapter 4: Description of the Projects**.

3.7 Design Development and Evolution of the Projects from Non-statutory Consultation.

Design review process: English Onshore Scheme

3.7.1 Following the non-statutory consultation feedback, the Projects were further developed to form the development presented at statutory consultation. The feedback received during non-statutory consultation has been carefully reviewed and considered, informing the ongoing technical work on the technical design and the EIA process. This section provides a summary of how the design of the English Onshore Scheme has evolved since non-statutory consultation.

3.7.2 As well as the locations of the permanent components of the English Onshore Scheme, the temporary construction areas, including indicative zone for construction compounds[2], proposed temporary access tracks and points (and bellmouths and visibility splays) have been considered as part of the Design Change Control (DCC) process. These were reviewed, appraised and refined as needed to seek to avoid potential environmental, socio-economic and land ownership impacts as well as technical constraints as far as practical.

Design change control process

3.7.3 The DCC process was developed to ensure that each identified change request (termed as Design Change Request (DCR)) was robustly considered by NGET's specialist teams covering environment, design and construction and land rights and reasons for changes throughout the design development are recorded and evidenced.

[2] Indicative development zones accommodated for within the draft Order Limits. Refer to **Volume 1, Part 1, Chapter 4: Description of the Projects** for definitions of development zones.

3.7.4 The DCC process covers any element of the design relevant to the stage of design development in the project programme. For example, any DCRs raised during the non-statutory consultation period will relate to the Preferred Corridor and Preferred Siting Zones and the associated graduated swathe and siting areas; DCRs at a later stage of design development and during the statutory consultation period may be raised for specific elements of the design or mitigation approaches.

3.7.5 Broadly the DCC process is comprised of the following stages:

- Initiation of a DCR and preliminary assessment (Stages A and B): – Proposed DCRs are formally initiated in the DCC Process. Each DCR is initially reviewed to identify if there are valid reasons to consider the request. To be considered, each DCR needed to be specific and locatable. They would constitute a request to alter a specific element of the design or avoid a specific feature. A vague statement, a request that relates to the whole route, or a general request for alternatives to be shown were not considered a DCR. Some identified refinements were rejected at this stage if, for example, they were a duplication of another request already in the system being considered or had been addressed at a previous stage and documented in the CPRSS or SOR.
- Design Appraisal (Stage C): This examined the technical feasibility of the DCR and, if the change was considered feasible considering technical complexity, construction issues, technology issues, capacity issues, network efficiencies and cost. Should the DCR be feasible, a revised technical design was developed for consideration in the next stage of the process.
- Assessment (Stage D): This stage included a detailed appraisal of the DCR, carried out by environment, consents and lands. Once the Stage C and D appraisals have both been completed, a multi-disciplinary workshop is held to carry out a full impact review of the DCR and agree whether it should be rejected or accepted for implementation.

3.7.6 The NGET's DCC process promotes good design to be considered at an early conceptual stage by avoiding environmental impacts at the outset, where practicable. This includes using the mitigation hierarchy (i.e. to avoid, then reduce and then compensate) to avoid impacts in the first instance by locating project features away from sensitive receptors where practicable and considering measures that can be embedded into the design where sensitive features and receptors cannot be avoided.

3.7.7 As part of the DCC process, the following design selection principles were considered and applied, drawn from NGET's experience and the Projects' specialists supporting the process:

- Avoidance of key sensitive features and receptors by applying appropriate offsets between the English Onshore Scheme and the identified features, where practical. This included minimising or re-orientating construction working areas to avoid effects on potential receptors where practical or refining the Indicative Zone for underground cable assets[2] and Indicative zone of the converter stations[2] to avoid and minimise impacts on specific receptors.
- Consideration of the space technical constraints such as existing third-party utilities, space available, future restrictions etc.
- Shortest route preference to reduce impacts by minimising the amount of infrastructure and overall construction areas. Subsequently, this approach would

also reduce the costs of the Projects which ultimately reduces the cost to the consumer.

- Ensuring safe access opportunities and inclusion of permanent and temporary access routes.

3.7.8 Each step of the process involved gathering data from several different sources to define and assess the potential alternatives. This information was then collated, reviewed and appraised to reach cross-discipline decisions about each DCR. The outcome, following balanced and informed consideration, was either that the change raised via a DCR was included in the design of the English Onshore Scheme, or that the proposed change was not preferred (for example it might create other environmental impacts that would outweigh the benefit the change might otherwise create) and therefore no change was made.

Assessment of the identified DCRs: English Onshore Scheme

3.7.9 As identified in **Section 3.4**, the non-statutory consultation materials presented the Preferred Corridor and Preferred Siting Zone as well as the broad areas where the proposed new infrastructure associated with the English Onshore Scheme is likely to be located. This was illustrated via siting areas within the Preferred Siting Zone and a series of graduated swathes within the Preferred Corridor, showing a greater preference for the location of the required infrastructure as darker areas of the graduated swathe.

3.7.10 The below sections outline any changes made since the non-statutory consultation, focussing on any design changes made outside or within the Preferred Corridor and Preferred Siting Zone as well as their associated graduated swathes. For ease of reference the below sections are split into Preferred Corridor Sections or specific themes or group of themes raised during the non-statutory consultation.

Offshore Alternatives and Alternative Landfall

3.7.11 During the non-statutory consultation, various respondents stated a preference for an entirely offshore or predominantly offshore connection alternative. A response to providing the connection offshore was provided as part of the Projects Need Case in the SOR, also summarised in **Section 1.3, Volume 1, Part 1, Chapter 1: Introduction**. No changes to the conclusions drawn as part of this report have been identified, specifically, when considering the need case for the Projects, legislative and policy changes as well as further environmental and technical studies. Therefore, the Preferred Strategic Options, as presented in the non-statutory consultation, remain valid and form an appropriate basis on which to take the Projects forward. Landfall requirements are described in **Sections 3.4** and **3.5**, with Anderby Creek Landfall taken forward as the Preferred Landfall for statutory consultation.

Sections 1 (Landfall to Bilsby): Assessment of the Anderby Creek Landfall and Preferred Corridor

3.7.12 Decision making associated with the selection of Anderby Creek Landfall as Preferred Landfall in response to non-statutory consultation feedback is provided in **Section 3.6.** The below section identifies the DCRs progressed at Anderby Creek Landfall and the Preferred Corridor further inland in response to non-statutory consultation comments or additional environmental and technical studies. In addition, following the removal of the project infrastructure associated with the three-ended HVDC link, changes associated with identifying a more direct route from Anderby Creek Landfall have also been

considered alongside the DCRs progressed in Section 1 of the Preferred Corridor. These are described below.

3.7.13 Within the Anderby Creek Landfall study area, the area identified as most suitable for the landfall infrastructure is situated north of Anderby Creek and partially overlapping with the southern border of the former Sandilands Golf Course as shown on **Volume 3, Part 1, Figure 3-3**.

3.7.14 The Preferred Corridor and graduated swathe within Preferred Corridor Section 1 Landfalls to Bilsby is shown in **Volume 3, Part 1, Figure 3-4**. For the purposes of this Preferred Corridor Section, only the Preferred Corridor from Anderby Creek Landfall shown on **Volume 3, Part 1, Figure 3-4** is of relevance. This shows two options for the underground cable from the Anderby Creek Landfall, routeing either west or southwest toward Bilsby.

3.7.15 Non-statutory consultation feedback for Anderby Creek Landfall or the Preferred Corridor adjacent to the landfall did not suggest any specific changes which are not already discussed in the above sections of this chapter. However, the feedback reinforced a need to minimise the impact of the English Onshore Scheme on the local landscape, habitats, roads, and visual amenities. Feedback provided by the National Trust identified National Trust property and land within the Preferred Landfall and Preferred Corridor in Lincolnshire. At Anderby Creek Landfall, this is situated at Sandilands, which is a former golf course that the National Trust has acquired. Planning permission was granted in 2023 to enable the National Trust to transform this into a nature reserve. This feedback has been considered as part of the development of the Indicative Zone for underground cable assets from Anderby Creek Landfall which is described further below.

3.7.16 Taking account of non-statutory consultation feedback, further environmental and technical studies, and the removal of the three-ended HVDC link from the Projects, the Preferred Corridor from Anderby Creek Landfall was progressed through the DCC process focussing on the Anderby Creek Landfall study area and the two Preferred Corridor options as illustrated on **Volume 3, Part 1, Figure 3-4**. The DCRs progressed for this Preferred Corridor Section considered the following factors:

- Routeing from the southern extent of the Anderby Creek Landfall study area would avoid the potential impacts associated with routeing via or near the National Trust land.
- Routeing from the southern extent of the Anderby Creek Landfall study area would reduce the overall HVDC underground cable length, resulting in reduced potential for temporary habitat loss during construction, and reduced disruption on landscape and visual receptors during construction.
- Reducing the length of the HVDC underground cable would also reduce the cost and programme implications on the Projects.
- Routeing from the southern extent of the Anderby Creek Landfall study area would reduce potential disruption on Public Rights of Ways (PRoW) as this routes through two PRoW whilst the northern alignment routes through a total of five.
- Publicly available information identifies that the southern extent of the Anderby Creek Landfall study area contains less known archaeology along the cable route.

3.7.17 The DCC process concluded that the Indicative zone for underground cable should route directly southwest towards Bilsby routeing through the southern extent of the

Anderby Creek Landfall study area. The draft Order Limits and Indicative zone for underground cable assets are shown on **Volume 3, Part 1, Figure 4-6**.

Sections 2 (Bilsby to Weston le Marsh) to 8 (Foul Anchor to Walpole): Assessments of the Preferred Corridor

3.7.18 The key themes associated with the Preferred Corridor within Sections 2 to 8 which emerged from non-statutory consultation included potential impacts on landowners (for example, those related to productive farmland land severance), traffic associated with construction, potential impacts on the rural character and neighbouring communities, cabling to follow or avoid existing infrastructure, and interactions with other proposed developments (for example, proposed solar farms). The feedback received has subsequently been considered alongside a broad range of environmental and technical constraints to further refine the Preferred Corridor from the Anderby Creek Landfall to the Walpole Converter Stations. Changes and main alternatives considered as part of this process are described below.

3.7.19 Where the Indicative zone for underground cable assets is routed outside of the Preferred Corridor these are referred to as 'Changes outside the Preferred Corridor' and where the design changes were raised within the Preferred Corridor but deviated from the underground cable graduated swathe these are referred to as 'Changes outside of the graduated swathe'. The DCRs progressed following the non-statutory consultation are outlined below and described per the Preferred Corridor Section (Sections 2 to 7) based on where changes were made. DCRs progressed within Section 1 at Anderby Creek Landfall are discussed above. DCRs specific to the converter stations and Walpole B Substation in Section 8 of the Preferred Corridor (Foul Anchor to Walpole) are discussed below following the assessment of the Preferred Corridor.

3.7.20 The draft Order Limits and the Indicative Zone for underground cable assets for Preferred Corridor Sections 2 to 8 are shown on **Volume 3, Part 1, Figure 4-6**.

Section 2: Bilsby to Welton le Marsh

3.7.21 Section 2 of the Preferred Corridor as shown in **Volume 3, Part 1, Figure 3-5** runs from Bilsby to Welton le Marsh and includes the connection point at the new LCS converter station for the three-ended HVDC link.

3.7.22 From Bilsby, the underground cable route would continue south. At this point, two options were introduced allowing the cable to cross the B1449 either east of or west of, Thurlby to seek to avoid impacts on Thurlby itself and associated non-designated heritage assets.

3.7.23 From Thurlby, the underground cable would continue to route south, avoiding scattered agricultural features in proximity to Farlesthorpe and Cumberworth. North of Bonthorpe, western and eastern optionality has been introduced to avoid a Scheduled Monument.

Changes outside of the Preferred Corridor

3.7.24 As identified above, changes were made following the removal of the infrastructure associated with the three-ended HVDC link and considering the DCRs progressed at Anderby Creek Landfall. The Indicative Zone for underground cable assets is proposed within the southern option of the Preferred Corridor routeing directly southwest to Bilsby and Thurby before continuing south towards Welton Le Marsh.

Changes outside of the Graduated Swathe

3.7.25 DCRs progressed within the Section 2 Preferred Corridor but outside of the graduated swathe are described below:

- A series of hedgerows were identified within the graduated swathe route to the south and east of Weston-le-Marsh that informed the main alternatives. In some areas, the Indicative Zone for underground cable assets deviates from the darker areas of the graduated swathe to avoid these areas.

3.7.26 No other main alternatives were considered within this Section of the Preferred Corridor and the Indicative Zone for underground cable assets follows the darker areas of the graduated swathe.

Section 3: Welton le Marsh to Little Steeping

3.7.27 Section 3 of the Preferred Corridor as shown in **Volume 3, Part 1, Figure 3-6** runs from Welton le Marsh to a point immediately south of the village of Little Steeping. From Welton le Marsh, the underground cable route would continue west, seeking to avoid the village of Orby and associated Scheduled Monument Manor Farm moated site. The route would continue west before turning south at Gunby Hall. From Gunby, the underground cable route would continue south, before crossing the B1195 east of Great Steeping. From the B1195, optionality is introduced to cross the Steeping River and to avoid the village of Little Steeping.

Changes outside of the Preferred Corridor

3.7.28 Several technical constraints have been identified at Gunby Hall roundabout which required moving the Indicative Zone for underground cable assets to the northern boundary of the Preferred Corridor and graduated swathe and further into the Lincolnshire Wolds National Landscape boundary. This was identified as a requirement due to a lack of ground investigation information and to allow more perpendicular crossing for roads/gas main and reduce risks for crossing options of these features.

3.7.29 No other DCRs within Section 3 of the Preferred Corridor were progressed and the Indicative Zone for underground cable assets follows the darker areas of the graduated swathe.

Section 4: Little Steeping to Sibsey Northlands

3.7.30 Section 4 of the Preferred Corridor runs from a point at Little Steeping to a point immediately south of the village of Sibsey Northland as shown in **Volume 3, Part 1, Figure 3-7**. As shown below, the graduated swathe presented two darker areas within the Preferred Corridor south of Little Steeping and east of Sibsey Northlands. From the south of Little Steeping, the Preferred Corridor continues routeing southwest, turning south at Scarborough Bank whilst avoiding scattered residential properties connecting back to the main route west of Leake Commonside. An alternative option was developed to the east of the specifically excluded areas associated with properties at Midville, Hobhole Drain and Bell Water Drain.

Changes outside of the Graduated Swathe

3.7.31 DCRs progressed within the Section 2 Preferred Corridor but outside of the graduated swathe are described below:

- Since the non-statutory consultation, several DCRs have been progressed in collaboration with the Grimsby to Walpole Project as these NGET projects co-ordinate their designs and landowner engagement. The DCRs raised in response to landowner feedback in this Section of the Preferred Corridor identified potential changes to the location of infrastructure and opportunities to co-ordinate the development of infrastructure. The Indicative Zone for underground cable assets is proposed between the two options illustrated by the graduated swathe and described above. The Indicative Zone for underground cable assets routes to the south of Little Steeping, moving south to north then west of New Leake where it rejoins the graduate swathe alignment to the north of Sibsey. The change made in response to these DCRs allowed for the opportunity to reduce potential impacts on farmland and farm operations and provided the opportunity for co-ordinated construction, seeking to minimise disruption to neighbouring communities. Additional technical opportunities were also identified removing additional watercourse crossings and associated environmental effects.

3.7.32 No other main alternatives were considered within this Section of the Preferred Corridor and the Indicative Zone for underground cable assets follows the darker areas of the graduated swathe.

Section 5: Sibsey Northlands to Hubbert's Bridge

3.7.33 This Preferred Corridor Section as shown in **Volume 3, Part 1, Figure 3-8** runs from the point at Sibsey Northlands to a point immediately east of Hubbert's Bridge (west of Boston). From Sibsey Northlands and the A16 crossing, optionality is introduced to present options to allow for the avoidance of multiple clusters of residential properties and multiple crossings of major and minor watercourses. One option would continue routeing west before turning southwest and continuing south to Hubbert's Bridge. The alternative route would turn south after crossing the A16 split into two options to avoid a cluster of scattered residential properties before continuing south and west of Boston. The route would then turn directly south seeking to cross South Forty Foot Drain and the A1121 west of the Boston Aeroclub.

Changes outside of the Graduated Swathe

3.7.34 The Indicative Zone for underground cable assets routes directly south towards Boston taking the darkest route of the graduated swathe. The below identifies the DCRs progressed within Section 5 Preferred Corridor but outside of the darker areas of the graduated swathe.

- An additional option within the Preferred Corridor but outside of the darker areas of the graduated swathe is proposed to the west of Boston. This option is proposed in response to an environmental appraisal of the Preferred Corridor and a suggestion to investigate opportunities to move the cable route further west to avoid an area of possible settlement remains. The alternative option routes further west from Boston, providing an option to avoid an area of known Historic Environment Records (HER) entry as records show that there are no known HER entries along that alternative route. However, it is also recognised that the area identified within the darker areas of the graduated swathe could also be appropriately mitigated through excavation (if required). On this basis, both options to the west of Boston are included within the draft Order Limits for statutory consultation providing two alternative options in the area to the west of Boston. Further micro siting options would be investigated and refined as further information becomes available.

3.7.35 Although within the graduated swathe, Section 5 of the Preferred Corridor also includes two additional options at two crossing points, one where the English Onshore Scheme crosses the A16 north of Sibsey, and one where the English Onshore Scheme crosses the West Fen Drain north of Cowbridge. Both of these options are included to retain crossing flexibility and will be investigated and refined as further information becomes available.

3.7.36 No other main alternatives were considered within this Section of the Preferred Corridor and the Indicative Zone for underground cable assets follows the darker areas of the graduated swathe.

Section 6: Hubbert's Bridge to River Welland

3.7.37 This Preferred Corridor Section of the Preferred Corridor runs from a point east of Hubbert's Bridge to a point north of the Moulton Seas End as shown in **Volume 3, Part 1, Figure 3-9**. From the east of Hubbert's Bridge, optionality is introduced to retain the flexibility of a perpendicular crossing of New Hammond Beck and the A52. One option would cross to the west of the B1192 and the other would cross east of the B1192. In addition, two crossing options of the A52 were suggested.

3.7.38 As identified above, two alternative options are proposed in Section 5 of the Preferred Corridor. These include two options in the area to the west of Boston. From this section, the route continues south following the darker area of the graduated swathe and retaining two crossing options of the A52. These two options would then converge to the north of Frampton Bank.

3.7.39 No further DCRs within this section were progressed and from this location of the Section 6 Preferred Corridor, the Indicative Zone for underground cable assets follows the darker areas of the graduated swathe.

Section 7: River Welland to Foul Anchor

3.7.40 Section 7 of the Preferred Corridor (as shown in **Volume 3, Part 1, Figure 3-10**) runs from a point north of Moulton Seas End to a point immediately east of Foul Anchor (east of the A1101). Optionality was introduced to route along approximately 6 km of the A17 between a point north of the Saracen's Head to a point between Holbeach and Fleet Hargate seeking to utilise a more direct route southeast towards the Walpole Converter Stations.

3.7.41 Location specific feedback from stakeholders confirmed that routeing alongside the A17 in this section is likely to result in significant impacts and would not be acceptable to road users and the community. This is because the A17 is currently heavily constrained being the main route to link the eastern and western parts of the country. As a result, the A17 alternative route has been discounted as part of the DCC process and is not taken forward. With the A17 option discounted, the draft Order Limits follow the darker areas of the graduated swathe.

3.7.42 No other DCRs associated with Section 7 of the Preferred Corridor or graduated swathe were progressed. However, one change outside of the Preferred Corridor immediately to the west of River Nene and south of Foul Anchor was progressed as part of the DCC process. Although the description of this DCR is provided for Section 8 of the Preferred Corridor below, it should be noted that this change is also relevant to Section 7 of the Preferred Corridor.

Section 8 (Foul Anchor to Walpole)

3.7.43 Section 8 of the Preferred Corridor as shown in **Volume 3, Part 1, Figure 3-11** runs from a point east of Foul Anchor to the emerging Preferred Walpole Converter Station Siting Zone. This section includes optionality for multiple entry points into the Preferred Walpole Converter Station Siting Zone. Two options were proposed to the northwest of Ingleborough and two connection options to the north and south of the Rose and Crown Solar Farm.

Changes outside the Preferred Corridor

3.7.44 Several DCRs were raised in response to non-statutory consultation feedback which identified potential interactions with other proposed developments in Section 8 of the Preferred Corridor. Further reviews of planned and potential developments and other forms of constraints identified to the east of River Nene and within the surroundings of Walpole Marsh were also identified and progressed as part of the DCC process.

3.7.45 In response to the above, an additional option is proposed between the A1101 Sutton Road and the River Nene which sits to the west of the River Nene and outside of the graduated swathe and the Preferred Corridor for Sections 7 and 8. It is proposed that the Indicative Zone for underground cable assets includes two potential options with three crossings points for routeing to Walpole and connecting to the Preferred Siting Zone (WLP4/5) and both options are included within the draft Order Limits for statutory consultation.

3.7.46 The additional route to the west of the River Nene was developed in accordance with the DCC process design selection principles as outlined at the start of Section 3.7 and was identified to have several potential features, constraints and benefits. The additional option provides a shorter route to the Indicative locations of the Converter Stations thereby reducing the extent of potential impacts associated with habitat loss and agricultural land and avoiding routeing through proposed and potential developments including renewable energy projects. However, it is also recognised that the additional option, specifically, where it crosses the North Level Main Drain at Foul Anchor may potentially result in further residential amenity temporary impacts during the construction works. This also introduces an additional watercourse crossing resulting in a total of two watercourse crossings. Should this option be taken forward at DCO application submission, appropriate mitigation measures and commitments reducing potential visual, noise and air quality impacts as far as practical would be sought and assessed as required. Further reviews and engagement with the relevant parties would continue as appropriate through to the submission of the DCO application and appropriate design refinements would be considered and assessed as required. The final cable route presented at DCO application in this area would also be influenced by the ongoing studies, the final decision on the location of the Walpole converter stations and Walpole B Substation, stakeholder feedback and co-ordination with the Grimsby to Walpole Project

3.7.47 As identified above, multiple entry points were identified within the Preferred Corridor at Walpole. Together with the review of the preferred siting areas (as identified further below), the entry point options were reviewed. For the two options to the north and northeast of Ingleborough, the most northern option was preferred as it provides a more direct connection to the Preferred Siting Zone (WLP4/5) at Walpole and provides additional flexibility around existing technical, environmental and planning features and constraints identified in this area. However, to accommodate the HVDC cable routes connecting to the Preferred Siting Zone, additional areas were required to be included

within the draft Order Limits to accommodate the HVDC cable routes. These areas are located immediately to the north of Mill Road, Ingleborough, and east, and west of Walpole Bank, and Folgate Lane, and are outside of the Preferred Corridor and the graduated swathe. The draft Order Limits and Indicative zone for underground cable assets for Preferred Corridor Section 8 are shown on **Volume 3, Part 1, Figure 4-6.**

Section 8 Foul Anchor to Walpole: Assessment of the Walpole B Substation, Walpole Converter Stations

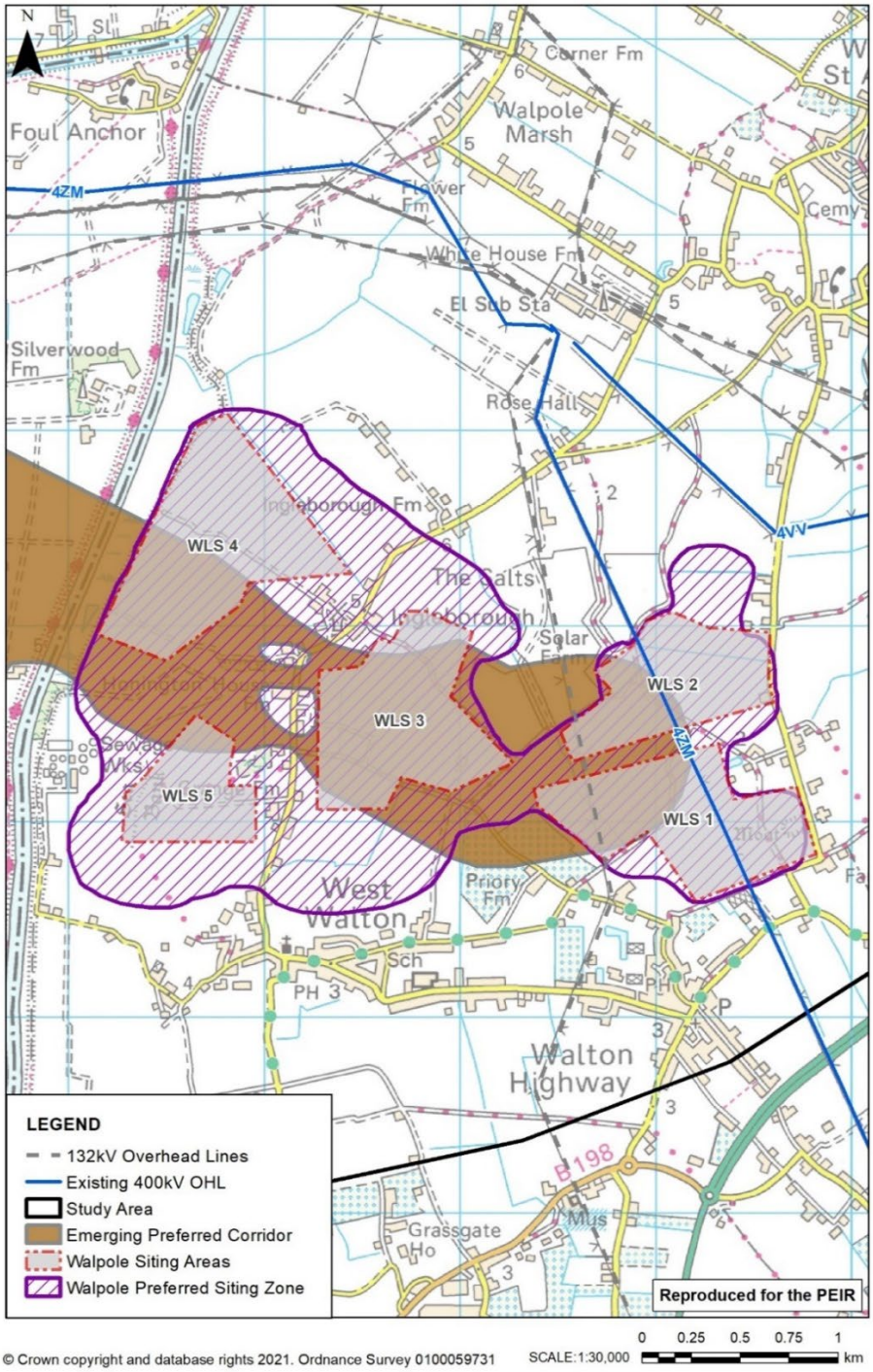
3.7.48 The below section describes the design evolution associated with the Walpole B Substation and the converter stations situated within Section 8.

Walpole B Substation

3.7.49 As identified in **Section 3.5** of this chapter, the Preferred Siting Zone for the Walpole B Substation is the hybrid WLP4 and WLP5 siting zone ('WLP4/5') located north of West Walton and Walton Highway (Ref 3.4 and 3.13) This option was taken forward for non-statutory consultation and was subject to more detailed studies and design work following consultation.

3.7.50 Within the WLP4/5 Preferred Siting Zone, a total of five feasible siting areas were presented (WLS1, WLS2, WLS3, WLS4 and WLS5) at non-statutory consultation. These are shown on **Plate 3-7.**

Plate 3-7: Preferred Walpole B Substation Siting Areas



3.7.51 A comparative appraisal was carried out as part of the CPRSS to inform the graduated swathe applying environmental, socio-economic and technical topics and sub-topics as set out in Step 2 (Section 4.3 of the CPRSS) (Ref 3.13). The topics of ecology, water, socio-economics, air quality and noise were not considered to be differentiating factors between the five siting areas, as all are free from designated ecological features, are within areas of Flood Zone 2 and 3 and have similar characteristics in respect of air quality, noise and socio-economic factors. For the remainder of environmental factors (for example, historic environment, landscape and visual amenity), the comparative appraisal identified a landscape and visual preference for the WLPS1 because of an assessed strong sense of enclosure across the siting area, specifically from the west

where views are well screened by vegetation. The location of WLS1 siting area also provides an advantage of siting directly beneath the 4ZM overhead line minimising potential wirescapes in the area. From a technical perspective, WLS1 was also preferred because of its size allowing for flexibility of siting within the siting area and is located directly under the 4ZM 400 kV overhead line.

3.7.52 Taking the above into consideration, an area primarily encompassing WLS1 was identified as the emerging preference for Walpole B Substation (Ref 3.4 and 3.13). The graduated swathe for the Walpole B substation which considers the conclusions of the comparative appraisal and was presented at non-statutory consultation is shown on **Volume 3, Part 1, Figure 3-12**.

3.7.53 Since the non-statutory consultation and considering the feedback received, ongoing environmental and technical studies and information for the Preferred Siting Zone (WLP4/5), siting of the Walpole B Substation remains within the darker areas of the graduated swathe. This area is still preferred for the following reasons:

- It is within an area with existing landscape screening and provides additional opportunities for visual screening.
- It is in proximity to the 4ZM 400 kV overhead line reducing complexity and need for significant diversions of the existing network.
- It is less constrained for customer connections and connections for NGET projects due to existing infrastructure.
- It avoids areas with existing technical constraints and also avoids the existing Rose and Crown Solar Farm.

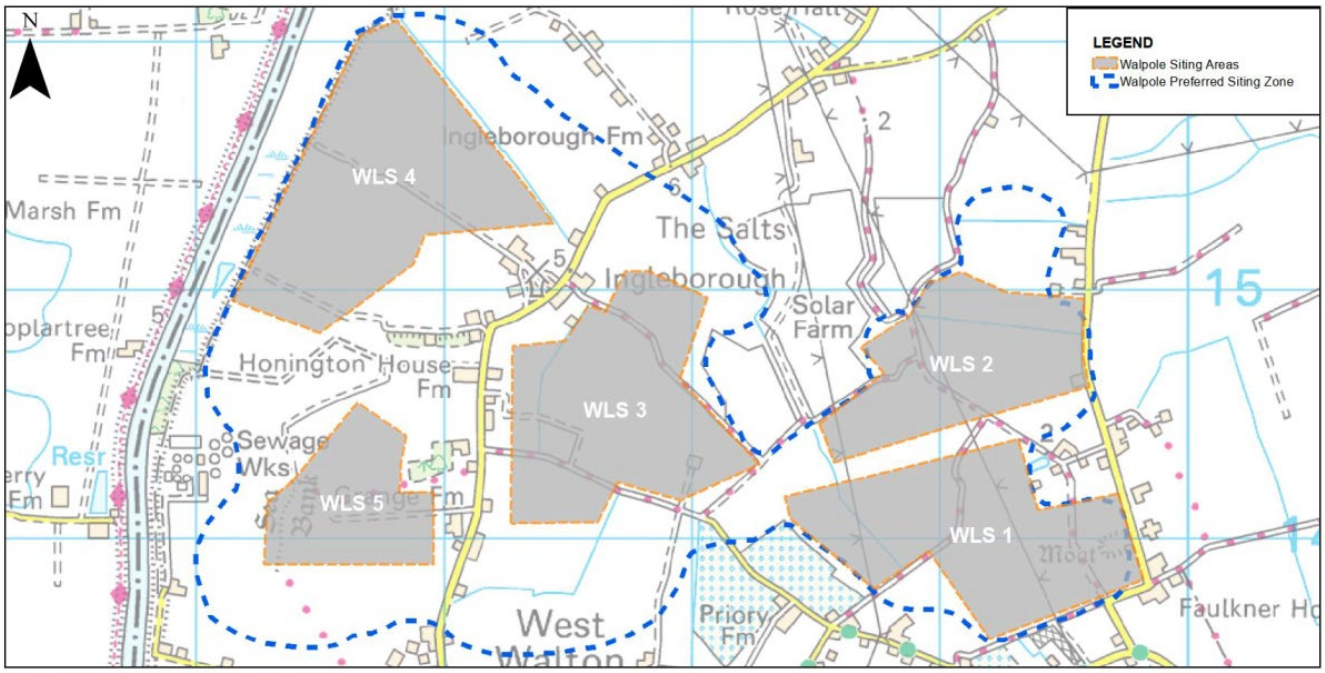
3.7.54 A description of the Indicative location of the Walpole B Substation is provided in **Volume 1, Part 1, Chapter 4: Description of the Projects.**

Converter Stations

3.7.55 As identified in **Section 3.5** of this chapter, the Preferred Converter Stations Siting Zone is a hybrid WLP4 and WLP5 located north of West Walton and Walton Highway. The graduated swathe for the Walpole converter stations is shown in **Volume 3, Part 1, Figure 3-13.**

3.7.56 Within the Preferred Siting Zone of WLP4/5, five siting areas were identified (WLS1, WLS2, WLS3, WLS4 and WLS5) as shown in **Plate 3-8**.

Plate 3-8: Preferred Walpole Converter Station Siting Areas



3.7.57 A comparative appraisal was carried out as part of the CPRSS to inform the graduated swathe applying environmental, socio-economic and technical topics and sub-topics as set out in Step 2 (Section 4.3 of the CPRSS) (Ref 3.4). As with the appraisal of the Walpole B Substation, topics of ecology, water, socioeconomics, air quality and noise were not considered to be differentiating factors. For the remainder of the environmental topics, the comparative appraisal identified areas WLS2, WLS3 and WLS4 as emerging preferences and most likely locations for the new converter stations at the time. From a technical perspective, the comparative appraisal also identified that the area most likely for infrastructure to be located was adjacent (where practicable) to areas where the Walpole B Substation would be most likely to be located. This was due to their position near the Walpole B Substation siting with the emerging preferred location being siting area WLS1, situated within the southeast corner of the Preferred Walpole B Substation Siting Zone as described above and shown in **Plate 3-7**. It was identified that the co-ordination of permanent infrastructure would limit the spread of effects across a wider area and allow the opportunity for efficiencies during construction. For example, it would reduce the length of HVAC underground cables and spread of effects into the surrounding environment. In addition to preferred areas WLS2, WLS3 and WLS4, WLS1 was also identified as a potential location for the converter stations based on the appraisal of the existing features, constraints and opportunities. Although, this was identified as the emerging preference for Walpole B Substation (Ref 3.4 and 3.13), this approach retained siting flexibility within the emerging Preferred Siting Zone until further details on the design of the Walpole B Substation were available.

3.7.58 Since the non-statutory consultation and taking into account the ongoing environmental and technical studies, latest design information and any feedback raised as part of the non-statutory consultation a review of the preferred siting areas for the Converter Stations was carried out. As part of this process, a decision was also made to consider siting areas which may only accommodate one converter station with the second converter station sited elsewhere within the Preferred Siting Zone and the graduated swathe. This approach allowed for all areas within the graduated swathe with sufficient space for at least one converter station to be considered, noting that the preference for

areas where co-location of infrastructure could be achieved as documented within the CPRSS.

3.7.59 The review also considered the ongoing studies and design information relevant to the location of the Walpole B Substation, working together with the Grimsby to Walpole Project. With the Walpole B Substation location also confirmed and taken forward as part of the non-statutory consultation (siting area WLS1 as described in **paragraphs 3.7.52 to 3.7.54**), the review identified that siting areas WLS2, WLS3 and WLS4 remain the preferred locations for the converter stations and these are taken forward to statutory consultation. This is due to the siting area WLS5 being constrained by two existing gas mains and multiple ditches that would require diversions, as well as generally providing limited environmental opportunities and siting area WLS1 being selected for the Walpole B Substation as identified above. In addition, these areas remain the preferred locations for the following reasons:

- They take account of the existing technical and environmental features and constraints, including existing gas mains and ditches identified within the Preferred Converter Stations Siting Zone.
- They are in proximity to the selected Walpole B Substation location, allowing for opportunities for efficiencies during the construction of the Projects and reducing technical complexities associated with longer HVAC cables.

3.7.60 Since the non-statutory consultation, siting areas WLS2, WLS3, and WLS4 have been further refined taking into consideration ongoing environmental and technical studies. A detailed description of the Indicative zone of the Converter Stations and Indicative locations of the Converter Stations are provided in **Volume 1, Part 1, Chapter 4: Description of the Projects**.

Changes associated with Temporary / Other Infrastructure

3.7.61 Additional changes outside of the Preferred Corridor and Preferred Siting Zone were progressed as part of the DCC process. These changes resulted in additional areas being included within the draft Order Limits for the English Onshore Scheme as shown on **Volume 3, Part 1, Figure 1-4** for statutory consultation and are described below. It should be noted that the below areas are included within the draft Order Limits for the purposes of temporary infrastructure only which were not part of the CPRSS search and appraisal.

- Sutton Bridge to the north of Walpole Marsh:
  - Additional areas are included in response to further technical studies which identified the need for additional storage and laydown areas in proximity to the construction works at Walpole. These areas are located outside the Preferred Siting Zone and graduated swathe presented at non-statutory consultation.
- Area to the east of West Drove North and east of the preferred siting area:
  - An additional area to the east of West Drove North is included to accommodate the construction compounds required for the construction of the Converter Stations to the west of West Drove North. This area is located outside the Preferred Siting Zone and graduated swathe presented at the non-statutory consultation.
- Area to the south of West Drove North:

– An additional area is included to the south of West Drove North to accommodate for the potential access and junction improvement requirements along the Lynn Road / West Drove North junction. This area is located outside the Preferred Siting Zone and graduated swathe presented at the non-statutory consultation.

Design review process and design refinements: English Offshore Scheme

3.7.62 Route development of the English Offshore Scheme continued as offshore survey work progressed, with an iterative process of data gathering, review and centreline route development allowing for micro routeing around sensitive features, including archaeological features and challenging ground conditions. Following completion of the offshore surveys the draft Order Limits were clipped to the extent of the survey data.

3.7.63 The MCZ routeing was also further refined following completion of the offshore surveys and feedback from stakeholders. Data were gathered along routes that crossed the MCZ and routed around the MCZ. The routes around the MCZ are being taken forward with EGL 3 completely avoiding the MCZ, whilst EGL 4 clips the southeastern and northeastern corners of the MCZ but minimises the interaction with the MCZ as far as possible.

3.7.64 Further refinement of the route centreline will continue as more detailed analysis of the survey data progresses, all refinements will remain within the draft Order Limits and ensuring that all sensitivities are assessed within the EIA.

3.8 Statutory consultation and next steps

3.8.1 This chapter provides a staged overview of how reasonable alternatives have been considered as part of the evolution of the Projects Specifically:

- **Sections 3.4** and **3.5** identify the selected preferred options as presented at the non-statutory consultation.
- **Section 3.6** identifies that of the two Landfall options presented taken to non-statutory consultation, Anderby Creek Landfall is the preferred option which was considered and assessed for statutory consultation. **Section 3.6** also confirms that the three-ended HVDC link and its associated infrastructure are not required for the Projects and have been excluded from the English Onshore Scheme components for statutory consultation.
- **Section 3.7** describes how the selected options presented at the non-statutory consultation and taken through to statutory consultation have evolved to result in the draft Order Limits, the Indicative Zone for underground cable assets, Indicative Zone of the converter stations, and Indicative location of the Walpole B Substation as described and presented in **Volume 1, Part 1, Chapter 4: Description of the Projects**.

3.8.2 Consultation on the information provided in this PEIR and the feedback received will be used to review and refine the design of the Projects, where appropriate. The Indicative Cable Route, Indicative zone of the converter stations and Indicative location of the Walpole B Substation will continue to be refined subject to further assessment of potential environmental effects and the results of ongoing field surveys. Consultation feedback received during subsequent statutory consultation will also be considered and fed into the site selection process.

3.8.3 This chapter will be updated to include information on the further refinement of the Projects both onshore and offshore and will highlight any changes or revisions between the proposals as they are currently set out and assessed within the PEIR and those which are included in the final DCO submission. This will then form the basis of the DCO application documents. The current Projects design which is being consulted on is described in further detail in **Volume 1, Part 1, Chapter 4: Description of the Projects**.

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