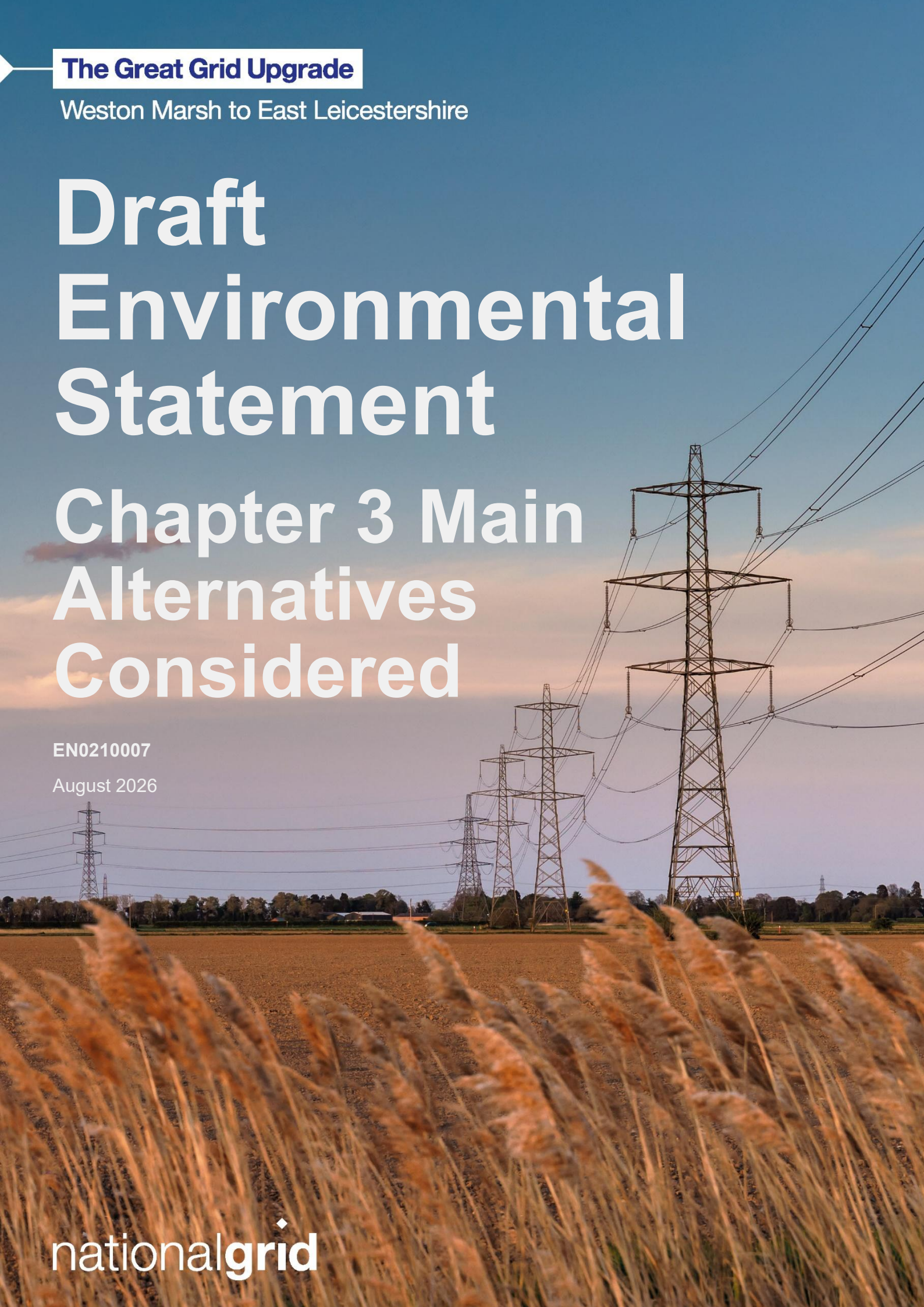




The Great Grid Upgrade

Weston Marsh to East Leicestershire

Draft Environmental Statement

Chapter 3 Main Alternatives Considered

EN0210007

August 2026

nationalgrid

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3. Main Alternatives Considered

3.1 Consideration of Alternatives

- 3.1.1 Regulation 14(2)(d) in conjunction with paragraph 2 of Schedule 4 of The Infrastructure Planning (Environmental Impact Assessment (EIA)) Regulations 2017 (Ref 3.1) states that an Environmental Statement (ES) should include ‘*a description of reasonable alternatives studied by the applicant, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the chosen option, taking into account the effects of the development on the environment.*’
- 3.1.2 Although this non-statutory Draft Environmental Statement (DES) (referred to in this document as “DES” and non-statutory DES”) is being published on a voluntary basis, the consideration of alternatives remains an integral part of the ongoing development of the Weston Marsh to East Leicestershire Project (the Project). This chapter therefore provides information to help the reader understand how the Project has evolved, having regard to environmental considerations.
- 3.1.3 National Grid Electricity Transmission plc (National Grid) undertakes options appraisal for its individual projects. There are often several different ways that a project can be developed, involving different locations, technologies, or designs. Each project requires judgements and decisions about the most appropriate way to achieve the required outcome. The options appraisal process provides information to help inform those judgements.
- 3.1.4 National Grid has been through an iterative options appraisal process to determine the preferred option, which comprises the Project as described in **Chapter 4 Description of the Project** and shown in **Figure 4.1 Proposed Project Design**.
- 3.1.5 The purpose of **Chapter 3 Main Alternatives Considered** is to describe how the Project has evolved to date. For the current Project description, please refer to **Chapter 4 Description of the Project**.

3.2 National Grid Approach to Options Identification and Selection

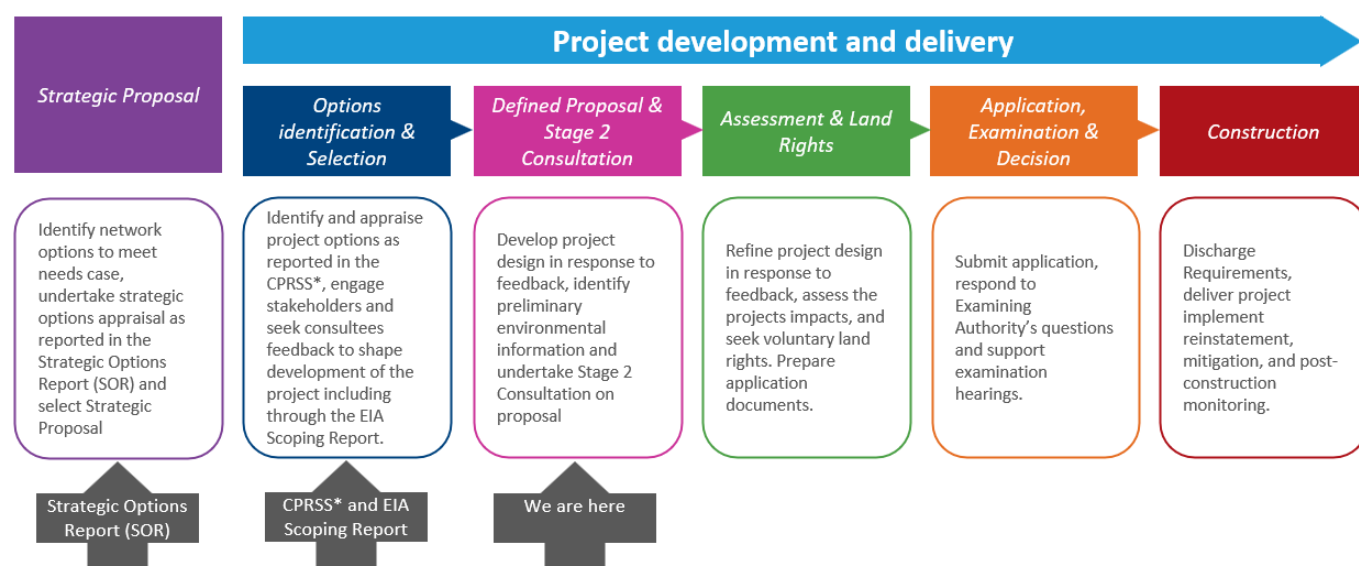
- 3.2.1 Options appraisal is a robust and transparent process that is used to compare options and to assess the positive and negative effects they may have, across a wide range of criteria including environmental, socio-economic, technical, and cost factors. The aim is to determine a preferred option or options that can be consulted upon, taking into account National Grid’s statutory duties, established policy and principles, and any other relevant information. Further details on the options identification and selection process can be found in Our Approach to Consenting (Ref 3.2).
- 3.2.2 At each stage in the options identification and selection process, transparent methods were used to inform the iterative decision-making and design development processes, including inputs from engineers and environmental consultants. Interim decision making took into account feedback from prescribed bodies, as defined in the Planning Act 2008 (Ref 3.3), other stakeholders and the local community through an

extensive programme of engagement and consultation. Such feedback continues to be taken into account throughout the process. In addition, the Project has been subject to periodic internal challenge and review to ensure the robustness of the decisions made in light of a changing environmental baseline related to technical, physical and economic matters.

3.2.3 National Grid's Approach to Consenting (Ref 3.2) outlines the development process for major infrastructure projects, from initial inception to consent and construction. The approach is divided into the following six stages, as illustrated in **Image 3.1** (Ref 3.2).

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

Image 3.1 National Grid's consenting process (Ref 3.2)



*Corridor Preliminary Routeing and Siting Study

3.2.4 Project decisions have considered National Grid's statutory obligations set out in sections 9 and 38 of the Electricity Act 1989 (Ref 3.4), its licence requirements, policy and guidance including the relevant National Policy Statements (NPSs) EN-1 and EN-5 (Ref 3.5 and Ref 3.6) and the Holford and Horlock Rules (Ref 3.7 and Ref 3.8), which provide industry-guidance on the routeing and siting of electricity transmission infrastructure, and all other relevant considerations.

3.2.5 The following Section 3.3 provides background to the Project, while Sections 3.4 and 3.5 cover the strategic options considered and the associated strategic review. Sections 3.5.1 and 3.7 then explain the development of options, including the graduated swathe, with Section 3.8 setting out the subsequent design development and a summary of the alternatives that have been considered at each stage.

3.3 Background to the Project

- 3.3.1 The way electricity is generated and consumed in the UK is changing, with more renewable energy being generated. Demand is also set to significantly increase as the way we power our homes, businesses, industry and transport changes. The fossil fuels which once powered our economy are being replaced with sources of low carbon energy, i.e. offshore renewable generation helping to decarbonise our economy and providing homes and businesses with clean, secure and affordable energy. The UK is also sharing more power with countries using interconnectors, including across the North Sea. These factors are driving the need for change in the energy landscape across the UK and in particular, the east and East Midlands, where reinforcement of the network is required to meet this change.
- 3.3.2 The forecast growth in offshore wind capacity in Scotland and the north east of England, as well as interconnectors to European power grids, will put pressure on the existing network.
- 3.3.3 Therefore, the reinforcement of the network in the Lincolnshire, Leicestershire, and Northamptonshire areas is essential to ensure optimal operation of the transmission network system and a reliable economic long-term supply.

3.4 Strategic Options Considered for the Project

- 3.4.1 National Grid undertook a Strategic Options Review at the Strategic Proposal Stage (Stage 1) which identified the most advantageous strategic solution to bring forward. The underlying need for the Project is set out in the Strategic Options Report (SOR) (May 2025) (Ref 3.9), which identifies three distinct issues that need to be resolved by system reinforcements:
- provision of 5,793 MW of boundary capability to the B9 boundary¹;
 - provision of 6,930 MW capacity to the EC3 boundary¹; and
 - connect the east to west corridors to alleviate power flow constraints in the east coast.
- 3.4.2 The Strategic Options Review is reported in the SOR which describes the future network requirements and the options appraised to meet them and describes how the consideration of strategic options was part of an iterative process influenced by other emerging energy projects and by evolving customer requirements.
- 3.4.3 The SOR identified a long-list of technically feasible options, which individually met the need case set out in paragraph 3.4.1. The potential benefits of each technically feasible option were then considered, allowing focus on those that best met the obligations to the environment and consumers.
- 3.4.4 The focused list of strategic options was then taken forward for appraisal and evaluated across a range of environmental, socio-economic, and technical factors. Capital costs were identified for each option based on National Grid's recent market knowledge. Strategic options considered included onshore options as well as offshore options.

¹ B9 and EC3 boundaries refer to different areas of the transmission network owned and operated by National Grid.

- 3.4.5 Offshore options were substantially more expensive and had greater environmental impacts on ecological designations than any of the onshore options. Therefore onshore options were preferred. Additionally, offshore options increased constructability risk, required challenging maintenance compared to onshore and had the potential to affect multiple sensitive receptors during both construction and operation.
- 3.4.6 The appraisal of all potential strategic options led to six options being selected to take forward for detailed appraisal. The following outcomes explain why the other options were discounted:
- The option provides minimal reinforcement east to west.
 - The option has existing substation extension constraints.
 - The option has a greater overhead line route length between the same locations compared to other options taken forward.
 - The option has the longest subsea route length compared to other options taken forward.
 - The option would lead to increased distribution network operator interactions and offers no benefit over other shortlisted options.
 - The option would lead to non-compliance with National Electricity Transmission System Security and Quality of Supply Standards (Ref 3.10).
- 3.4.7 The six shortlisted options appraised within the SOR included:
- Option 1: Walpole B to new Wymondley;
 - Option 2: Walpole B to new Wymondley (via Burwell Main);
 - Option 3: Weston Marsh/Walpole B to new Ryhall and Eaton Socon to Grendon;
 - Option 4: Weston Marsh to new Market Harborough (via new Ryhall);
 - Option 5: Walpole B to Tilbury (subsea); and
 - Option 6: Walpole B to Norwich.
- 3.4.8 The SOR appraisal identified Option 4, a new primarily overhead line connection between Weston Marsh to a new substation north of the existing Market Harborough Substation (now referred to as 'WMEL-B') via a new substation to the north of the existing Ryhall Substation (now referred to as 'WMEL-A'), as the emerging preferred strategic option.
- 3.4.9 This option provides increased system flexibility due to the proposal to implement two circuits out of the new Weston Marsh and new Ryhall substation infrastructure and mitigates the overloading of the Ryhall – Eaton Socon circuit under fault conditions. Option 4 also meets the technical requirements, represents a satisfactory cost, and compares favourably across environmental and socio-economic factors. In particular, it avoids Special Protection Areas (SPAs), Ramsar sites, Special Areas of Conservation (SACs) and Sites of Special Scientific Interest (SSSIs), affects only one settlement and requires a limited number of existing infrastructure crossings.

- 3.4.10 The SOR considered alternative technologies to deliver this connection including overhead line and underground cable. The summary of this appraisal's conclusions included:
- Overhead line provides greater opportunity to avoid sensitive receptors through careful routeing and siting, e.g. designated sites, habitats, archaeology and built heritage assets, the water environment, and geology and soils.
 - Adverse impacts from undergrounding alternatives are not outweighed by benefits to landscape, visual amenity and natural beauty in accordance with NPS EN-5 (Ref 3.6).
 - Option 4 did not impact National Parks, National Landscapes or World Heritage Sites, therefore overhead line should be the starting assumption in accordance with NPS EN-5 (Ref 3.6).
 - Overhead line would normally be expected to offer the most economic, efficient, and co-ordinated development and would meet National Grid Electricity Transmission's obligations under section 9 of the Electricity Act 1989.
 - Overhead line is low risk in terms of construction complexity and standard construction and access techniques can be adopted for this option, as well as operation and maintenance. The same applies for the crossings that would be required for the roads and rail lines.
 - Overhead line has the lowest capital and lifetime cost for new circuits.

3.5 Strategic Proposal Review

- 3.5.1 The SOR (Ref 3.9) is being updated (**Strategic Options Report**) as part of the ongoing consideration of alternatives during design development and assessment, and decision-making process involved in delivering new transmission projects.
- 3.5.2 The updated SOR is considering the latest emerging energy projects, customer and network requirements, and environmental, socio-economic, and technical factors to ensure that conclusions remain robust.

3.6 Options Identification and Selection

- 3.6.1 Following identification of the Strategic Proposal², National Grid undertook a comprehensive appraisal of routeing and siting options. This appraisal was undertaken to deliver the strategic objectives as described and reported in the Corridor Preliminary Routeing and Siting Study (CPRSS) (June 2025) (Ref 3.11). This presents the findings of the Options Identification and Selection Stage which identified and assessed preliminary route corridors for the new overhead line, substation Siting Zones and Siting Areas, and concluded with the identification of an emerging preferred corridor and Siting Areas forming an end to end solution.
- 3.6.2 This section summarises the approach to the Options Identification and Selection Stage and the key considerations in the identification and assessment of alternatives. For further detail, please refer to the CPRSS (Ref 3.11).

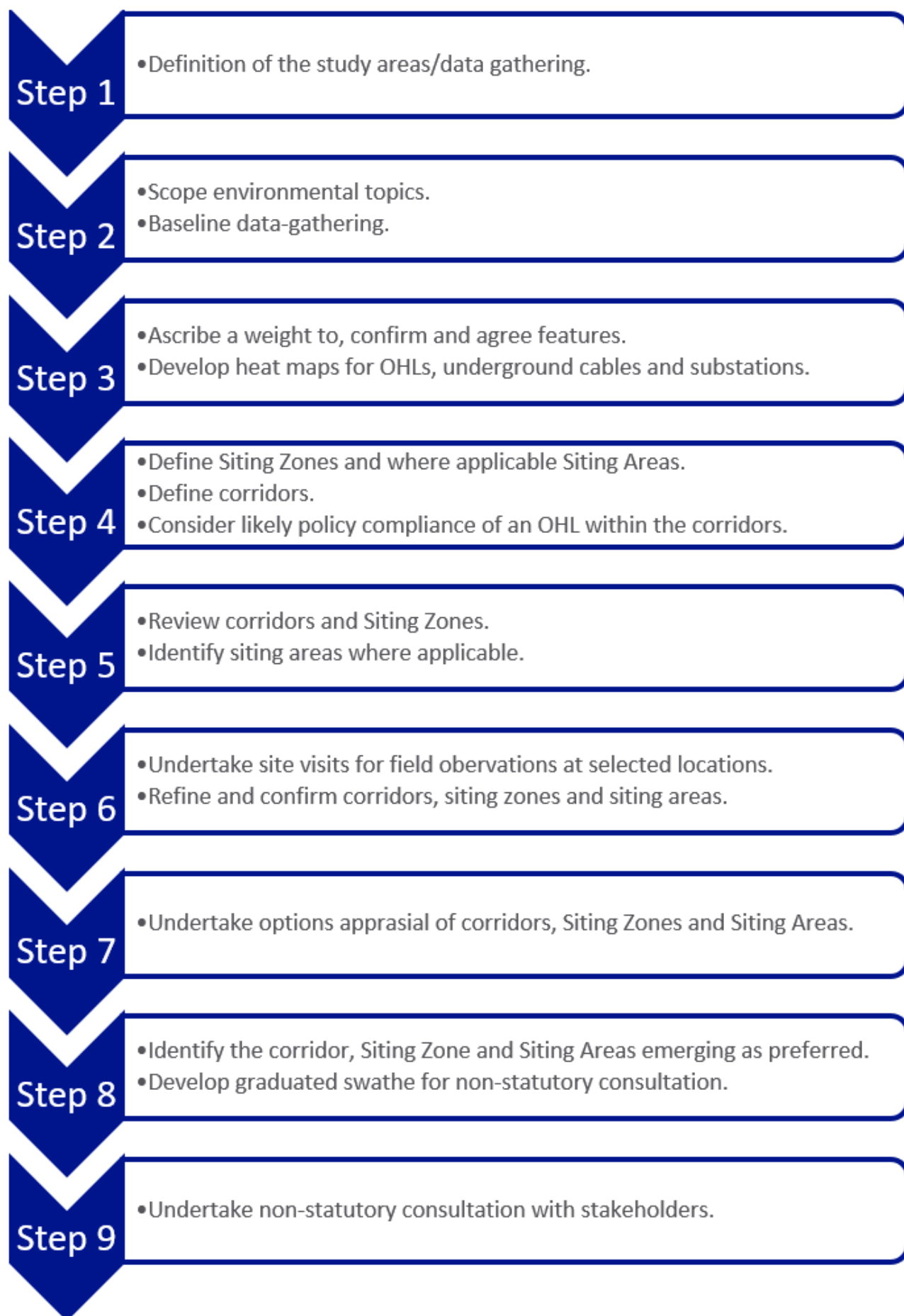
² The Strategic Proposal is defined by the SOR (May 2025) (Ref 3.9).

- 3.6.3 The NPS for Electricity Networks Infrastructure (EN-5) (Ref 3.6) makes clear that the Holford Rules should be followed by developers when designing their proposals for overhead lines. Paragraphs 2.9.21 to 2.9.22 state that, *‘Although it is the government’s position that overhead lines should be the strong starting presumption for electricity networks developments in general, this presumption is reversed when proposed developments will cross part of a nationally designated landscape (i.e. National Park, The Broads, or National Landscape). In these areas, and where harm to the landscape, visual amenity and natural beauty of these areas cannot feasibly be avoided by re-routeing overhead lines, the strong starting presumption will be that the applicant should underground the relevant section of the line.’*
- 3.6.4 However, EN-5 paragraph 2.9.23 goes on to state that *‘undergrounding will not be required where it is infeasible in engineering terms, or where the harm that it causes...is not outweighed by its corresponding landscape, visual amenity and natural beauty benefits.’* Regardless of the option, the scheme through its design, delivery, and operation, should seek to further the statutory purposes of the designated landscape. These enhancements may go beyond the mitigation measures needed to minimise the adverse effects of the scheme.
- 3.6.5 In accordance with NPS EN-5 as quoted above, undergrounding was not considered further at this stage of the Project as there are no nationally designated landscapes within the defined overhead line Study Area.

Overview of Approach to Routeing and Siting

- 3.6.6 The routeing and siting approach is a nine step process which enables National Grid to make informed and proportionate decisions on the selection of corridors and allows possible route alignments to be further refined. This process allows for options to be appraised on a comparable basis, so that a preferred option can be identified and progressed.
- 3.6.7 The methodology for the Options Identification and Selection Stage is summarised in **Image 3.2**.

Image 3.2 CPRSS methodology (Weston Marsh to East Leicestershire CPRSS (Ref 3.11))



Study Area

- 3.6.8 The approach to developing the Study Area for the CPRSS was based on balancing several key considerations. These included National Grid's duty to develop an efficient, co-ordinated and economical system of transmission (section 9 of the Electricity Act 1989). The approach also reflected National Grid's environmental duties under section 38 and Schedule 9 of the Electricity Act 1989. It also took into account Holford Rule 1 (Ref 3.7) and Horlock Rule 2 (Ref 3.8).
- 3.6.9 Given the large geographical extent of the Project, four distinct but interrelated Study Areas were defined for the CPRSS. A Study Area for each component of the Project (new 400 kV overhead line, new WMEL-A Substation, new WMEL-B Substation, and reconductoring of existing overhead line) were identified.
- 3.6.10 The Study Areas were informed by the following factors:
- the straight line connection between start and end points from the new Weston Marsh Substation infrastructure to the ZA line north of Market Harborough, as identified by the SOR (Stage 1);
 - the potential range of other direct routes from the proposed new Weston Marsh Substation infrastructure to the ZA Line whilst maintaining a similar distance of new overhead line (around 60 km);
 - the distribution of areas of the highest amenity value or environmental features (for example internationally designated sites);
 - the nature of the physical and human geography. The presence of major geographical features and major settlements that may represent a natural boundary to a Study Area or dictate a need for a Study Area to extend to support routes around such features;
 - consideration of the likely balance of environmental impact between direct and indirect transmission routes; and
 - consideration of the Holford Rules (for routeing of an overhead line) (Ref 3.7) and Horlock Rules (for siting of a substation, overhead line entries and sealing end compounds) (Ref 3.8).
- 3.6.11 The Study Areas identified are illustrated on **Figure 3.1 Routeing and Siting Study Area considered at CPRSS stage**. Only alignment options for the new overhead line to connect into the new Weston Marsh Substation's Siting Zone were considered. The new Weston Marsh Substation infrastructure and consideration of alternatives at Weston Marsh were considered as part of the Grimsby to Walpole project.

Preliminary Corridors and Siting

Corridors, segments, and links

- 3.6.12 Five Preliminary Corridor options were identified in the CPRSS (Ref 3.11) within the new overhead line Study Area, as illustrated on **Figure 3.2 Preliminary Corridors (Overhead Lines) considered at CPRSS stage**. The complex network of corridors was divided into 'segments', with a series of connection 'links' to allow for a clear and comparative analysis.

- 3.6.13 Only two of the Preliminary Corridors provided a complete end-to-end solution; however, the complexity of the network of corridors and links allowed many potential routes across them. Therefore, the corridors were divided into segments and links at locations where potential routes could follow multiple directions, which allowed parts of different corridors (the segments) to emerge as more or less preferred based on the environmental, socio-economic and technical criteria considered in the appraisal methodology.
- 3.6.14 The individual segments of the corridor were referenced with a segment number and a letter, e.g. Preliminary Corridor 1 segment a is known as Segment 1a.
- 3.6.15 The links were named according to the corridors they join with the prefix 'L', e.g. L2-1 provides a link from Preliminary Corridor 2 to Preliminary Corridor 1.

Identification of Siting Zones and Siting Areas

- 3.6.16 A Siting Zone is an area which has the capacity to accommodate multiple Siting Areas. A Siting Area is an area which has the capacity to accommodate the siting of a single substation.
- 3.6.17 The identification of the Siting Zones and Siting Areas takes into consideration the key drivers for each substation, the technical parameters and the relevant environmental and technical constraints identified.
- 3.6.18 In siting substations, areas that benefit from the below factors were identified:
- appropriate topography;
 - the availability of existing screening elements and the potential to introduce additional screening elements;
 - proximity to major roads, to minimise the extent of required new access roads; and
 - outside of Flood Zones of a 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 Section 5 of NPS EN-1 (Ref 3.5).
- 3.6.19 Identification of the Siting Zones and Siting Areas was informed by the Holford Rules (Ref 3.7) and Horlock Rules (Ref 3.8) to take account of the combined effects of both the substations and the overhead line connections. The following guiding principles informed identification:
- Financially less-expensive options, both in terms of capital and lifetime cost, will generally be of benefit/advantage, as these support National Grid's statutory duty under section 9 of the Electricity Act 1989 to develop and maintain an '*efficient, co-ordinated and economical system of electricity transmission*'.
 - Options which avoid or minimise and mitigate impacts on environmental or socio-economic features will generally be of benefit/advantage compared with those which would have likely significant residual effects, as less environmentally damaging or socially disruptive sites support National Grid's statutory duty under paragraph 1(1)(a) of Schedule 9 of the Electricity Act 1989 to '*have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest.*'

- 3.6.20 Once the corridors, Siting Zones and Siting Areas had been identified, an options appraisal process was undertaken which considered environmental constraints, socio-economic factors, technical considerations, and cost.
- 3.6.21 The new WMEL-A and WMEL-B substations were sited to provide a connection between the new overhead line proposed as part of the Project and the existing overhead line. The key drivers for the locations of the substations include:
- Minimised length and technical complexity of connections between the new substation and the existing overhead line it needs to connect to, minimising the quantity of towers and potential environmental impacts.
 - Requirement for the new WMEL-A Substation to connect to the new circa. 60 km overhead line and the ZA³ existing overhead line. The substation footprint should be optimised to accommodate how the transmission line will terminate at the substation.

WMEL-A Substation

- 3.6.22 The Project proposes the construction of a new substation (known as 'WMEL-A') required to connect the new overhead line proposed as part of the Project, to the existing 400 kV 4VK overhead line (Cottam – Eaton Socon – Wymondley). An initial Study Area of 2 km around the existing ZA overhead line (Cottam – Grendon – Staythorpe) was considered to identify potential constraints and areas that could accommodate a substation. The functional footprint of the substation, assuming that it is an air insulated switchgear (AIS) substation, was assumed to be 720 m x 400 m to allow for appraisal of potential sites (see **Image 4.5 in Chapter 4 Description of the Project** for an illustrative example of an AIS substation).
- 3.6.23 Potential Siting Zones were identified where Preliminary Corridors intersected the WMEL-A Study Area, resulting in four WMEL-A Siting Zones which were further considered in the options appraisal. From north to south these were:
- Siting Zone WMEL-AZ1;
 - Siting Zone WMEL-AZ2;
 - Siting Zone WMEL-AZ3; and
 - Siting Zone WMEL-AZ4.
- 3.6.24 The WMEL-A Siting Zones and Siting Areas are illustrated within **Figure 3.3 WMEL-A Substation Siting Zones considered at CPRSS stage**. A full description of the Siting Zones can be found in Chapter 6 of the CPRSS (Ref 3.11).

WMEL-B Substation

- 3.6.25 The Project proposes the construction of a new substation (known as 'WMEL-B') required to connect the new overhead line proposed as part of the Project, to the existing ZA overhead line (Cottam – Grendon – Staythorpe). Potential Siting Zones were therefore identified where the Preliminary Corridors intersected the WMEL-B Study Area. The functional footprint was assumed to be the same as described above for WMEL-A. This resulted in three WMEL-B Siting Zones which were considered in the options appraisal. From north to south these were:

³ This is the National Grid code applied to identify each transmission line, ZA being the existing Cottam – Grendon – Staythorpe overhead line.

- Siting Zone WMEL-BZ1;
- Siting Zone WMEL-BZ2; and
- Siting Zone WMEL-BZ3.

3.6.26 The WMEL-B Siting Zones and Siting Areas are illustrated in **Figure 3.4 WMEL-B Substation Siting Zones considered at CPRSS stage**. A full description of the Siting Zones can be found in Chapter 6 of the CPRSS (Ref 3.11).

Conclusions from appraisal of Preliminary Corridors and substation siting

- 3.6.27 From Preliminary Corridor 1, Segments 1a, 1b, 1c, 1d, 1e, 1f, 1g, Link L1-1a and L1-1b were progressed for further assessment as they presented constraints and opportunities and were considered to allow an end-to-end solution and routing through to WMEL-AZ1, WMEL-BZ1 and WMEL-AZ2. Link L1(1-1) was not progressed as the utilisation of the link would require a number of direction changes leading to an indirect route, which is not preferred under the Holford Rules.
- 3.6.28 All of Preliminary Corridor 2 (Segments 2a, 2b, 2c, 2d, 2e, 2f, 2g, 2h and L2-1) were progressed for further assessment as they presented constraints and opportunities and were considered to allow an end-to-end solution and routing through to WMEL-BZ1, WMEL-BZ2 and WMEL-AZ2.
- 3.6.29 From Preliminary Corridor 3, Segment 3d was retained to provide a potential link between Segments 2g and 4d, allowing for a potential Route Option to WMEL-BZ2. Segments 3a, 3b, 3c and L3-2 were discontinued from further consideration primarily owing to pinch points limiting direct routing of the overhead line. Discontinuing these segments also discontinued WMEL-AZ3 from further consideration.
- 3.6.30 From Preliminary Corridor 4, Segments 4d and 4e were both progressed for further assessment as both presented opportunities for routing through to WMEL-BZ2. Segment 4a was not progressed due to the presence of an internationally designated site (Baston Fen SAC) and an airfield limiting routing options, and poor ground conditions. Link L4-3 was not progressed due to priority broadleaved woodland and residential settlement complicating routing, and as Segments 3b, 3c and Link L3-2 were not progressed, no end-to-end solution was available utilising the link. Segment 4b was not progressed due to the presence of the consented EN010127 – Mallard Pass Solar Farm (Ref 3.12) constraining Route Options and access. Segment 4c was not progressed as it would require crossing Exton Park Registered Park and Garden (RPG) and the proximity to Rutland Water SPA and Ramsar site, internationally designated for its bird population. Although Segments 4a, 4b and 4c were not progressed, WMEL-BZ2 was progressed for further assessment as there was an opportunity to form an end-to-end solution via Segments 2g, 3d, 4d and 4e. As Segment 4c was not progressed, WMEL-AZ4 was not progressed for further assessment.
- 3.6.31 From Preliminary Corridor 5, Segment 5a was discontinued due to the required crossing of the 400 kV overhead lines and numerous other overhead lines, and the interaction with the proposed new Grimsby to Walpole 400 kV overhead line. Segment 5b was also discontinued due to the proximity of Rutland Water SPA/Ramsar site/SSSI, residential properties, heritage assets, and greater potential for landscape and visual impacts as a result of topography and recreational routes, compared to other options. Siting Zone WMEL-BZ3 was constrained by high and steep topography, impacting transport and access, landscape and visual receptors.

In addition, discounting Segments 5a and 5b had meant there was no end-to-end solution to connect to WMEL-BZ3 and therefore this Siting Zone was discounted from further appraisal.

Route Options

- 3.6.32 Following the appraisal of the Preliminary Corridors and Siting Zones, the corridor segments and links emerging as preferred were combined to form end-to-end Route Options, taking into account the siting of substations, as illustrated in **Figure 3.5 Route Options considered at CPRSS stage** and described in Chapter 7 of the CPRSS (Ref 3.11).
- 3.6.33 The Route Options were numbered one to five. From north to south of the Study Area these were:
- Route Option 1;
 - Route Option 2;
 - Route Option 3;
 - Route Option 4; and
 - Route Option 5.
- 3.6.34 The Route Options were then further reviewed by National Grid, engineering, environmental and socio-economic specialists, to confirm their technical feasibility and ensure that key issues, and the interaction of constraints, had been fully considered. Overall, it was confirmed that all Route Options were feasible.

Option Selection

- 3.6.35 As described in Chapter 9 of the CPRSS (Ref 3.11), the route options were spilt into three sections to allow closer scrutiny and appraisal of the options when considered sequentially from east to west. This approach also assessed the overall Route Options and substation locations as part of an end-to-end solution. The sections are shown in **Figure 3.6 Comparative Appraisal Sections at CPRSS stage** and were titled:
- Section 1 – Considered the Route Options between Weston Marsh and Rippendale/Haconby;
 - Section 2 – Considered the Route Options between Rippendale/Haconby and Buckminster/Sewstern, and Substation Siting Zones WMEL-AZ1 and WMEL-AZ2; and
 - Section 3 – Considered the Route Options between Buckminster/Sewstern to the existing 400 kV ZA overhead line, and Substation Siting Zones WMEL-BZ1 and WMEL-BZ2.

Section 1 Weston Marsh to Rippendale/Haconby

- 3.6.36 Section 1 in the CPRSS considered the following route options between the proposed new Weston Marsh Substation infrastructure and the area around the settlements of Rippendale and Haconby:

- Route Options 1 and 2 (Segments 1a, 1b, and 1c); and
- Route Options 3, 4 and 5 (Segments 2a, 2b, 2c).

3.6.37 Route Options 1 and 2 would result in converging routes with the existing 400 kV 4ZM (Bicker Fen – Walpole) overhead line. The need for multiple angle towers here would result in cumulative landscape and visual impacts as well as complex infrastructure interactions and diversions due to the existing converging overhead lines.

3.6.38 Route Options 3, 4 and 5 were preferred primarily as they avoid the existing 400 kV 4ZM overhead line and other Nationally Significant Infrastructure Projects (NSIPs) located north and south of Weston Marsh. These Route Options provide a more direct route and are less constrained by residential and agricultural properties resulting in fewer/lower potential visual impacts.

Section 2 Rippendale/Haconby to Buckminster/Sewstern

3.6.39 Section 2 in the CPRSS considered the following route options and Siting Zones from the area around the settlements of Rippendale and Haconby to the area around the settlements of Buckminster and Sewstern:

- Route Option 1 (Segments 1d, 1e, and 1f);
- Route Option 2 (L1-1a and L1-1b and Segment 1f);
- Route Options 3, 4 and 5 (Segments 2d, and 2e); and
- Siting Zones WMEL-AZ1 and WMEL-AZ2.

3.6.40 Segments 1d, 1e and 1f were not preferred due to the presence of an additional NSIP, the complexity of crossing the A1 and East Coast Main Line (ECML) near Great Ponton, and the presence of aviation constraints. Links L1-1a and L1-1b were not progressed due to the technical complexities of the A1/B6403 crossing, the presence of artificial ground near the crossing, and the greater number of ancient woodland and priority broadleaved blocks.

3.6.41 Segments 2d and 2e were preferred primarily as they avoid other NSIPs, complex highway crossings, and alignment can avoid aviation constraints. These segments provide a more direct route and are less constrained.

3.6.42 Siting Zone WMEL-AZ1 was not preferred due to the environmental and technical challenges associated with the tight grouping of the ECML, existing 400 kV overhead line and the River Witham constraining the Siting Zone. WMEL-AZ1 is further constrained by residential settlements limiting access to main roads. Siting Zone WMEL-AZ2 was preferred and progressed as it is considered to have fewer environmental and technical constraints.

Section 3 Buckminster/Sewstern to ZA overhead line

3.6.43 Section 3 in the CPRSS considered the following segments and substation Siting Zones from the area around the settlements of Buckminster and Sewstern to the existing 400 kV ZA (Cottam – Grendon – Staythorpe) overhead line:

- Route Option 2 (L2-1);
- Route Options 1, 2 and 3 (Segment 1g);
- Route Option 4 (Segments 2f, 2g and 2h);

- Route Option 5 (Segments 2f, 2g, 3d, 4d and 4e); and
- Siting Zones WMEL-BZ1 and WMEL-BZ2.

- 3.6.44 Segment 2f was not preferred due to the presence of the Birmingham to Peterborough rail line which would require an additional complex rail line crossing. Segments 4d and 4e were not preferred due to the presence of extensive moderate to steep slopes which would be likely to create pinch points and constructability constraints.
- 3.6.45 Link L2-1 and Segment 1g were preferred as the routeing would be the most direct, reducing the need for multiple angle towers and minimising landscape and visual impact. This segment also does not require an additional rail line crossing, which would further reduce technical complexity.
- 3.6.46 WMEL-BZ2, utilising Route Options 4 and 5, was not preferred due to the elevation, changes in gradient and presence of heritage features constraining the Siting Zone. Siting Zone WMEL-BZ1 was preferred and progressed as it is considered to have fewer environmental and technical constraints regarding elevation, slope gradient, and heritage features.

WMEL-A siting comparative appraisal

- 3.6.47 Within Siting Zone WMEL-AZ2, Siting Area WMEL-AZ2.C was determined preferable with regard to landscape character and visual amenity, heritage, technical, and traffic and transport constraints. The other options were likely to result in greater adverse impacts associated with nearby residential properties, heritage features, rail infrastructure and Public Rights of Way (PRoWs).

WMEL-B siting comparative appraisal

- 3.6.48 Within Siting Zone WMEL-BZ1, Siting Area WMEL-BZ1.B was determined preferable with regard to landscape character and visual amenity, heritage, technical and traffic and transport constraints. The other options were likely to result in greater adverse impacts associated with nearby residential properties, heritage features, and PRoWs.

Conclusions from option selection

- 3.6.49 In summary, Route Option 3 was identified as the emerging preferred corridor and consists of Segments 2a, 2b, 2c, 2d, 2e, L2-1, and Segment 1g. Siting Area WMEL-BZ1.B, and Siting Area WMEL-AZ2.C were identified as the emerging preferred Siting Areas. An overview of the preferred end-to-end solution including the emerging preferred substation Siting Areas for WMEL-A and WMEL-B can be found in **Figure 3.10 End to End Solution at CPRSS stage**.

3.7 Development of Graduated Swathe

- 3.7.1 Following the selection of the emerging preferred corridor, preferred Siting Zones and preferred Siting Areas, a preliminary design exercise was undertaken to identify where it may be more appropriate to locate the required infrastructure within the corridor (based on the information understood about the emerging preferred corridor option at the time of writing the CPRSS (Ref 3.11)). This exercise considered the Holford and Horlock Rules (Ref 3.7 and Ref 3.8) alongside features such as larger settlement areas, environmental and socio-economic constraints, and other technical

and cost considerations. The outcome of this exercise was shown as a 'graduated swathe' – coloured shading of varying intensity to indicate areas more likely (darker colour) and less likely (lighter colour) to be the location of the proposed infrastructure.

- 3.7.2 The overhead line graduated swathe is illustrated in **Figure 3.7 Overhead Line Graduated Swathe at CPRSS stage**. For WMEL-A Substation, this is illustrated in **Figure 3.8 WMEL-A Substation Graduated Swathe at CPRSS stage** and for WMEL-B Substation in **Figure 3.9 WMEL-B Substation Graduated Swathe at CPRSS stage**.
- 3.7.3 The graduated swathe included several areas where alternative precise alignments remained within the corridor, typically where options remained to avoid constraints and further consideration was required. This allowed consultees and members of the public to feedback and inform further option appraisal in these areas, the outcome of which is described below.

Stage 1 Consultation

- 3.7.4 The graduated swathe was included in the CPRSS and published as part of the Stage 1 Consultation undertaken between 11 June and 6 August 2025. Feedback was also sought for the emerging preferred corridor, emerging preferred Siting Zones and emerging preferred Siting Areas.
- 3.7.5 A total of 853 responses were received during the Stage 1 Consultation period, all of which underwent analysis. This includes some feedback that prompted consideration of alternatives and was considered through the design review process.

Development of the Scoping Boundary

- 3.7.6 For the purposes of EIA Scoping (November – December 2025), a Scoping Boundary was defined based on the new overhead line emerging preferred corridor, the Weston Marsh Substation infrastructure Siting Zone, the new WMEL-A and WMEL-B substation preferred Siting Areas, and an assumed area around the existing ZA overhead line to allow for reconductoring works, as described and shown in **Appendix 5A EIA Scoping Report**. The Scoping Boundary aligned with the geographical extent of the emerging preferred corridor for new overhead line identified by the CPRSS (Ref 3.11) (described above in Section 3.5.1 and shown in **Figure 3.10 End to End Solution at CPRSS stage**), combined with a 2 km area around the existing ZA overhead line for the proposed reconductoring, and the Weston Marsh Substation infrastructure Siting Zone (for which options had been considered by the Grimsby to Walpole project).
- 3.7.7 The Scoping Boundary was used to consider the potential environmental effects in determining the scope for the ES. The cut-outs from the Scoping Boundary included residential properties, commercial properties, scheduled monuments and ancient woodland which were removed for the purposes of scoping, and therefore, no infrastructure will be located within/oversail these cut-outs.

3.8 Design Development

- 3.8.1 The design development process is a staged process throughout the project lifecycle, as summarised in **Image 3.1**, as more information is gathered, analysed and

understood, and increasing levels of detail are required to understand what is proposed, from project concept to construction and ‘as built’.

3.8.2 For the project stages relevant to this DES, namely the Options Identification and Selection Stage described above and part way through the pre-application consent process, three key aspects of design development and consideration of alternatives have been employed. The alternatives considered within the DES reflect the current design position, and any further design development will be assessed and reported in the ES. These are described below and the outcomes to date described in the subsequent corresponding sections:

- **Alignment development** – refinement of the graduated swathe and Scoping Boundary to eliminate remaining route options, as far as possible, and confirm the end-to-end overhead line alignment that the Project needs to develop and deliver. This process provides an initial footprint and draft Order Limits that allows subsequent design stages, technical assessment, and land referencing and access for baseline surveys to commence.
- **Design evolution** – gradual, continuous improvement or refinement of a design over time, developed to deliver the key requirements and specification of the Project. Typically, incremental changes to improve functionality, performance, and/or impacts whilst maintaining the core concepts. This is typically subject to multidisciplinary review and comment, including environmental and social considerations, to ensure potential issues and risks are identified and avoided or minimised before being adopted.
- **Design change** – a modification or alteration to an existing design or boundary, which can be minor or major, and is usually implemented to address a specific issue, requirement, or constraint. These can be initiated from within a project team or external stakeholders as individual changes and groups of incremental change as a result of design evolution. These changes are typically subject to multidisciplinary appraisal using standard criteria, including environmental and social considerations, to appraise the merit of the change against the existing design, before being approved and adopted.

Alignment Development

3.8.3 Following Stage 1 Consultation and EIA Scoping, further design development and option appraisal was undertaken to refine the preferred corridor to an initial alignment of the proposed new overhead line, and to refine the footprint of the substations and reconductoring. The outcome of the appraisal was used to develop draft Order Limits and allow the next stage of design development and assessment (this DES) to commence.

3.8.4 The appraisal followed the same National Grid process, including environmental, social, technical, and cost considerations, as described in Section 3.2 above and appraised the remaining options for the preferred alignment within the graduated swathe described in Section 3.7 above.

3.8.5 These options were split into eight sections, east to west, to allow for greater scrutiny of the options available.

3.8.6 An initial baseline review, site walkovers, and appraisal were undertaken, and subsequently examined through a multidisciplinary workshop for review and challenge. The findings were recorded, initial alignment preference was outlined and,

in some cases, additional options were identified for further assessment. Following this meeting, disciplines were given the opportunity to revise their draft inputs and to assess the new options available for the preferred alignment.

- 3.8.7 A further multidisciplinary review workshop was held where the alignment preference was further refined and the option preferences concluded. One exception to this was for Option 8c, added for consideration owing to a new preferred route to reduce landscape and visual impacts, identified following a site visit.
- 3.8.8 The sections below provide a summary of the appraisal for each option remaining in the graduated swathe and the reasons for selecting the preferred option taken forward for further design development. The options are also presented on **Figure 3.11 Preferred Alignment and Corridor Refinement**.

Option 1 north or south through properties between Surfleet and Pinchbeck

- 3.8.9 At the Stage 1 Consultation, the graduated swathe presented two alternative routes to the north or south of properties between Surfleet and Pinchbeck in the darkest shading. The northern route was selected as it would result in fewer receptors experiencing visual impacts from the overhead line infrastructure. In addition, the northern route provided greater flexibility in comparison to the southern route. The southern route would require the proposed overhead line to be routed through an approved housing development for 63 homes (H14-0259-23 (Ref 3.13)). Feedback also suggested a northern route away from a land parcel where horses are kept. The southern route would also be located in areas of soft soils (peat) and would affect a higher proportion of valuable habitats (including mature trees in hedgerows). In addition, the southern route would have greater potential impacts to the setting of Scheduled and Grade II Listed Pinchbeck Engine Drainage Pump and Wykeham Chapel monastic site.

Option 2a north or south of properties on Burtey Fen Lane and Poultry Farm

- 3.8.10 At the Stage 1 Consultation, the graduated swathe presented two alternative routes to the north or south of properties on Burtey Fen and Poultry Farm in the darkest shading. The northern route was selected as it would avoid direct impacts to existing vegetation and has fewer residential properties in close proximity compared to the southern option. In addition, the northern option benefits from existing screening provided by woodland in the area, compared to the southern option.

Option 2b north or south of properties on Beck Bank

- 3.8.11 An alternative option to route the overhead line to the north of Beck Bank was considered due to feedback considered from the Stage 1 Consultation. The feedback suggested a route away from a land parcel where horses are kept. This alternative option (Option 2b) considered the graduated swathe option (south of properties on Beck Bank) or whether the route should be located to the north of properties on Beck Bank. The northern option was selected as, although both options are located close to scheduled monuments, the northern option was considered to have better opportunity for mitigation planting to provide effective screening, to reduce setting impacts to 'Moated site of monastic grange with adjacent earthworks at Rigbolt House' Scheduled Monument. The northern option also has a straighter alignment compared to the southern option, would reduce the number of towers required, and routes away from the land parcel where horses are kept.

Option 3a north or south of Haconby and Stainfield

- 3.8.12 At the Stage 1 Consultation, the graduated swathe presented several alternative routes to the north or south of Haconby, and north or south of Stainfield in the darkest shading. The north of Haconby and south of Stainfield option was selected. Both the northern and southern options presented complex technical issues. The southern option was constrained by the presence of peaty soils, and the northern option introduced a potential interface with the B1177 and A15 junction.
- 3.8.13 The north of Haconby option is located in an area with a lower flood risk (small areas of Flood Zones 2 and 3) compared to the south of Haconby option. Although the north of Haconby option runs adjacent to the Dunsby Wood SSSI and ancient woodland, the route has been sensitively designed away from the woodland as much as possible. In addition, Stage 1 Consultation feedback generally preferred the north of Haconby option.
- 3.8.14 The south of Stanfield option provided greater flexibility in comparison to the north of Stainfield option, as the northern option would have direct impacts from oversailing commercial properties on Kirkby Road and a potentially complex crossing with the A15 Folkingham Road and B1177 junction. The south of Stainfield option has been sensitively routed to avoid a complex crossing with Kirkby Underwood Road, keeps away from Dunsby Wood ancient woodland and SSSI to the north and avoids the commercial properties. In addition, feedback from the Stage 1 Consultation generally preferred the south of Stainfield option.

Option 3b north of Haconby and south of Stainfield, north or south of Beeches Wood

- 3.8.15 Following the decision to route Option 3a north of Haconby and south of Stainfield, an additional option was considered. This alternative option (Option 3b) considered the graduated swathe option (north of Beeches Wood) or whether the route should be located to the south of Beeches Wood. The northern option was selected as it has the opportunity to use existing vegetation as screening from Norwood Wood and is further away from Grimsthorpe Castle RPG. Both options are generally comparable in their proximity to ancient woodland and the nature of other habitats that are impacted. However, the southern option has the potential to impact more mature standard trees and to impact bats, due to potential impacts to more connective hedgerow habitat to the ancient woodland. In addition, the proposed option sensitively routes away from Home Farm, and Stage 1 Consultation feedback generally preferred a northern option.

Option 4 north or south of Corby Glen

- 3.8.16 At the Stage 1 Consultation, the graduated swathe presented two alternative routes to the north or south of Corby Glen in the darkest shading.
- 3.8.17 The northern option would have fewer visual impacts as the landscape character is already influenced by the existing towers and avoids visual impacts along the elevated topography associated with the southern option. The northern option would however also have greater traffic impacts due to more challenging highway/railway crossings and potential impacts on health determinants. Whilst the northern option would run parallel to the existing 132 kV overhead line, it was subsequently determined that there is insufficient clearance to accommodate both lines overhead. Therefore, the existing 132 kV overhead line would be diverted underground, which would be prohibitively costly. The underground diversion

of a 132 kV overhead line would also introduce temporary adverse impacts on agriculture, ecology, and water resources, despite reducing visual effects.

- 3.8.18 The southern route was constrained in terms of South Kesteven Local Plan Housing Allocation which has approved planning applications, along with the presence of Bitchneaves ancient woodland. The southern option was subsequently refined into a shorter variant with reduced route length leading to a reduction in impacts.
- 3.8.19 The southern option was selected in preference to the option to the north of Corby Glen as it offered the optimum balance weighing cost, engineering complexity and distance from existing infrastructure with refinement offering additional opportunity to limit overall technical and environmental impacts.

Option 5 north or south of Lobthorpe and ancient woodlands Beaumont, Dodsey, etc.

- 3.8.20 At the Stage 1 Consultation, the graduated swathe presented two alternative routes to the north or south of Lobthorpe and the ancient woodlands (Dodsey Wood, Herricho Wood, Beaumont Wood, Mickley Wood) in the darkest shading. The northern option was selected as it was considered to have a greater ability to mitigate the visual impact of the proposed overhead line by using existing woodland blocks as screening, and would be filtered out by intervening buildings or boundary vegetation for long distance views. The southern option was considered to be more visible for long distance views due to the elevation and the southern aspect of the slope (facing south).

Option 6 north or south of Sewstern Grange and Temple Hill (closer to North or South Witham)

- 3.8.21 At the Stage 1 Consultation, the graduated swathe presented two alternative routes north or south of Sewstern Grange and Temple Hill in the darkest shading.
- 3.8.22 The northern option was selected as it keeps away from more densely populated areas and residential properties than the southern option. The northern option has the opportunity of using existing screening through nearby woodlands and also has a straighter alignment compared to the southern option, which would reduce the number of towers required.

Option 7 north or south of Garthorpe and Freeby Wood

- 3.8.23 At the Stage 1 Consultation, the graduated swathe presented two alternative routes north or south of Garthorpe and Freeby Wood in the darkest shading. The northern option was selected owing to the constraints associated with the southern route which would run through an existing planning application for 42 MW Solar Photovoltaic (PV) with co-located Battery Energy Storage System (Freeby Lane Green Energy Park) (24/01198/FUL) (Ref 3.14). In addition, feedback from Stage 1 Consultation generally preferred the northern option and the chosen option has been sensitively designed away from Garthorpe Racecourse.

Option 8a north or south of woodland

- 3.8.24 At the Stage 1 Consultation, one preferred option was presented between Scalford and Melton Mowbray Golf Course in the darkest shading. A new alternative option was considered from the multidisciplinary workshop to route the proposed overhead line either north or south of the existing woodland and the Hindles residential property. The southern option was selected owing to its location away from a greater

number of residential properties compared to the northern option. The southern option would enable a less technically complex interchange between the two other existing overhead lines in this area. In addition, feedback from Stage 1 Consultation preferred the southern option.

Option 8b north or south of Ab Kettleby

- 3.8.25 At the Stage 1 Consultation, the graduated swathe presented two alternative routes north or south of Ab Kettleby in the darkest shading. The southern option was selected due to less technically complex ground conditions compared to the northern option which is located within areas of infilled ground and evidence of legacy mining. The southern option has greater opportunity to use topography and vegetation for screening to manage visibility from PRow and residential receptors. In addition, feedback from Stage 1 Consultation preferred the southern option and this option has also been sensitively designed to avoid the allotments on Welby Lane.

Option 8c south of Potter Hill

- 3.8.26 Following the decision to take the southern alignment of Option 8b (south of Ab Kettleby), a site visit was undertaken by the Landscape and Visual team to further understand the visual baseline. Following this visit, a new alternative option was considered to route the proposed overhead line south of Potter Hill to reduce visual impacts compared to Option 8b. Option 8c is comparable to the southern option of Option 8b in the majority of factors (as listed above); however, Option 8c was selected to take better advantage of the natural topography in the area, including existing woodland as visual screening, and keep away from residential communities.

Preferred Alignment and Draft Order Limits

- 3.8.27 As a result of selecting the preferred option in each of the sections described above, a preferred end-to-end alignment was identified and can be seen on **Figure 3.11 Preferred Alignment and Corridor Refinement**.
- 3.8.28 General high-level initial design principles including parameters, offsets and exclusions for the alignment were identified based on extensive experience in design, assessment and construction of similar infrastructure, and applied to the alignment to give the initial draft Order Limits which included the following:
- The overhead line should not oversail residential properties.
 - The initial draft Order Limits around the overhead line were assumed to be 150 m (75 m either side of the proposed alignment).
 - Where changes in direction of the overhead line are required, at tension towers, an additional allowance of 200 m for conductor pulling is provided.
 - The corridor width at crossing points for railway tracks and A roads is increased to 250 m x 250 m.
 - An additional area for potential works to realign existing electricity infrastructure where the new overhead line would interface was added for approximately 250 m along the existing line.
 - Rivers and minor roads were not considered to require additional offsets for crossings points and can remain within the 150 m corridor.

- 3.8.29 The preferred alignment identified through the option selection process described above, together with the associated design parameters, assumptions and exclusions (including the approach to offsets), informed the initial draft Order Limits assumed around the new overhead line, substations and reconductoring areas. These were used to identify the preferred alignment and to commence the next stage of design development, including iterative multidisciplinary review and appraisal (including environmental considerations) and assessment.

Design Evolution

Design evolution process

- 3.8.30 Since the Stage 1 Consultation, there have been three core activities that have influenced design development; these include:
- review of feedback from the Stage 1 Consultation in 2025;
 - findings from environmental and other technical studies; and
 - further development of design detail to meet requirements and specification to deliver the key objectives of the Project brief.
- 3.8.31 The following section gives an overview of the design evolution between the Stage 1 Consultation and the Stage 2 Consultation periods based on feedback and more detailed engineering work and environmental studies.
- 3.8.32 Following on from the Stage 2 Consultation, a Design Approach Document will be submitted alongside the ES to demonstrate how the design has further evolved, and the design principles and constraints that informed decision-making.

Design elements considered

- 3.8.33 The design for elements of the Project was developed by the design engineering team, and distributed for multidisciplinary review and comment across the Project team including, environmental disciplines, sustainability, social value, and consents specialists. The review generated a range of comments which informed the ongoing design development. Examples of issues identified through this review process, including where they informed or were considered during design development included:
- additional localised realignment of overhead line near Stainfield to the south to tie in with 'Realignment of overhead line near Stainfield' listed in **Table 3.1**;
 - realigning the overhead line to avoid running along top of ridge near Burton-le-Coggles;
 - relocating WMEL-A attenuation pond to avoid area of high surface water flood risk areas;
 - revising draft Order Limits around the WMEL-A Substation to increase constructability and accommodate the requirement to have two entries and exits to the substation; preferred alignment also now encompasses a north–south approach to the substation, rather than the east–west approach previously considered;

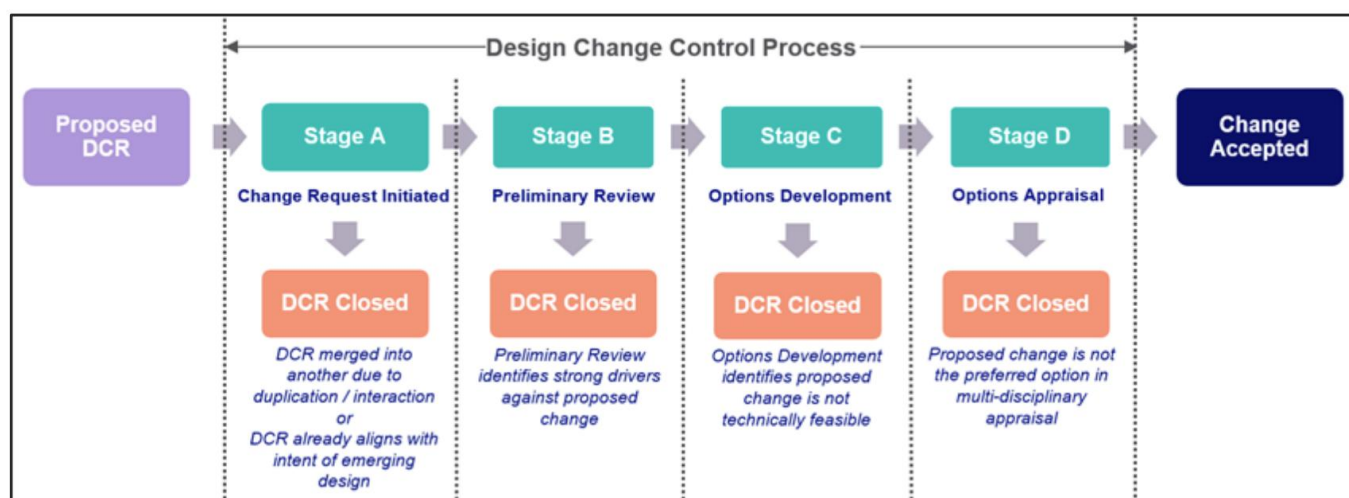
- modifying draft Order Limits to make allowance for adequate landscape and visual mitigation;
- relocating WMEL-A Substation to avoid impacting a watercourse;
- adjusting the haul road to reduce watercourse crossings and utilise existing bridges where possible;
- re-routeing haul roads and compounds to avoid or minimise impacts on heritage assets;
- moving haul roads and compounds further away from residential properties;
- realigning haul roads to avoid woodland, mature trees and hedgerows;
- relocating and reshaping compounds to protect sensitive ecological receptors; and
- reorienting WMEL-B to the south east was discounted as it would require severing the existing overhead line; the current position shown in **Figure 4.1 Proposed Project Design** allows offline construction.

Design Change Control

Design change control process

3.8.34 Where the review of Stage 1 Consultation feedback or the emerging results of environmental and technical studies has identified a potential change to an existing design or the draft Order Limits, this has been assessed through a formal design change control (DCC) process. The DCC process is a multi-stage assessment as shown in **Image 3.3** that considers each identified Design Change Request (DCR) and records the reasons for the changes to the design being made or alternatively the reasons as to why the DCR was not considered further. Each DCR is reviewed by a multi-disciplinary team including environmental disciplines of the EIA.

Image 3.3 Design change control process



3.8.35 As presented in **Image 3.3**, the DCC is a four stage process consisting of the following appraisal stages:

- **Stage A (Change Request Initiated)** – Proposed DCRs are formally initiated in the DCC process, ensuring sufficient information is recorded to support subsequent reviews. DCRs may be merged with others where duplicate, overlapping or conflicting requests are identified.
- **Stage B (Preliminary Review)** – A multi-disciplinary Stage B workshop is held to carry out a preliminary review of the DCR. Discipline representatives for engineering, environment, lands and consents discuss the DCR to agree whether it should be rejected at this stage or progressed for further appraisal at Stages C and D.
- **Stage C (Options Development)** – A detailed appraisal of the DCR is carried out by the engineering team, considering technical complexity, construction issues, technology issues, capacity issues, network efficiencies and cost, to develop design options for consideration at Stage D.
- **Stage D (Options Appraisal)** – A detailed appraisal of the DCR is carried out by environment, consents and lands team. 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. A DCR that is accepted at Stage D is then carried through into the design.

3.8.36 The DCC process covers elements of the design relevant to the stage of design development in the project programme. For example, DCRs raised in response to the Stage 1 Consultation will relate to the graduated swathe and Siting Zones and have informed the design developed for Stage 2 Consultation. By comparison DCRs raised in response to EIA Scoping, ongoing engagement, or baseline studies typically relate to the emerging alignment of the overhead line route and detailed layout of substations with regards to avoiding a sensitive receptor.

Design change control considerations since Stage 1 Consultation

3.8.37 The feedback obtained at the Stage 1 Consultation has helped to shape and guide the development of the Project's permanent and temporary works associated with the draft Order Limits within this DES. All feedback provided was considered and taken into account in the context of environmental and socio-economic constraints and opportunities, engineering feasibility and cost, and planning policy considerations.

3.8.38 **Table 3.1** provides a summary of the reasonable alternatives considered since Stage 1 Consultation and summarises the main reasons for selecting the preferred option in accordance with the EIA Regulations (Ref 3.1). Alternatives are divided into Sections aligned with local authority boundaries, as described in **Chapter 1 Introduction**.

Table 3.1 Reasonable alternatives considered since Stage 1 Consultation

Design Change	Rationale
Section 2: Infrastructure within South Kesteven District	
Realignment of overhead line near Stainfield	Consideration has been given to the realignment between Stainfield and Swinstead to increase distance from residential properties at Stainfield. Option 1 proposed a realignment of a 3.7 km section of the route approximately 180 m south of the baseline alignment. Notable cultural heritage and ecology impacts, and some water, agriculture and town planning impacts were identified with Option 1. Option 1 did

Design Change	Rationale
	however offer some improvements to air quality, noise, socio-economics and health relative to the baseline. On balance Option 1 was taken forward.
Realignment of overhead line approach to WMEL-A	The alignment near Birkholme was reviewed to avoid a mature tree belt north of Birkholme and cross A151 Station Road at lower elevation. Option 1 proposed a realignment of a 2.2 km section of the route approximately 250 m north of the baseline alignment. Notable improvements to visual and ecology and biodiversity, and some improvements for landscape, cultural heritage, air quality and noise and vibration were identified with Option 1. Therefore Option 1 was taken forward.

Section 3: Infrastructure within Melton Borough

Alignment change between Garthorpe Racecourse and Freeby Wood	The alignment of the overhead line between the B676 Buckminster Road and Freeby Lane has been reviewed to reduce proximity to existing utility assets. Relative to the baseline, Option 1 proposed a realignment of a 3.8 km section of the route, shifting up to 350 m south of the baseline alignment. Option 1 was identified as resulting in some traffic and transport impacts. These were not considered to outweigh the improvements in landscape and visual effects and ecology, together with a considerable improvement in cost and engineering complexity. Option 1 was therefore taken forward.
Realignment of overhead line north of Melton Mowbray Golf Club	Consideration has been given to the overhead line alignment between the A607 Melton Road and Scalford Road near Melton Mowbray Golf Course to align with existing topography. Relative to the baseline, Option 1 proposed a realignment of a 4.8 km section of route up to 700 m to the south of the baseline alignment. Option 1 was rejected as notable cultural heritage and engineering impacts were identified. These were not outweighed by slight improvements to landscape and visual, ecology, town planning, traffic and transport, socio-economics and health. The baseline alignment was taken forward.
Realignment of overhead line north of Melton Mowbray	The overhead line alignment between Scalford Brook and the A606 Nottingham Road near Potter Hill, Melton, has been reviewed to avoid residential oversailing and ecological impacts. Option 1 proposed a realignment of a 3 km section of the route approximately 80 m south of the baseline alignment. Some cultural heritage impacts were identified with Option 1, but it had some improvements to landscape and visual, ecology, water, socio-economics and health relative to the baseline. On balance Option 1 was taken forward.

3.9 Next Steps

- 3.9.1 Feedback on the information provided in this DES received will be used to review and refine the design of the Project, where appropriate. This will then form the basis of the application for development consent, and the documents to support that application, including the ES.

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