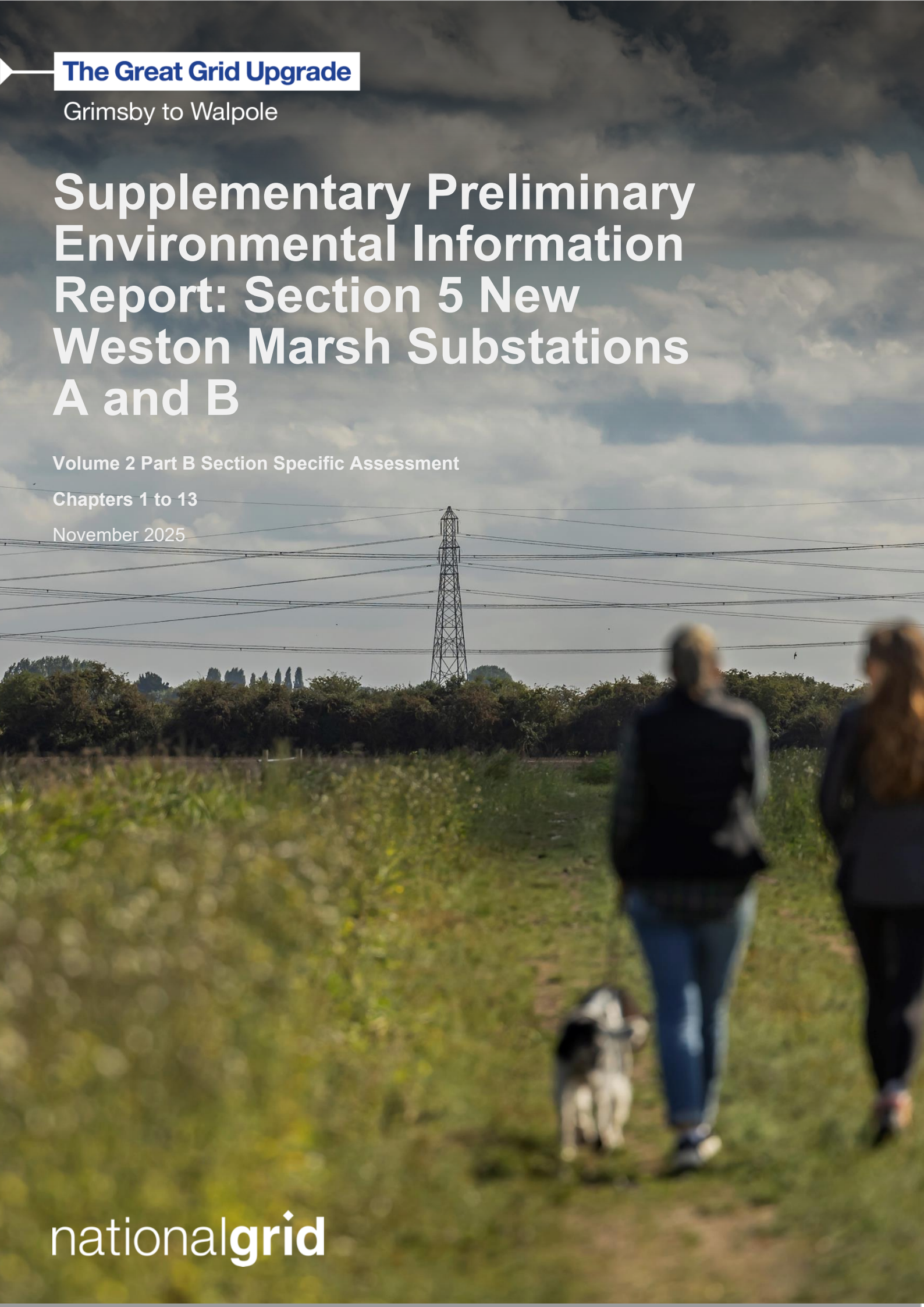




**The Great Grid Upgrade**

Grimsby to Walpole

# Supplementary Preliminary Environmental Information Report: Section 5 New Weston Marsh Substations A and B

Volume 2 Part B Section Specific Assessment

Chapters 1 to 13

November 2025

**nationalgrid**

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# Grimsby to Walpole

## Document control

| Document Properties  |         |                                                                                                                                                                                  |                       |
|----------------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| Organisation         |         | Arup AECOM                                                                                                                                                                       |                       |
| Approved by          |         | National Grid                                                                                                                                                                    |                       |
| Title                |         | Supplementary Preliminary Environmental Information Report:<br>Section 5 New Weston Marsh Substations A and B<br>Volume 2 Part B Section Specific Assessment<br>Chapters 1 to 13 |                       |
| Document Register ID |         | GWNC-ARU-SS50-XXXXXX-RPT-ES-000002                                                                                                                                               |                       |
| Data Classification  |         | Public                                                                                                                                                                           |                       |
|                      |         |                                                                                                                                                                                  |                       |
| Version History      |         |                                                                                                                                                                                  |                       |
| Date                 | Version | Status                                                                                                                                                                           | Description / Changes |
| November 2025        | 1.0     | Final                                                                                                                                                                            | First Issue           |
|                      |         |                                                                                                                                                                                  |                       |
|                      |         |                                                                                                                                                                                  |                       |
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# Preface

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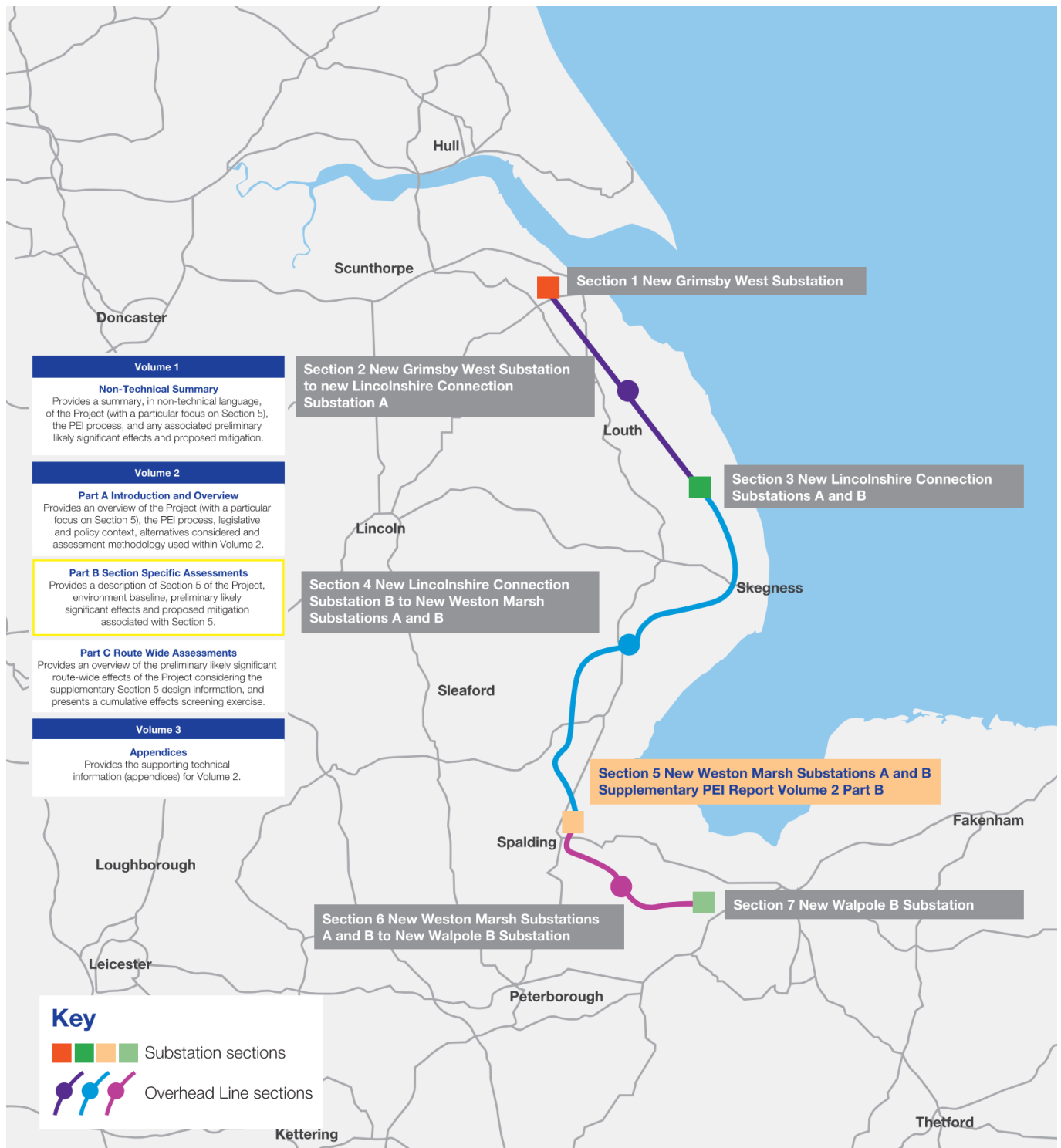
# 1. Part B Preface

## 1.1 Structure and Context of the Supplementary Preliminary Environmental Information (PEI) Report

- 1.1.1 This **Supplementary Preliminary Environmental Information (PEI) Report Volume 2 Part B** is part of the wider suite of documents that make up the Supplementary PEI Report for Section 5 of the Grimsby to Walpole Project: New Weston Marsh Substations A and B (Section 5). The Supplementary PEI Report has been prepared by Ove Arup and Partners Ltd and AECOM Ltd, on behalf of National Grid Electricity Transmission plc (National Grid).
- 1.1.2 The purpose of this Supplementary PEI Report, following previous publication of the June 2025 PEI Report (Ref 1) for the Project, is to give consultees an understanding of the potential likely significant environmental effects (positive or negative) of Section 5. This is because, at the time of writing and publishing the June 2025 PEI Report, the design information available for Section 5 was not as detailed as that produced for other sections of the Project. As a result, the preliminary environmental assessment of proposed works within Section 5 reported within the June 2025 PEI Report, was also not of a comparable level of detail to that reported for other sections.
- 1.1.3 Since publication of the June 2025 PEI Report, further design work has been completed to confirm the proposed location of two new substations within the Weston Marsh area and the associated overhead line and underground cable connections. The draft Order Limits for Section 5 have also now been defined, whereas the June 2025 PEI Report was based upon a wider 'Weston Marsh Refined Substation Siting Zone' which covered a greater total area than the draft Order Limits. This additional design information has facilitated an updated preliminary assessment of the potential likely significant effects (positive or negative) of Section 5.
- 1.1.4 This Supplementary PEI Report has therefore been produced to support a Targeted Statutory Consultation specifically relating to proposed works within Section 5 Weston Marsh Substations A and B. This is to ensure that consultees are provided with fuller details of the potential likely significant effects of Section 5 than those presented during the previous Stage 2 consultation, such that they are able to prepare well-informed responses to the 'Weston Marsh Targeted Consultation'.
- 1.1.5 The Grimsby to Walpole Project proposed by National Grid (the Project) is to reinforce the transmission network with a new 400 kilovolt (kV) electricity transmission line over a distance of approximately 140 kilometres (km) starting from a new 400 kV substation west of the town of Grimsby in North East Lincolnshire and ending at a new 400 kV substation west of the village of Walpole St Andrew and north of the town of Wisbech, in King's Lynn and West Norfolk District. The Project also includes the construction of two new 400 kV Lincolnshire Connection Substations located south-west of Mablethorpe in East Lindsey, the two new 400 kV Weston Marsh substations in the vicinity of the Spalding Tee-Point in South Holland District and the decommissioning (in full or part) of the existing Grimsby West Substation.

- 1.1.6 The Project is a Nationally Significant Infrastructure Project (NSIP), as defined under Section 16 of the Planning Act 2008 (PA 2008) (Ref 2), because it comprises a new electricity line above ground with a length of more than 2 km, and with an operating voltage of above 132 kV. Regulation 12(2) of the Environmental Impact Assessment (EIA) Regulations (Ref 3) defines preliminary environmental information as information that has been compiled by the applicant and is '*reasonably required for the consultation bodies to develop an informed view of the likely significant environmental effects of the development (and of any associated development)*'.
- 1.1.7 The Supplementary PEI Report has been prepared in accordance with the Planning Inspectorate (PINS) Advice Note Seven: Environmental Impact Assessment: Process, Preliminary Environmental Information and Environmental Statements (Ref 4). The Supplementary PEI Report consists of three volumes:
- i. **Supplementary PEI Report Volume 1** contains the Non-technical Summary (NTS);
  - ii. **Supplementary PEI Report Volume 2 Part A** contains an Introduction and Overview;
  - iii. **Supplementary PEI Report Volume 2 Part B** contains an update to the Section 5 Specific Assessment presented in the June 2025 PEI Report;
  - iv. **Supplementary PEI Report Volume 2 Part C** contains an update to Route-wide Assessments presented in the June 2025 PEI Report; and
  - v. **Supplementary PEI Report Volume 3** contains the technical appendices supporting Volume 2.
- 1.1.8 Further detail on the structure and content of this Supplementary PEI Report is provided in the following figure:







# References

- Ref 1      National Grid (2025). Preliminary Environmental Information Report. Available at: <https://www.nationalgrid.com/the-great-grid-upgrade/grimsby-to-walpole/document-library#4257225834-2751832287> [Accessed 14 October 2025].
- Ref 2      Planning Act 2008 [online]. Available at: <https://www.legislation.gov.uk/ukpga/2008/29/part/3> [Accessed 15 August 2024].
- Ref 3      The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 [online]. Available at: <https://www.legislation.gov.uk/uksi/2017/572/contents/made> [Accessed 15 August 2024].
- Ref 4      Planning Inspectorate (PINS) (2020) Advice Note Seven: Environmental Impact Assessment: Process, Preliminary Environmental Information and Environmental Statements. [online]. Available at: <https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-advice-note-seven-environmental-impact-assessment-process-preliminary-environmental-information-an> [Accessed 31 January 2025].

# 1. Overview of the Section and Description of the Project

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# 1. Overview of the Section and Description of the Project

## 1.1 Overview of the Section

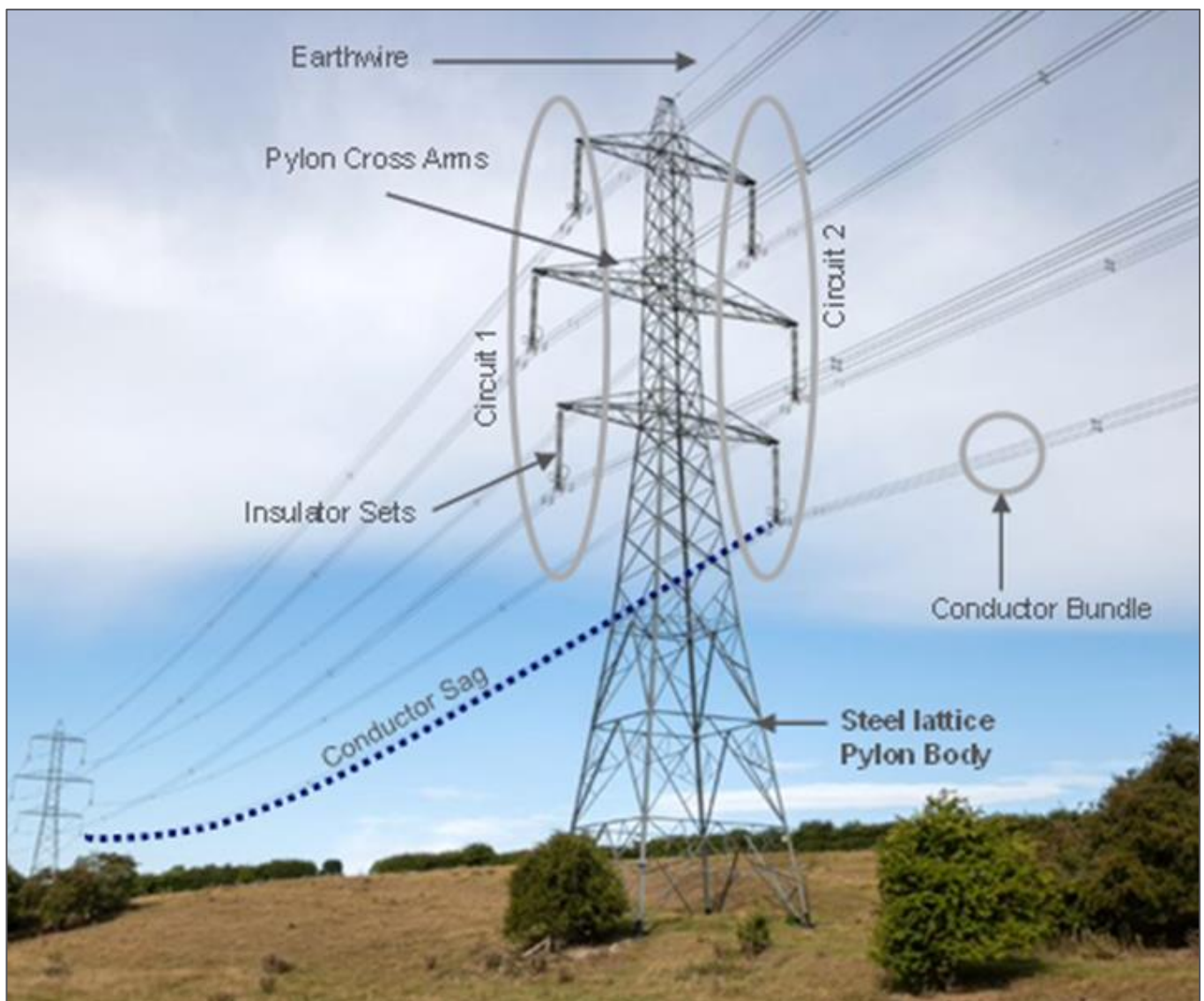
- 1.1.1 This chapter presents an overview of the Grimsby to Walpole Project (the Project) within the New Weston Marsh Substations A and B (Section 5) and has informed the preliminary environmental assessments reported in subsequent Chapters 2 to 13 within this **Supplementary Preliminary Environmental Information (PEI) Report Volume 2 Part B**.
- 1.1.2 Section 5 is located in the southern extent of the Project, commencing south of the River Welland and ending north west of Weston, and will comprise two new 400 kV substations with a 400 kV underground cable between the substations. Section 5 is located within the local authority area of South Holland. The draft Order Limits for Section 5 are presented in **Supplementary PEI Report Volume 2 Part B Figure 1.1 Draft Order Limits**.
- 1.1.3 In summary, within Section 5, the Project includes the following components and activities:
- i. A continuation of the new 400 kV overhead line route from LCS B (LW) measuring approximately 5.9 km long from the Route Section break between Section 4 and Section 5 at the River Welland, connecting to the new Weston Marsh Substation A before continuing onwards to the Route Section break between Section 5 and 6 (RJ);
  - ii. the new Weston Marsh Substation A located east of Marsh Road;
  - iii. the new Weston Marsh B Substation located north of Stone Gate;
  - iv. diversion to the existing 4ZM overhead line route to connect into the new Weston Marsh Substation A and new Weston Marsh Substation B. This length of new overhead line is approximately 2.8 km, split into two portions of 2.3 km and 0.5 km. In addition, a portion of the existing 4ZM overhead line will be reconducted (from twin to triple conductors) as part of the Project, which is approximately 1.1 km in length (4ZM410 - 4ZM413);
  - v. diversion to the existing 2WS overhead line route to tie in the new Weston Marsh Substation B. This length of new overhead line is approximately 2.1 km and broadly extends in a south west direction;
  - vi. permanent removal of approximately 1 km of the existing 4ZM overhead line route (4ZM407 – 4ZM410) and two sections of existing 2WS overhead line route, one approximately 0.8 km to the south east of the new Weston Marsh Substation A (2WS015 – 2WS017) and one 1.8 km to the south west of the new Weston Marsh Substation B (2WS005 – 2WS010);
  - vii. utilising a 1.7 km section of the existing 2WS overhead line route (2WS010 – 2WS015) to form part of new 400 kV overhead line route (RJ) between the new Weston Marsh Substation A and the new Walpole B substation;

- viii. temporary diversions of approximately 1.4 km of existing 4ZM overhead line during the construction works; and
- ix. an approximately 3.05 km long section of new 400 kV underground cable from the new Weston Marsh Substation A continuing in a broadly south direction to the new Weston Marsh Substation B.
- x. minor modifications to existing 400 kV overhead lines known as 4ZM and 2WS.

1.1.4 For the purposes of this Supplementary Preliminary Environmental Information (PEI) Report, it has been assumed that the pylon type is a typical steel lattice pylon. The main components of an overhead line and a typical steel lattice pylon are shown in **Image 1.1** below. Further detail on the selected pylon model will be included within the Environmental Statement (ES).

1.1.5 A more detailed description of Section 5 is provided in section 1.2 below. For the purposes of this Supplementary PEI Report, pylons located within Section 5 have been assigned a nominal code with the prefix '4ZM', '2WS', 'LW' and 'RJ', followed by a number. These can be seen on **Supplementary PEI Report Volume 2 Part B Figure 1.3 Permanent and Operational Features**.

Image 1.1 Components of a Typical Transmission Connection



## 1.2 Proposed Project

### The Proposed New Substations

- 1.2.1 Substations play a key role in the electricity transmission system, helping to manage and control electricity flows as well as connecting generators and/or connecting to the electricity distribution network at grid supply points.

#### The New Weston Marsh Substation A

- 1.2.2 The new Weston Marsh Substation A is located east of Marsh Road and is a necessary component of the network reinforcement provided by the Project as it will enable a number of planned energy generation projects to connect to the electricity transmission system. Customers currently contracted to connect into the proposed new Weston Marsh Substation A include:
- i. Outer Dowsing Offshore Wind Farm;
  - ii. Ossian Offshore Wind Farm (Bay 1); and
  - iii. Meridian Solar Farm.
- 1.2.3 For the purposes of the preliminary environmental assessment and consistent with paragraph 2.5.6 of the Corridor Preliminary Routeing and Siting Study (CPRSS) (Ref 1), it has been assumed that the proposed new Weston Marsh Substation A would be an Air Insulated Switchgear (AIS) substation. AIS substations use air as the insulation medium for electrical equipment meaning that equipment is predominantly located outdoors. The proposed new Weston Marsh Substation A would be located within a secured fenced compound. The total footprint of the new Weston Marsh Substation A would be approximately 10.6 ha including a 5 m buffer around the fence line, with dimensions for the main compound of approximately 523 m by 185 m, (approximately 9.7 ha). Extra areas of approximately 110 m by 50 m (approximately 0.6 ha) near the entrance for ancillary equipment and car parking and 50 m by 55 m (approximately 0.3 ha) along the southern fence line for an overhead line gantry and high voltage plant, are also required. Within the new Weston Marsh Substation A there will be a range of specialist electrical equipment. The maximum height for High Voltage (HV) plant and buildings within the substation is 12.5 m, and the maximum height for gantries, which connects the new overhead line to it, is assumed to be 15 m.
- 1.2.4 During operation, lighting would be required at the substation sites to allow for safe movement and the operation of equipment. Security lighting would also be required. All lighting would be designed in accordance with the appropriate design standards and National Grid technical specifications. For the purpose of the PEI Report, it is assumed that the security lighting would be event activated (i.e. would not be continuous) and would be designed to be environmentally sensitive (e.g. directional and low light not exceeding 50 lux). Further information regarding substation lighting design will be provided within the project description within the ES. An overview of the proposed substation design is provided in **Supplementary PEI Report Volume 2 Part B Figure 1.4 New Weston Marsh Substations A and B Layout**.

#### Mitigation measures

- 1.2.5 As detailed within **Supplementary PEI Report Volume 2 Part A Chapter 4 Approach to Preliminary Environmental Information** there are three types of

mitigation measures that have been considered across the Project. In summary the three types are:

- i. design mitigation measures which are those that are intrinsic to and built into the design;
- ii. control mitigation measures which comprise management activities, control measures and techniques, that would be implemented during construction or operation of the Project to limit impacts; and
- iii. additional mitigation measures which comprise measures over and above any design or control and management mitigation measures, for which the EIA has identified a requirement to further reduce significant environmental effects.

1.2.6 Additional environmental mitigation measures which have been incorporated into the Project have been assigned a unique code to identify the location and nature of the measure. This code begins with the Route Section number (e.g. S1; S2) followed by either 'L+V' for Landscape and Visual measures, or 'ECO' for those regarding Ecology. Each measure is then numbered sequentially, starting with 01.

1.2.7 Additional environmental mitigation measures that have been incorporated into the design of Section 5 in proximity to the proposed new Weston Marsh Substation A include the following:

- i. a management regime for farmland to the south of the new Weston Marsh Substation A to provide habitat for farmland birds (S5-ECO-01);
- ii. planting of native hedgerows with trees to aid landscape integration to the north and north west of the new Weston Marsh Substation A (S5-L+V-03 and S5-L+V-04); and
- iii. planting of woodland around the new Weston Marsh Substation A to provide visual screening (S5-L+V-01, S5-L+V-02 and S5-L+V-05 to S5-L+V-08).

### **The New Weston Marsh Substation B**

1.2.8 The new Weston Marsh Substation B is located north of Stone Gate and is a necessary component of the network reinforcement provided by the Project as it will enable a number of planned energy generation projects to connect to the electricity transmission system. The Project also directly interacts with a number of other National Grid projects. Within Section 5 of the Project, this includes Weston Marsh to East Leicestershire, which is a new onshore network reinforcement proposed to connect with the new Weston Marsh Substation B. Customers currently contracted to connect into the proposed new Weston Marsh Substation B include:

- i. Spalding PV and BESS; and
- ii. Ossian Offshore Wind Farm (Bay 2).

1.2.9 For the purposes of the preliminary environmental assessment and consistent with paragraph 2.5.6 of the Corridor Preliminary Routeing and Siting Study (CPRSS) (Ref 1), it has been assumed that the proposed new Weston Marsh Substation B would be an Air Insulated Switchgear (AIS) substation. AIS substations use air as the insulation medium for electrical equipment meaning that equipment is predominantly located outdoors. The proposed new Weston Marsh Substation B would be located within a secured fenced compound. The total footprint of the new Weston Marsh Substation B would be approximately 8.4 ha including a 5 m buffer around the fence



line, with dimensions for the main compound of approximately 387 m by 185 m, (approximately 7.2 ha). Extra areas (approximately 1.2 ha) are needed for ancillary equipment and car parking, and for the connection of overhead lines from the west. Within the new Weston Marsh Substation B there will be a range of specialist electrical equipment. The maximum height for High Voltage (HV) plant and buildings within the substation is 12.5 m, and the maximum height for gantries, which connects the new overhead line to it, is assumed to be 15 m.

- 1.2.10 During operation, lighting would be required at the substation sites to allow for safe movement and the operation of equipment. Security lighting would also be required. All lighting would be designed in accordance with the appropriate design standards and National Grid technical specifications. For the purpose of the PEI Report, it is assumed that the security lighting would be event activated (i.e. would not be continuous) and would be designed to be environmentally sensitive (e.g. directional and low light not exceeding 50 lux). Further information regarding substation lighting design will be provided within the project description within the ES. An overview of the proposed substation design is provided in **Supplementary PEI Report Volume 2 Part B Figure 1.4 New Weston Marsh Substations A and B Layout**.

#### Mitigation measures

- 1.2.11 Additional environmental mitigation measures that have been incorporated into the design of Section 5 in proximity to the proposed new Weston Marsh Substation B include the following:
- i. a management regime for reedbed habitat to the south west of the new Weston Marsh Substation B to provide habitat for Marsh Harrier and wintering birds (S5-ECO-02);
  - ii. planting of native hedgerows with trees to aid landscape integration to the north east, north west and south of the new Weston Marsh Substation B (S5-L+V-10, S5-L+V-11, S5-L+V-18 and S5-L+V-19); and
  - iii. planting of woodland around the new Weston Marsh Substation B to provide visual screening (S5-L+V-09 and S5-L+V-12 to S5-L+V-17).

#### Construction

- 1.2.12 Subject to gaining development consent in 2028, it is anticipated that construction of the Project would commence in 2029, starting with enabling works. It is expected that the main construction works (construction of substations and overhead line) would continue through to 2033 (four years).
- 1.2.13 Construction of the new Weston Marsh Substations A and B would include the following key stages and activities:
- i. site establishment;
  - ii. site preparation and earthworks;
  - iii. civil works;
  - iv. construction of buildings;
  - v. installation of electrical equipment;
  - vi. site reinstatement and landscaping; and

vii. commissioning.

- 1.2.14 In regard to temporary construction requirements, there are three construction compounds located within Section 5. This includes the following:
- i. a construction compound located to the north of the proposed new Weston Marsh Substation A, this is split into two areas of 4 ha and 3.2 ha<sup>1</sup>; and
  - ii. a construction compound located to the west of the proposed new Weston Marsh Substation B with an area of 2.6 ha.
- 1.2.15 The land on which construction compounds are located would be reinstated upon completion of construction.
- 1.2.16 The construction and permanent accesses for the new Weston Marsh Substations A and B connect to Marsh Road.
- 1.2.17 **Supplementary PEI Report Volume 2 Part B Figure 1.2 Temporary and Construction Features** outlines the temporary features within Section 5 in place as part of construction, including for the new Weston Marsh Substations A and B, and **Supplementary PEI Report Volume 2 Part A Chapter 5 Project Description** provides further information on what the construction of the new Weston Marsh Substations A and B entails.

## Operation

- 1.2.18 During operation the Project would reinforce the electricity transmission network in Lincolnshire, Cambridgeshire and Norfolk, and facilitate the connection of planned offshore wind generation, battery storage/solar, combined cycle gas turbines, interconnectors with other countries, increased distribution network capacity and subsea links to Scotland.
- 1.2.19 The new Weston Marsh Substations A and B within Section 5 forms part of this reinforcement by enabling a number of planned energy generation projects to connect to the electricity transmission system, and providing a connection point for the new overhead line to link with the existing transmission network. Once operational, on-site activity at the proposed new Weston Marsh Substations A and B would generally be limited to regular inspection and maintenance.
- 1.2.20 **Supplementary PEI Report Volume 2 Part B Figure 1.3 Permanent and Operational Features** outlines the permanent features within Section 5 in place as part of the operation of the Project, including for the new Weston Marsh Substations A and B and **Supplementary PEI Report Volume 2 Part A Chapter 5 Project Description** provides further information on what the operation and maintenance of the new Weston Marsh Substations A and B entails.

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<sup>1</sup> Due to the phasing of construction activities, it may not be feasible to use the construction compound area immediately adjacent to the new Weston Marsh Substation A throughout the duration of the construction phase. Therefore, an additional area for this compound (located to immediately north of this), has been denoted to provide flexibility during construction.

# Proposed Overhead Line Route

## Design and overview

- 1.2.21 There are three sections of new overhead line within Section 5, as follows:
- i. new 400 kV overhead line route broadly extending in a south east direction from the Route Section break (i.e. a continuation of Section 4 from Lincolnshire Connection Substation B) between Section 4 and 5, connecting to the new Weston Marsh Substation A before continuing onwards to the Route Section break between Section 5 and 6. This length of new overhead line is approximately 5.9 km and utilises a portion of the existing 2WS overhead line (2WS005 – 2WS010);
  - ii. diversions to the existing 4ZM overhead line route to tie in the new Weston Marsh Substation A and new Weston Marsh Substation B. This length of new overhead line is approximately 2.8 km in total, split into two portions of approximately 0.5 km and 2.3 km respectively. In addition, a portion of the existing 4ZM overhead line will be reconducted as part of the Project, this is approximately 1.1 km in length; and
  - iii. diversion to the existing 2WS overhead line route to tie in the new Weston Marsh Substation B. This length of new overhead line is approximately 2.1 km, originating from the new Weston Marsh Substation B and broadly extending in a south west direction to 2WS005.
- 1.2.22 Two sections of existing overhead lines are also to be permanently removed:
- i. approximately 1 km of existing 4ZM overhead line route (4ZM407 – 4ZM410) that currently runs in parallel with the new Weston Marsh Substation A will be removed; and
  - ii. approximately 2.6 km of existing 2WS overhead line route will be removed. This is split into two portions, 2WS017 - 2WS015 (approximately 0.8 km), that currently runs south-east of the new Weston Marsh A Substation and 2WS005 – 2WS010 (approximately 1.8 km) that currently runs south west of the new Weston Marsh Substation B.
- 1.2.23 The first section of overhead line is the continuation of the new 400 kV overhead line route from LCS B measuring approximately 5.9 km in total, split into two portions (LW / RJ). The new LW overhead line extends in a south east direction from the Route Section break between Section 4 and Section 5 at the River Welland before connecting to the new Weston Marsh Substation A, this is approximately 1.8 km in length. The new RJ overhead line extends broadly in a south direction, originating from the southern façade of the new Weston Marsh Substation A and continuing on to the Route Section break between Section 5 and Section 6 and eventually onto the new Walpole B Substation, this is approximately 4.1 km in length. The new RJ line utilises an approximately 1.7 km section of the existing 2WS overhead line, the pylons along this stretch would be modified and the overhead line reconducted. Along this stretch there are 22 structures in total, this includes four gantries at a height of up to 13 m which are located within the new Weston Marsh Substation A, and 18 pylons ranging from a height of approximately 55 m to 63 m (including Limits of Deviation (LoD)). The span distances between structures within this section of new 400 kV overhead line ranges from approximately 63 m to 413 m.

- 1.2.24 The second section of overhead line consists of approximately 2.8 km of diversions to the existing 4ZM overhead line route to connect in the new Weston Marsh Substation A and new Weston Marsh Substation B, split into two portions. The first diversion is approximately 0.5 km, originating from the new Weston Marsh Substation A, extending in an east direction, until it reaches the new tower 4ZM407-N. The second diversion is approximately 2.3 km, originating from the new tower 4ZM420-N, extending in a south direction, until it reaches the new Weston Marsh Substation B. Along this stretch there are 14 structures, this includes four gantries at a height of up to 13 m which are located within the new Weston Marsh Substation A and new Weston Marsh Substation B, and 10 pylons ranging from a height of approximately 55 m to 65 m (including Limits of Deviation (LoD)). The span distances between structures within this section of new 400 kV overhead line ranges from approximately 50 m to 405 m. The existing overhead line between 4ZM405 and 4ZM414 is installed with a lower rated conductor, which needs to be replaced to match the capacity of the conductors being installed on the new overhead lines. As the existing alignment between 4ZM406 and 4ZM410 is being dismantled, this leaves two separate stretches of overhead line to be reconductored. This covers approximately 1.8 km of reconductoring works on the existing 4ZM overhead line between 4ZM410 and 4ZM414, and between 4ZM405 and 4ZM406. The majority of this work is proposed within Route Section 5, however part of the span between 4ZM413 and 4ZM414 extends into Route Section 4.
- 1.2.25 The third section of overhead line consists of approximately 2.1 km of diversions to the existing 2WS overhead line route to connect into the new Weston Marsh Substation B. This originates from the new Weston Marsh Substation B and extends in a south west direction from the new Weston Marsh Substation B to the existing 2WS at 2WS005. Along this stretch there are nine structures, this includes two gantries at a height of up to 13 m which are located within the new Weston Marsh Substation B, and seven pylons ranging from a height of approximately 57 m to 60 m (including Limits of Deviation (LoD)). The span distances between structures within this section of new 400 kV overhead line ranges from approximately 74 m to 404 m.
- 1.2.26 The pylons along the new 400 kV overhead line routes within Section 5 are assumed to comprise steel lattice mast pylons, the foundations of which would either be a standard foundation (concrete pad and column) or non-standard foundation (either concrete pad and column of increased dimension or depth, or piled foundations). The selection of foundation type would depend upon the ground conditions encountered.
- 1.2.27 Within the design of the Project, there is a need for some flexibility, which has been accounted for in the assessments within this Supplementary PEI Report. The horizontal LoD applied either side of the full length of the overhead line centreline is 50 m, for a total width of 100 m. Where the width of the LoD is 100 m, the extent of movement of any pylon is limited by the span length and conductor swing. At a maximum span length, the centre of the pylon could move approximately 20 m either side of the centreline subject to topography and local conditions.
- 1.2.28 There is no fixed limit on the movement of a pylon along the centreline of the proposed route i.e. pylons can move up and down the centreline (longitudinal LoD). While there is no fixed limit, in practical terms the movement of pylons along the centreline is constrained by a combination of the span distance between adjacent pylons and maintaining the necessary ground clearances without exceeding the vertical LoD.

- 1.2.29 The vertical LoD applied along the length of the overhead line is 6 m to allow for the pylon height to be increased in order to increase ground clearances.

### **Construction**

- 1.2.30 The construction of the new 400 kV overhead line would generally follow the sequence outlined below:
- i. surveys including archaeological investigation;
  - ii. ground investigation;
  - iii. installation of bellmouths and creation of visibility splays;
  - iv. installation of stock proof fencing and gates or equivalent;
  - v. topsoil stripping, temporary drainage installation where required;
  - vi. installation of access tracks (including culverts and bridges) and demarcated pylon working areas;
  - vii. installation of pylon foundations (pad and column, mini pile, tube pile or bespoke);
  - viii. working area and layout of steelwork in preparation for erection;
  - ix. assembly (painting if required) and erection of steelwork;
  - x. installation of tower signage including safety notice plate and anti-climbing devices;
  - xi. installation of crossing protection prior to stringing of conductors, including scaffolding;
  - xii. installation of insulator assemblies on suspension pylons;
  - xiii. establishment of machine sites for conductor stringing;
  - xiv. conductor and earthwire stringing;
  - xv. temporary earthing;
  - xvi. installation of tension insulator assemblies on tension and terminal pylons;
  - xvii. removal of construction equipment and reinstatement of ground and restoration of soils;
  - xviii. removal of access tracks and bellmouths; and
  - xix. removal of construction compounds and ground reinstatement.
- 1.2.31 A total of approximately 1.4 km of temporary diversions will be required along the existing 4ZM overhead line route to facilitate construction works, split into three diversions.
- 1.2.32 The first diversion would originate off the existing 4ZM409 pylon and terminate at the existing 4ZM411 pylon. The second diversion would originate off the existing 4ZM408 pylon and terminate at the existing 4ZM410 pylon. The third diversion would originate off the existing 4ZM406 pylon and terminate at the existing 4ZM408 pylon.
- 1.2.33 A temporary pylon would be erected to facilitate each of the three diversions during construction, which would be removed post construction.



- 1.2.34 As stated above, reconductoring of the existing 4ZM and 2WS overhead line routes is required. Reconductoring would involve the replacement of the existing conductor (in this case twin redwood), to triple araucaria, to increase the capacity of the overhead line. This will most likely be completed during planned restringing works for the overhead line turn-ins when the circuit is under outage. Reconductoring in Section 5 will involve the replacement of conductor from 4ZM405 to 4ZM414, noting the removal of the existing overhead line from 4ZM406 to 4ZM410.
- 1.2.35 The construction compounds detailed above for the purposes of constructing the new Weston Marsh Substations A and B will also be utilised for the construction of the proposed new overhead line.
- 1.2.36 There will be a temporary construction corridor established along the route which comprises a temporary haul road (which is assumed to be stone, noting that trackway may be used in some localised areas), soil storage and temporary drainage. Construction access points will be established where construction traffic will access and egress the construction corridor. There is the potential to reduce carbon emissions/embodied carbon associated with construction and temporary works requirements through measures such as soil stabilisation. The preliminary assessment is based upon reasonable worst case assumptions, presented in **Supplementary PEI Report Volume 2 Part B**.
- 1.2.37 Temporary access points would be removed following completion of construction, and access for maintenance and inspection would typically be via field gates agreed with landowners.
- 1.2.38 Within Section 5, there are nine construction access points for substation and overhead line construction. Construction access points for the new 400 kV overhead line route stem from the A151.
- 1.2.39 **Supplementary PEI Report Volume 2 Part B Figure 1.2 Temporary and Construction Features** outlines the temporary features within Section 5 in place as part of construction, including for the proposed 400 kV overhead line and **Supplementary PEI Report Volume 2 Part A Chapter 5 Project Description** provides further information on what the construction of the new 400 kV overhead line route entails.

### Operation

- 1.2.40 During operation the Project would reinforce the electricity transmission network in Lincolnshire, Cambridgeshire and Norfolk, and facilitate the connection of planned offshore wind generation, battery storage/solar, combined cycle gas turbines, interconnectors with other countries, increased distribution network capacity and subsea links to Scotland.
- 1.2.41 The overhead lines within Section 5 forms part of this reinforcement by providing high capacity power transmission routes through the Weston Marsh area. Overhead lines require minimal maintenance during operation and will be monitored and regularly inspected for signs of fatigue. Subject to planting within the vicinity of Section 5, there may also be an ongoing vegetation management regime. Overall, once operational, the overhead line will not generate significant activity beyond ordinary inspection and maintenance.
- 1.2.42 **Supplementary PEI Report Volume 2 Part B Figure 1.3 Permanent and Operational Features** outlines the permanent features within Section 5 in place as

part of the operation of the Project, including for the new 400 kV overhead line and **Supplementary PEI Report Volume 2 Part A Chapter 5 Project Description** provides further information on what the operation, inspection and maintenance of the new 400 kV overhead line entails.

## Overhead Line Removal

- 1.2.43 The existing 4ZM and 2WS overhead line routes would both have portions removed to facilitate the revised network configuration at Weston Marsh being implemented as part of the Project.
- 1.2.44 On the existing 4ZM overhead line route, overhead line removal would take place between 4ZM407 and 4ZM410. On the existing 2WS overhead line route, overhead line removal would take place between 2WS015 and 2WS017.

### Dismantling the Overhead Line

- 1.2.45 There are a number of methods that can be used to remove the pylons depending on available space and surrounding features. A tractor or a large mobile hydraulic crane may be used to fell or dismantle the pylon either whole or in parts. Where a crane is used, a stone pad would be positioned at the pylon base (Preliminary CoCP Control Measure GG23). This would be sized according to crane size/site constraints and may be constructed on a temporary stoned area following topsoil stripping. Topsoil would be stored and reinstated in accordance with the Soil Management Plan, an environmental control plan which will accompany the Final CoCP as part of the DCO Application.
- 1.2.46 Depending on the access and space available, it may be possible to cut the pylon legs and then pull the pylon to the ground using a tractor. The pylon could be cut into sections on the ground. Unless there was a compelling need for removal of all the foundations, these would be removed to approximately 1.5 m deep, sufficient for safe agricultural use of the land and subsoil and topsoil reinstated. All waste would be removed from site and recycled in line with waste disposal regulations at the time.

## Proposed Underground Cable

### Design and Overview

- 1.2.47 Network analysis undertaken at Weston Marsh identified the need for at least 1km clearance between the Weston Marsh Substations A and B to manage system-wide resilience. In addition to this separation, the network analysis identified a requirement for the connection between the new Weston Marsh Substations A and B to be via underground cable connection to provide additional mitigation for residual system-wide resilience.
- 1.2.48 A 400 kV underground cable connection between the substations would be required. This is split into two circuits, the first originates from the north east corner of the new Weston Marsh Substation A, with the second circuit originating from the south west corner of the new Weston Marsh A Substation.
- 1.2.49 The first circuit loops around the northern and western façades of the substation until a convergence point adjacent to the south of the new Weston Marsh Substation A, at which point the two circuits meet and continue in a broadly south west direction for 1.4 km to a divergence point situated adjacent to the north east corner of the new



Weston Marsh Substation B. The second circuit continues on from this divergence point into the north east corner of the new Weston Marsh Substation B. The first circuit proceeds in a westerly direction from the divergence point into the north west corner of the new Weston Marsh Substation B. The total length of the required underground cable is approximately 3.05 km.

## **Construction**

- 1.2.50 The underground cable connection would typically comprise eighteen transmission cables, 3 cables per phase per circuit across two circuits (2 sets of 9 cables). Each cable would be approximately 150 mm in diameter and buried within a series of six No. trenches excavated to a minimum depth of 1.4 m.
- 1.2.51 Due to the position of the substation bays, each circuit at both ends of the underground cable terminate at different points. In these areas where the circuits are split, the width of the underground cable swathe is approximately 25 m. However, between the substations where the two circuits can be routed in parallel with each other, the typical total width of the trenches would be 50m, with a construction corridor width of 80 m. The cables would be surrounded by an additional layer of cement bound sand to provide a thermally resistant barrier, and this is then topped with protective warning tile tape which protects the cables from accidental excavation. A permanent easement of 50m is assumed for open cut installation, where a trench is excavated for the cable to be installed, and 180m for trenchless installation under features e.g. water courses / roads. Ducts are installed by excavating either side of the feature and then usually directional drilling or microtunnelling between them, the cables would then be pulled through the ducts and jointed. The permanent easement<sup>2</sup> could be reduced to consider sensitive features or may increase subject to site conditions.
- 1.2.52 Depending on the cable manufacturer and availability of cable lengths, up to 2-3 joint bays would be required. At these locations, below ground link boxes with above ground marker posts would be required. The dimensions, frequency and specific locations of the link boxes would be confirmed through detailed design, however, where practicable, they would be located near field boundaries.
- 1.2.53 The construction corridor would include provision for cable trenches, cable joint bays, temporary drainage, soil storage, materials and equipment laydown, and temporary haul road.
- 1.2.54 The construction compounds detailed above for the purposes of constructing the new Weston Marsh Substations A and B will also be utilised for the construction of the underground cable connection between the new Weston Marsh Substations A and B.
- 1.2.55 The construction access points described above for the purposes of constructing the new 400 kV overhead line will also be utilised for the construction of the underground cable connection between the new Weston Marsh Substations A and B.

## **Operation**

- 1.2.56 During operation the Project would reinforce the electricity transmission network in Lincolnshire, Cambridgeshire and Norfolk, and facilitate the connection of planned offshore wind generation, battery storage/solar, combined cycle gas turbines,

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<sup>2</sup> Permanent easement is the width that the Applicant would require access rights over, in order to ensure maintenance and repair activities can be undertaken during operation or the Project.

interconnectors with other countries, increased distribution network capacity and subsea links to Scotland.

1.2.57 The high voltage underground cable connection would be taken out of service periodically for routine maintenance and inspection in line with the required maintenance schedule.

1.2.58 **Supplementary PEI Report Volume 2 Part B Figure 1.3 Permanent and Operational Features** outlines the permanent features within Section 5 in place as part of the operation of the Project, including for the new 400 kV underground cable connection.

# References

- Ref 1      Grimsby to Walpole Corridor Preliminary Routeing and Siting Study. January 2024 [online]. Available at: <https://www.nationalgrid.com/document/352621/download> [Accessed 3 March 2025].

# 2. Landscape

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## 2. Landscape

### 2.1 Introduction

- 2.1.1 This chapter presents the Supplementary Preliminary Environmental Information (PEI) in relation to the Landscape assessment of the New Weston Marsh Substations A and B (Section 5) of the Grimsby to Walpole Project (the Project).
- 2.1.2 The preliminary assessment of Section 5 reported within this chapter presents an update to the previously published June 2025 PEI Report (Ref 1), which formed part of the Stage 2 Consultation completed between 11 June and 6 August 2025. This update reflects the fact that since the launch of the Stage 2 Consultation, further design development work has been completed to confirm the requirement for two substations within Section 5, the preferred locations of the new Weston Marsh Substation A and new Weston Marsh Substation B and the associated overhead line and underground cable connections. The draft Order Limits for Section 5 have also now been defined, whereas the June 2025 PEI Report was based upon a wider 'Refined Weston Marsh Substation Siting Zone' which covered a greater total area than the Section 5 draft Order Limits.
- 2.1.3 Updates to the assessment are primarily limited to the Baseline Conditions (section 2.5), Design, Control and Additional Mitigation Measures (section 2.6) and Preliminary Assessment of Effects (section 2.7) sections. A ZTV has been prepared now that design information has become available for Section 5. This has also allowed preliminary mitigation planting areas to be defined and a refined assessment undertaken on Section 5.
- 2.1.4 Specifically, the chapter includes the following sections:
- i. An introduction to the topic (section 2.1);
  - ii. Identification of key local and regional policy relevant to the assessment (section 2.2). A full overview of the legislation and national, regional onshore and marine planning policy context that applies to the Project is presented within **Supplementary PEI Report Volume 2 Part A Chapter 2 Legislative, Regulatory and Planning Policy Context** and supporting appendices;
  - iii. A summary of the assessment scoping process and subsequent scope of the Landscape assessment (section 2.3). Further detail is provided within **Supplementary PEI Report Volume 3 Part A Appendix 4A Planning Inspectorate Scoping Opinion Responses**;
  - iv. A high-level summary of the methodology of the Landscape assessment within Section 5 (section 2.4). A detailed description of the assessment methods and scope, applicable to the whole Project, is contained in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**;
  - v. A description of the environmental baseline within the Section 5 Study Area relevant to the Landscape assessment, updated since publication of the June 2025 PEI Report based upon the Section 5 draft Order Limits (section 2.5);



- vi. A description of mitigation measures included for the purposes of the Landscape assessment reported within this Supplementary PEI Report (section 2.6). Further information regarding design development can be found in **Supplementary PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered** and the **Supplementary Design Development Report for Section 5**;
- vii. The likely significant and non-significant Landscape effects arising during construction and operation of the Project within the Section 5 Study Area, based upon the assessment completed to date (section 2.7); and
- viii. An outline of the proposed monitoring requirements in relation to Landscape (section 2.8).

2.1.5 Further supporting information is set out in **Table 2.1** below, including supporting figures and technical appendices.

Table 2.1 Supporting documentation

| Supporting Information                                                                                           | Description                                                                                                                                                                                                              |
|------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Topic Specific Supporting Documentation</b>                                                                   |                                                                                                                                                                                                                          |
| <b>Supplementary PEI Report Volume 2 Part B Section 5 Figures</b>                                                | <b>Figure 2.1 Landscape Designations and Features;</b><br><b>Figure 2.2 Landform and Drainage;</b><br><b>Figure 2.3 National Character Areas; and</b><br><b>Figure 2.4 Regional and Local Landscape Character Areas.</b> |
| <b>Supplementary PEI Report Volume 3 Part B Appendix 2A Landscape Character Baseline</b>                         | Description of the landscape character baseline within Section 5 New Weston Marsh Substations A and B.                                                                                                                   |
| <b>Project Specific Supporting Documentation</b>                                                                 |                                                                                                                                                                                                                          |
| <b>Supplementary PEI Report Volume 2 Part B Chapter 1 Overview of the Section and Description of the Project</b> | A summary of the works within Section 5, including the permanent infrastructure, temporary construction works, and operational activities.                                                                               |
| <b>Supplementary PEI Report Volume 3 Part A Appendix 2A Key Legislation</b>                                      | A list of identified environmental legislation considered relevant to the Project, which will be updated and amended as required to inform the Environmental Statement (ES).                                             |
| <b>Supplementary PEI Report Volume 3 Part A Appendix 2B National and Regional Planning Policy</b>                | A list of national and regional policies generally applicable to the assessment principles which underpin the June 2025 PEI Report, Supplementary PEI Report and ES.                                                     |
| <b>Supplementary PEI Report Volume 3 Part A Appendix 2C Local Plan Policy: Section 5</b>                         | An outline of the potentially relevant local planning policy allocations affecting Section 5 of the Project.                                                                                                             |
| <b>Supplementary PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered</b>                           | A summary of the main alternatives considered in relation to Section 5 of the Project during the                                                                                                                         |

| Supporting Information                                                                                      | Description                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                             | design development process, including the main reasons for selecting the chosen option.                                                                                                                                                                 |
| <b>Supplementary PEI Report Volume 2 Part A Chapter 4 Approach to Preliminary Environmental Information</b> | Sets out the Environmental Impact Assessment (EIA) approach and general methodology that has been used in developing the Supplementary PEI Report for Section 5 of the Project.                                                                         |
| <b>Supplementary PEI Report Volume 2 Part A Chapter 5 Project Description</b>                               | An overarching description of the Project and its key components, including updated design and construction information relating to Section 5.                                                                                                          |
| <b>Supplementary PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice</b>       | Sets out control and management measures that will be undertaken during construction of the Project if granted consent. The final Code of Construction Practice (CoCP) will be submitted in support of the Development Consent Order (DCO) application. |

- 2.1.6 There are also interrelationships between the potential Landscape effects and other environmental topics. Therefore, please also refer to the following chapters within **Supplementary PEI Report Volume 2 Part B** and **Part C**:
- i. **Supplementary PEI Report Volume 2 Part B Chapter 3 Visual** should be consulted in relation to the viewpoint assessment. This helps to inform the baseline description and supports the assessment of effects on the landscape.
  - ii. **Supplementary PEI Report Volume 2 Part B Chapter 4 Ecology and Biodiversity** should be consulted in relation to impacts on trees and woodland within the Section 5 Study Area. An Arboricultural Impact Assessment will be presented as an appendix to the ES and will be cross referenced in relation to impacts on trees and woodland. Both documents will be used to help inform the baseline landscape and support the assessment of effects on the landscape reported in the ES.
  - iii. **Supplementary PEI Report Volume 2 Part B Chapter 5 Historic Environment** should be consulted in relation to historic assets within the Section 5 Study Area, including historic landscapes and Registered Parks and Gardens, which may contribute to the value of the landscape. This helps to inform the baseline description and supports the assessment of effects on the landscape.
  - iv. **Supplementary PEI Report Volume 2 Part B Chapter 9 Traffic and Movement** should be consulted in relation to increased traffic flows as a result of the Project, which may influence the character of the landscape through noise and visual disturbance. This helps to inform the baseline description and supports the assessment of effects on the landscape.
  - v. **Supplementary PEI Report Volume 2 Part B Chapter 10 Noise and Vibration** should be consulted in relation to noise intrusion within the Section 5 Study Area, which may affect the perceptual qualities of the landscape. This helps to inform the baseline description and supports the assessment of effects on the landscape.

- vi. **Supplementary PEI Report Volume 2 Part B Chapter 11 Socio-economics, Recreation and Tourism** should be consulted in relation to areas of recreational importance within the Section 5 Study Area which may contribute to the value of the landscape. The outputs of the landscape assessment will inform the assessment of effects on recreation and tourism.
- vii. **Supplementary PEI Report Volume 2 Part B Chapter 13 Summary** provides a concise, consolidated summary of the likely significant effects reported for all topics, based upon the preliminary assessment of effects.
- viii. **Supplementary PEI Report Volume 2 Part C Route-wide Chapter 9 Cumulative Effects** reports those intra-project effects which could potentially act in combination to result in cumulative environmental effects. It also identifies an updated shortlist of other Committed Developments with which there may be potential for cumulative effects, and the relevant environmental topics for such effects (inter-project). The full cumulative effects assessment will be reported within the ES.

## 2.2 Legislation and Policy Framework

### Legislation and National Policy

- 2.2.1 Legislation and national policy relevant to the Project and this chapter is described in **Supplementary PEI Report Volume 2 Part A Chapter 2 Legislative, Regulatory and Planning Policy** and supporting appendices, detail of which is set out in **Table 2.1**.

### Regional and Local Policy

- 2.2.2 Regional and local plans or policies relevant to this assessment are as follows:
  - i. South East Lincolnshire Local Plan 2011 – 2036 (adopted 2019) (Ref 2).
    - Policy 31: Climate Change and Renewable and Low Carbon Energy. The development of renewable energy facilities, associated infrastructure and the integration of decentralised technologies on existing or proposed structures will be permitted provided, individually, or cumulatively, there would be no significant harm to visual amenity (amongst other factors).

## 2.3 Scope of Assessment

- 2.3.1 The scope of the assessment has been informed by the Scoping Opinion (Ref 3) provided by the Planning Inspectorate in September 2024 on behalf of the Secretary of State, following the submission of the EIA Scoping Report (Ref 4). The scope has also been informed through consultation and engagement with relevant consultees. A summary of the Scoping Opinion together with a response against each point of relevance to the Landscape chapter is provided in **Supplementary PEI Report Volume 3 Part A Appendix 4A Planning Inspectorate Scoping Opinion Responses**. A summary of the stakeholder engagement undertaken to date is provided in **Supplementary PEI Report Volume 3 Part A Appendix 4D Summary of Stakeholder Engagement**.

- 2.3.2 Non-statutory consultation feedback was discussed within the Grimsby to Walpole Stage 1 Consultation Feedback Report (Ref 5). Stage 2 Consultation Feedback relevant to Section 5 is discussed within the **Grimsby to Walpole Section 5 Consultation Feedback Report**.
- 2.3.3 The scope of the construction and operation assessment for Section 5 covers the following receptor types:
- i. Locally designated landscapes;
  - ii. Landscape Character Types (LCT);
  - iii. Regional Landscape Character Types (RLCT); and
  - iv. Landscape Character Areas (LCA).
- 2.3.4 For completeness and to provide further context to the assessment, the relevant National Character Areas (NCA) as defined by Natural England (Ref 6) are listed under baseline conditions in Section 2.5. This is to ensure that the potential for significant effects at a wider level than district level is understood, given the length of the route and geographical coverage of the Project. An assessment of the effects of the Project on the NCAs will be provided in the project-wide assessment of landscape effects presented in the ES once the assessments of the more detailed regional and local landscape types have been completed.
- 2.3.5 East Midlands RLCT 1A: Coastal Saltmarshes and Mudflats is located within the Study Area but has been scoped out due to distance from the new Weston Marsh Substations A and B and because the potential for significant effects is unlikely.
- 2.3.6 Where a receptor is impacted by multiple sections of the Project, section 2.7 describes the impact upon the receptor within this Section first. It then provides an aggregated assessment of all impacts across all Section upon the receptor to assess how the cumulative effect of the Project as a whole impacts the receptor from a landscape perspective.

## 2.4 Assessment Methodology

- 2.4.1 The assessment scope, methodology, relevant guidance, key assumptions and limitations for the Landscape assessment are set out in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**. This includes a description of how receptor sensitivity, magnitude of impact and significance of effects are all defined and assigned to the assessment. A summary of the key components is outlined below.

### Approach

- 2.4.2 As explained in paragraph 5.1 of GLVIA3 “*An assessment of landscape effects deals with the effects of change and development on landscape as a resource*”. Changes may affect the elements that make up the landscape, its aesthetic and perceptual aspects, and its distinctive character.
- 2.4.3 Landscape receptors are the elements or aspects of the landscape that may be affected by a proposed development or change. These can include physical, visual, and experiential components of the landscape.

- 2.4.4 The Landscape assessment is based on published landscape character assessments across the Study Area. The preliminary baseline for the assessment is presented in the **Supplementary PEI Report Volume 3 Appendix 2A Landscape Character Baseline**.
- 2.4.5 In accordance with GLVIA3 (Ref 7), the assessment of landscape effects involves evaluating both the nature of the landscape receptors (their sensitivity) and the nature of the effects on those receptors (the magnitude of effect). These factors are then considered together to form an overall judgment regarding the significance of landscape effects.
- 2.4.6 The Landscape section of **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope** describes the methodology used to evaluate sensitivity and magnitude and how the judgements on sensitivity and magnitude of effect are combined to make an informed professional assessment of the significance of each landscape effect. A summary of the approach is set out below.

#### **Establishing Landscape Sensitivity**

- 2.4.7 In accordance with paragraph 5.39 of GLVIA3 (Ref 7) evaluations of the sensitivity of a landscape receptor to change are based on consideration of the professional judgements on the value attached to the landscape (which is established and reported as part of the baseline) and the susceptibility of the landscape to change arising from the Project. These judgements are guided by the indicative criteria set out in the Landscape section of **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**. Judgements on value and susceptibility are recorded as either very high, high, medium or low.

#### **Predicting the Magnitude of Change**

- 2.4.8 In accordance with paragraph 5.48 of GLVIA3 (Ref 7), evaluations of the magnitude of landscape change are based on consideration of the professional judgements on size/scale, geographical extent, duration and reversibility of the predicted change. They are guided by the indicative criteria set out in the Landscape section of **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**. Judgements on the magnitude of predicted landscape change are recorded as large, medium, small and very small.

#### **Judging Levels of Landscape Effect and Significance**

- 2.4.9 The final step in the assessment requires the judgements on the sensitivity of the landscape receptors and the predicted magnitude of landscape change to be combined to make an informed professional assessment of the significance of each landscape effect. In accordance with paragraph 5.55 in GLVIA3 (Ref 7), the evaluations of the individual aspects set out above (susceptibility, value, size and scale, geographical extent, duration and reversibility) are considered together to provide an overall profile of each identified landscape effect, guided by the indicative criteria set out in the Landscape section of **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.



- 2.4.10 Professional judgement and experience are applied to balance the many variables that need to be considered and given different weight according to site-specific and location-specific considerations.
- 2.4.11 Levels of landscape effect are identified as major, moderate, minor, or negligible, and the direction of change as beneficial or adverse. Effects judged to be moderate or major are considered significant in the context of the EIA Regulations (Ref 8). The general approach taken to determining the significance of effect in this preliminary assessment is only to state whether effects are likely or unlikely to be significant, rather than assigning significance levels, which will be presented in the ES.

## Assessment Assumptions and Limitations

- 2.4.12 All general assumptions and limitations for the topic are listed within **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**. There are no additional limitations and assumptions that have been identified which are specific to the assessment of Section 5.
- 2.4.13 The key parameters and assumptions which inform the assessment will be reviewed based on the design presented in the DCO application and, where required, updated, or refined, for the ES. The ES will present the final key limitations and assumptions used within that assessment, particularly drawing attention to any areas that may have changed from that presented in this preliminary assessment.

## 2.5 Baseline Conditions

### Study Area

- 2.5.1 The Study Area for the preliminary Landscape assessment is shown on **Supplementary PEI Report Volume 2 Part B Section 5 Figure 2.1 Landscape Designations and Features**. The extent of the Study Area for the preliminary Landscape assessment (based on the same approach which will be adopted when defining the EIA study area), extends 5 km from the Limits of Deviation (LoD) for the new 400 kV overhead line<sup>1</sup>. This distance was informed by the scale and appearance of the pylons (as detailed in **Supplementary PEI Report Volume 2 Part A Chapter 5 Project Description**), field survey and professional judgment, and is considered sufficient to capture the likely significant landscape effects. Although the ZTV indicates potential visibility beyond 5 km in certain directions, based on previous experience of similar schemes, significant impacts on the character and perception of the landscape are highly unlikely to arise beyond this distance.
- 2.5.2 The preliminary cumulative Landscape assessment Study Area extends 10 km from the LoD for the new 400 kV overhead line. This radius was established to evaluate potential cumulative landscape impacts in conjunction with other committed developments.
- 2.5.3 The ZTV map, which incorporates screening elements such as buildings and woodland, is presented in **Supplementary PEI Report Volume 2 Part B Section 5**

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<sup>1</sup> The Study Area for the preliminary assessment is measured from the LoD for the new 400 kV overhead line as significant effects are most likely to result from construction and operation of the new substations and 400 kV overhead line rather than the temporary access tracks, which in some instances could extend several kilometres from the draft Order Limits but are unlikely to result in significant landscape effects.

**Figure 3.2 Zone of Theoretical Visibility (ZTV).** Based on pylon locations provided by design engineers, the ZTV identifies areas from where the proposed 400 kV overhead line may theoretically be visible. It also helped determine the extent of the Study Area for the Landscape assessment. The theoretical visibility of individual pylons is limited to a maximum distance of 10 km, as beyond this distance, the pylons would be almost imperceptible. This also covers the full extent of the Study Area for the cumulative assessment.

- 2.5.4 Further information on Study Area definition is presented in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.
- 2.5.5 To ensure that all likely significant effects are captured in the assessment, the Study Area will continue to be reviewed in the light of feedback received during statutory consultation, ongoing site surveys, and following the production of a ZTV as the Project develops.

## Data Collection

- 2.5.6 The following data has been used to inform the baseline conditions:
- Ordnance Survey (OS) 1:10,000, 1:25,000, 1:50,000 and 1:250,000 base mapping;
  - OS Terrain® 50 mid-resolution and LIDAR Composite 2017 – 50 cm Digital Terrain Model (DTM);
  - Google Earth Pro aerial photography, and Google Maps Street View;
  - Base mapping from ArcGIS Map Service;
  - Open source Geographic Information System (GIS) data;
  - East Midlands Regional Landscape Character Assessment (Ref 9); and
  - Natural England National Character Area Profiles (Ref 6).
- 2.5.7 Site surveys were carried out during several visits under differing weather conditions between Spring 2023 and Summer 2025.

## Existing Baseline

- 2.5.8 The following section outlines the Landscape baseline and should be read in conjunction with **Supplementary PEI Report Volume 3 Part B Appendix 2A Landscape Character Baseline**. The appendix provides a description of the landscape, including its elements, features, and overall character, with reference to the landscapes and landscape character areas listed below. It also includes judgements on the landscape's relative value and its susceptibility to change resulting from the Project.
- 2.5.9 The baseline section should also be read in conjunction with the following supporting Figures, as found within **Supplementary PEI Report Volume 2**:
- Supplementary PEI Report Volume 2 Part B Section 5 Figure 2.1 Landscape Designations and Features;**
  - Supplementary PEI Report Volume 2 Part B Section 5 Figure 2.2 Landform and Drainage;**



- iii. **Supplementary PEI Report Volume 2 Part B Section 5 Figure 2.3 National Character Areas;**
- iv. **Supplementary PEI Report Volume 2 Part B Section 5 Figure 2.4 Regional and Local Landscape Character Areas;** and
- v. **Supplementary PEI Report Volume 2 Part B Section 5 Figure 2.1 Landscape Designations and Features** shows the distribution of woodland across the Study Area.

### Designated Landscapes

- 2.5.10 There are no designated landscapes within the Study Area for the Project in Section 5.

### Landscape Character

- 2.5.11 The following landscape character areas cover the Study Area for Section 5.
- i. Natural England - National Character Area Profiles (NCA); and
    - NCA 46 The Fens.
  - ii. East Midlands Regional Landscape Character Types (RLCT)
    - RLCT 2A Settled Fens and Marshes which is considered to be of medium value and medium susceptibility to the Project.

### Future Baseline

- 2.5.12 The future baseline relates to known or foreseeable changes to the current baseline in the future, against which the effects of the Project during construction and operation are assessed. Specifically, it accounts for anticipated changes including those caused by changing climatic conditions, policy, legislation, advances in technology and by other confirmed development projects which will be complete prior to construction of the Project.
- 2.5.13 At this preliminary stage, a full assessment of the implications of any confirmed development projects with regard to future baseline conditions has not been undertaken. A list of the currently known developments which are anticipated to be included within the future baseline scenario is provided within **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope Annex A Developments for Consideration Within the Future Baseline**. This will be reviewed and updated as appropriate during development of the ES, as with other information which informs assessment of the future baseline.
- 2.5.14 Ash trees (*Fraxinus excelsior*) within the Study Area for Section 5 may be affected by ash dieback, a frequently fatal disease caused by the fungus *Hymenoscyphus fraxineus*. Therefore, the future baseline assumes long-term ash tree loss, with other species filling gaps in the short term, keeping overall vegetation levels similar. This will remain under review during development of the ES and further consideration of any appropriate changes to the assumed future baseline characterised within this Supplementary PEI Report. This will include completion of an Arboricultural Impact Assessment, which will record incidents of ash dieback, which in turn will inform the detailed Landscape assessment presented in the ES.

## 2.6 Design, Control and Additional Mitigation Measures

### Design Mitigation Measures

- 2.6.1 The Project is being designed to avoid sensitive receptors as far as practicable. This is in accordance with the 'Holford Rules' (Ref 10) applicable to routing of new overhead lines and the 'Horlock Rules' (Ref 11), which apply to the design and siting of substations. These approaches are explained in further detail within the Corridor Preliminary Routeing and Siting Study (CPRSS) (Ref 12) and **Supplementary PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered**. Principles include, but are not limited to, seeking to avoid areas of highest amenity, cultural or scientific value, taking advantage of natural screening provided by existing landform and features (e.g. woodland) and keeping visual, noise and other environmental effects to a minimum.
- 2.6.2 Following selection of the preferred route corridor, environmental specialists have been integral to ongoing design refinement of works within Section 5. This has further contributed to the avoidance or reduction of the potential environmental impacts of the Project. Specific examples relevant to the assessment include:
- i. Locating the new Weston Marsh Substation A close to the tee point between existing 400 kV overhead lines to reduce the amount of new overhead line required;
  - ii. Locating the new Weston March Substation B where it balances the overhead line requirements for this Project and other proposed connections and reduces number of pylons required within the landscape; and
  - iii. Amendments to locations of access tracks and bellmouths and the overhead line alignment to minimise loss of vegetation, which in turn would help to retain existing landscape character.
- 2.6.3 The Project has also committed to producing an Outline Landscape Environmental Management Plan (LEMP) (commitment GG06), which will set out the measures to protect existing vegetation and details regarding the reinstatement and additional planting. This will also account for biodiversity net gain targets (see **Supplementary PEI Report Volume 2 Part B Chapter 4 Ecology and Biodiversity**) and will accompany the ES and DCO application.
- 2.6.4 A detailed mitigation plan for Section 5 will be presented in the ES. This will include proposals for planting, including indicative species mixes and will be presented as part of the Outline LEMP.

### Control Mitigation Measures

#### Construction

- 2.6.5 A Preliminary Code of Construction Practice (CoCP) is provided in **Supplementary PEI Report Volume 3 Appendix 5A Preliminary CoCP**. The control measures included within the Preliminary CoCP relevant to the Landscape assessment of Section 5 are the same as those presented in June 2025 PEI Report Volume 2 Part B Section 5 Chapter 2 Landscape (Ref 13) and include:

- i. LV01: The contractor(s) will retain vegetation where practicable. Where vegetation is lost and trees cannot be replaced in situ due to the restrictions associated with land rights required for operational safety, native shrub planting approved by National Grid will be used as a replacement, in accordance with the outline vegetation reinstatement plans included within the LEMP. Replacement vegetation will be planted as close by as practicable and will complement landscape character and be sympathetic to the local habitat type in order to provide a high biodiversity value.
- ii. LV02: The contractor(s) will apply the relevant protective principles set out in BS 5837:2012: Trees in relation to design, demolition, and construction (Ref 14). This will be applied to trees within the Order Limits which will be preserved through the construction phase, and to trees outside of the Order Limits where such measures do not hinder or prevent the use of the relevant working width for construction. An Arboricultural Clerk of Works will ensure the suitability of tree protection before and during the construction phase. All works to high grade trees, including trees under Tree Preservation Orders and veteran trees, will be undertaken, or supervised by a suitably qualified arboriculturist.
- iii. LV03: A five-year aftercare period will be established for all reinstatement and mitigation planting, details of which will be set out in the LEMP.
- iv. LV04: Construction lighting will be of the lowest luminosity necessary to safely perform tasks. Lighting will be directional and minimised where possible.
- v. B08: Where the works require the crossing or removal of hedgerows, the gap will be reduced to a width required for safe working. Where hedge removals are necessary, 'dead hedging' should be used, where practicable, in the interim periods to retain connectivity during construction. Dead hedging can comprise vegetation arisings or artificial provision, such as willow screening panels or Heras fencing covered in camouflage netting. New hedgerow planting will contain native, woody species of local provenance.
- vi. NV01: Construction working will be undertaken within the agreed working hours set out within the DCO unless the works are under an exception to the set working hours in which case they will be carried out in a manner that minimises noise and vibration at all times. Best practicable means to reduce construction noise will be set out within the Construction Environmental Management Plans (CEMP).

## Additional Mitigation Measures

- 2.6.6 Additional mitigation measures are those required to reduce likely significant adverse environmental effects which may still occur despite the inclusion of the embedded design and control measures described above.
- 2.6.7 Potential additional mitigation measures which may be required to reduce the effects of the Project upon Landscape are in the early stages of development, based upon an iterative process informed by ongoing survey and assessment. These typically include additional measures which specifically serve a mitigation function, to reduce the scale of potential impacts.
- 2.6.8 As set out within **Supplementary PEI Report Volume 2 Part B Chapter 1 Overview of the Section and Description of the Project** and illustrated on **Supplementary PEI Report Volume 2 Part B Section 3 Figure 1.3 Permanent and Operation**

**Features** the preliminary additional mitigation measures embedded into the design of Section 5 for Landscape includes areas of woodland planting and tree planting on field boundaries around the new Weston Marsh Substations A and B, to provide visual screening, which would help with landscape integration for Section 5.

- 2.6.9 Any measures to be included within the Project will be informed by further design development and consultation with the relevant stakeholders, including engagement with the statutory consultees.
- 2.6.10 Finalised additional mitigation measures will be detailed within the ES.

## **2.7 Preliminary Assessment of Effects**

- 2.7.1 The following section presents the findings of the preliminary assessment of effects upon the receptors identified within the Study Area as a result of construction and/or operational activities within Section 5.
- 2.7.2 The preliminary assessment of effects reported below takes into account the Design Mitigation Measures and Control Mitigation Measures as previously described.
- 2.7.3 For a summary of the likely significant effects please refer to **Supplementary PEI Report Volume 2 Part B Chapter 13 Summary**.
- 2.7.4 The Landscape effects of maintenance activities during operation are scoped out of the assessment as agreed in the Scoping Opinion adopted by the Secretary of State on 10 September 2024 (Ref 3).
- 2.7.5 As explained in section 2.4 of this Supplementary PEI Report, the Natural England NCA 46 the Fens, which is included in the baseline above, is not assessed at this preliminary stage. An assessment of the effects of the Project on this NCA will be provided in the project-wide assessment of landscape effects presented in the ES once the more detailed assessments have been completed.
- 2.7.6 Where an effect is reported in this Supplementary PEI Report, it is an adverse effect unless stated otherwise.
- 2.7.7 Reference is made in the assessment to 'direct' and 'indirect effects'. Direct effects involve physical changes to components of the landscape, such as vegetation removal or the presence of new structures, while indirect effects arise from the interaction between the Project and its surrounding context for example, effects on the character and perception of the landscape.
- 2.7.8 It is noted that this assessment is subject to change due to the ongoing design development of the Project, statutory consultation feedback and further stakeholder engagement. A full assessment will be included within the ES submitted with the DCO application.

## **Likely Significant Effects**

### **Construction**

- 2.7.9 Changes in the character and perception of a view may occur during construction as a result of physical impacts on the landscape, including vegetation clearance and the establishment and operation of construction compounds, storage areas, access tracks, and the movement of plant (such as mobile cranes), vehicles, and personnel.

However, these effects would be temporary and reversible, with the landscape reinstated upon completion of the works<sup>2</sup>.

## East Midlands Regional Landscape Character Types (RLCT)

### RLCT 2A Settled Fens and Marshes

- 2.7.10 RLCT 2A Settled Fens and Marshes, which is located within the Study Area for Section 5, is also located in:
- i. Section 2: New Grimsby West Substation to New Lincolnshire Connection Substation A;
  - ii. Section 3: New Lincolnshire Connection Substations A and B;
  - iii. Section 4: New Lincolnshire Connection Substation B to New Weston Marsh Substations A and B;
  - iv. Section 6: New Weston Marsh Substations A and B to New Walpole B Substation; and
  - v. Section 7: New Walpole B Substation.
- 2.7.11 The preliminary assessment of the effects on RLCT 2A: Settled Fens and Marshes presented below considers the part of the RLCT that is located within the Study Area for Section 5.
- 2.7.12 RLCT 2A: Settled Fens and Marshes would be directly impacted by the construction of the new Weston Marsh Substations A and B including construction compounds and associated haul roads, approximately 5 km of new 400 kV overhead line including pylons LW200-LW206, RJ1-RJ5 and RJ12-RJ15, 4ZM411-N to 4ZM420-N, 2WS006-N to 2WS013-N, replacement of approximately 2.5 km of existing 400 kV overhead line including RJ6-RJ11 and removal of 2WS006 to 2WS009. There would be direct effects on landscape from the construction of the underground cable between new Weston Marsh Substation A and new Weston Marsh Substation B. It would also be indirectly affected by the construction of the new 400 kV overhead line in the parts of the RLCT in Sections 4 and 6 and close to Section 5.
- 2.7.13 Although the works would impact an area of intensively farmed landscape, the landscape is open and the size/scale of change would diminish its scenic quality and rural character, introducing substantial movement and disturbance across the part of the RLCT in Section 5. The construction activity would fundamentally alter both the landscape's character and how it is perceived. Combined with the landscape's medium value and susceptibility, the overall magnitude of change is expected to be large, likely resulting in a significant effect on this part of the RLCT in Section 5.
- 2.7.14 When considering the construction phase of the Project in its entirety across all Sections, the overall magnitude of predicted change increases but remains in the large category. When combined with the medium value and medium susceptibility of RLCT 2A: Settled Fens and Marshes, the Project would give rise to a likely significant effect.

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<sup>2</sup> To prevent double counting, the effects resulting from vegetation loss are assessed as part of the operational phase rather than the construction phase. This approach ensures that the long-term impacts of vegetation removal on visual amenity are considered in the context of the final, post-construction condition.



## Operation

- 2.7.15 The potential effects that could result from the operational phase of the Project are changes to the composition, character and perception of the landscape due to long-term loss of elements and features in the landscape, changes to the landform, introduction of new infrastructure and introduction of landscape elements such as trees and hedgerows. The effects would be long-term and are considered permanent.

### East Midlands Regional Landscape Character Types (RLCT)

#### RLCT 2A Settled Fens and Marshes

- 2.7.16 RLCT 2A Settled Fens and Marshes, which is located in Section 5, is also located in:
- Section 2: New Grimsby West Substation to New Lincolnshire Connection Substation A;
  - Section 3: New Lincolnshire Connection Substations A and B;
  - Section 4: New Lincolnshire Connection Substation B to New Weston Marsh Substations A and B;
  - Section 6: New Weston Marsh Substations A and B to New Walpole B Substation; and
  - Section 7: New Walpole B Substation.
- 2.7.17 The preliminary assessment of the effects on RLCT 2A: Settled Fens and Marshes presented below considers the part of the RLCT that is located within the Study Area for Section 5.
- 2.7.18 The presence of the Project would directly impact RLCT 2A: Settled Fens and Marshes. The new Weston Marsh Substation A would be located close to the existing 400 kV overhead lines, while new Weston Marsh Substation B would be located in farmland to the north of Weston. Approximately 5 km of new 400 kV overhead line including pylons LW200-LW206, RJ1-RJ5 and RJ12-RJ15, 4ZM411-N to 4ZM420-N and 2WS006-N to 2WS013-N would run through the central part of the RLCT. These changes would alter the sense of place and diminish the rural character of the open farmland. Additionally, the landscape would be further influenced by the new 400 kV overhead line in Sections 4 and 6 close to Section 5 which would affect the perception of the RLCT. There would be no effect on the landscape from the underground cable between new Weston Marsh Substation A and new Weston Marsh Substation B once reinstatement of fields and field boundaries has been completed and land returned to current uses.
- 2.7.19 While this area is intensively farmed and already influenced by the urbanising effects of several main roads, the scale and extent of change in the open farmland would fundamentally alter both character of the landscape and how it is perceived. However, these effects would be relatively localised within the RLCT and therefore the magnitude of change is expected to be medium. Given the landscape's medium value and susceptibility, this is likely to result in a significant effect on the RLCT within Section 5.
- 2.7.20 Over time, the mitigation planting associated with the two new substations would be maturing and provide some screening of the infrastructure. This would reduce the

overall effects on the landscape, but due to the size and scale of the Project, the effect is likely to be significant.

- 2.7.21 When considering the operation phase of the Project in its entirety across all Sections, the overall magnitude of predicted change increases but remains in the medium category. When combined with the medium value and medium susceptibility of RLCT 2A: Settled Fens and Marshes, the Project would give rise to a likely significant effect.

## Likely Non-Significant Effects

- 2.7.22 There are no likely non-significant effects as a result of the Project in Section 5 as the only landscape character area covering the Study Area being considered in this assessment is the RLCT 2A Settled Fens and Marshes, which as detailed above, is anticipated to experience likely significant effects during construction and operation of the Project.

## 2.8 Monitoring

- 2.8.1 No landscape monitoring is currently proposed for Section 5, as it is only necessary to ensure the establishment of mitigation planting. A five-year aftercare period for mitigation planting is secured through the Preliminary CoCP, eliminating the need for additional monitoring measures.



# References

- Ref 1 National Grid (2025). Grimsby to Walpole Preliminary Environmental Information Report [online]. Available at: <https://www.nationalgrid.com/the-great-grid-upgrade/grimsby-to-walpole/document-library#4257225834-3023854277> [Accessed 14 October 2025].
- Ref 2 South East Lincolnshire Joint Strategic Planning Committee (2019). South East Lincolnshire Local Plan 2011-2036 (adopted 2019). [online] Available at: <https://southeastlincslocalplan.org/article/20102/Adopted-Plan>. [Accessed 11 March 2025]
- Ref 3 The Planning Inspectorate (2024). Scoping Opinion: Proposed Grimsby to Walpole Project [online]. Available at: <https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN020036-000109-Scoping%20Opinion%202017%20EIA%20Regs.pdf> . [Accessed 18 October 2024].
- Ref 4 National Grid Electricity Transmission (2024). Grimsby to Walpole Environmental Impact Assessment Scoping Report [online]. Available at: <https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN020036-000004-EN020036%20-%20Scoping%20Report%20Volume%201%20Main%20Report.pdf> . [Accessed 18 October 2024].
- Ref 5 National Grid (2025). Stage 1 Consultation Feedback Report. Available at: <https://www.nationalgrid.com/document/560496/download> [Accessed 12 September 2025].
- Ref 6 Natural England (2024) National Character Area Profiles [online]. Available at: <https://nationalcharacterareas.co.uk/> [Accessed 20 September 2024].
- Ref 7 Landscape Institute and Institute for Environmental Management and Assessment (IEMA) (2013) Guidelines for Landscape and Visual Impact Assessment – 3rd Edition (GLVIA3).
- Ref 8 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 [online]. Available at: <https://www.legislation.gov.uk/uksi/2017/572/contents/made> [Accessed 06 September 2024].
- Ref 9 Natural England (2010). East Midlands Regional Landscape Character Assessment [online]. Available at: <https://publications.naturalengland.org.uk/publication/5635681403535360#:~:text=The%20East%20Midlands%20Region%20Landscape,distinctive%2C%20rare%20or%20special%20characteristics>. [Accessed 20 September 2024].
- Ref 10 National Grid. The Holford Rules: Guidelines on Overhead Line Routeing. [online] Available at: <https://www.nationalgrid.com/sites/default/files/documents/13795-The%20Holford%20Rules.pdf> [Accessed 20 September 2024].
- Ref 11 National Grid. NGC Substations and the Environment: Guidelines on Siting and Design. [online] Available at: <https://www.nationalgrid.com/sites/default/files/documents/13796-The%20Horlock%20Rules.pdf> [Accessed 20 September 2024].

- Ref 12 National Grid Electricity Transmission (2024). Grimsby to Walpole Corridor Preliminary Routeing and Siting Study [online]. Available at: <https://www.nationalgrid.com/document/352621/download> [Accessed 3 March 2025].
- Ref 13 National Grid (2025). Preliminary Environmental Information Report Volume 2 Part B Section 5 Chapter 2 Landscape [online]. Available at: <https://www.nationalgrid.com/document/560626/download> [Accessed 14 October 2025].
- Ref 14 British Standard (BS) 5837:2012: Trees in relation to Design, Demolition and Construction – Recommendations.

# 3. Visual

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## 3. Visual

### 3.1 Introduction

- 3.1.1 This chapter presents the Supplementary Preliminary Environmental Information (PEI) in relation to the Visual assessment for New Weston Marsh Substations A and B Section (Section 5) of the Grimsby to Walpole Project (the Project).
- 3.1.2 The preliminary assessment of Section 5 reported within this chapter presents an update to the previously published June 2025 PEI Report (Ref 1), which formed part of the Stage 2 Statutory Consultation completed between 11 June and 6 August 2025. This update reflects the fact that since the launch of the Stage 2 consultation, further design development has been completed to confirm the requirement for two substations within Section 5, the preferred location of the new Weston Marsh Substation A and new Weston Marsh Substation B and the associated overhead line and underground cable connections. The draft Order Limits for Section 5 have also now been defined, whereas the June 2025 PEI Report was based upon a wider 'Refined Weston Marsh Substation Siting Zone' which covered a greater total area than the Section 5 draft Order Limits.
- 3.1.3 Updates to the assessment are primarily limited to the Baseline Conditions (section 2.5), Design, Control and Additional Mitigation Measures (section 2.6) and Preliminary Assessment of Effects (section 2.7) sections. A ZTV has been prepared now that design information has become available for Section 5 and further viewpoints defined for Section 5. This has also allowed preliminary mitigation planting areas to be defined and a refined assessment undertaken on Section 5.
- 3.1.4 Specifically, the chapter includes the following sections:
- i. An introduction to the topic (section 3.1);
  - ii. Identification of key local and regional policy relevant to the assessment (section 3.2). A full overview of the legislation and national, regional onshore and marine planning policy context that applies to the Project is presented within **Supplementary PEI Report Volume 2 Part A Chapter 2 Legislative, Regulatory and Planning Policy Context** and supporting appendices;
  - iii. A summary of the assessment scoping process and subsequent scope of the Visual assessment (section 3.3). Further detail is provided within **Supplementary PEI Report Volume 3 Part A Appendix 4A Planning Inspectorate Scoping Opinion Responses**;
  - iv. A high level summary of the methodology of the Visual assessment within Section 5 (section 3.4). A detailed description of the assessment methods and scope, applicable to the whole Project, is contained in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**;
  - v. A description of the environmental baseline within the Section 5 Study Area relevant to the assessment, updated since publication of the June 2025 PEI Report based upon the Section 5 draft Order Limits (section 3.5);

- vi. A description of mitigation measures included for the purposes of the Visual assessment reported within the Supplementary PEI Report (section 3.6). Further information regarding design development can be found in **Supplementary PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered** and the **Supplementary Design Development Report for Section 5**;
- vii. The likely significant and non-significant Visual effects arising during construction and operation of the Project within Section 5, based upon the assessment completed to date (section 3.7); and
- viii. An outline of the proposed monitoring requirements in relation to Visual (section 3.8)

3.1.5 Further supporting information is set out in **Table 3.1** below, including supporting figures and technical appendices.

Table 3.1 Supporting documentation

| Supporting Information                                                                                           | Description                                                                                                                                                                               |
|------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Topic Specific Supporting Documentation</b>                                                                   |                                                                                                                                                                                           |
| <b>Supplementary PEI Report Volume 2 Part B Section 5 Figures</b>                                                | <b>Figure 3.1 Visual Receptors</b>                                                                                                                                                        |
| <b>Supplementary PEI Report Volume 3 Part B Appendix 3A Proposed Viewpoints</b>                                  | This appendix provides background baseline information of the representative viewpoints selected within the Study Area.                                                                   |
| <b>Supplementary PEI Report Volume 3 Part B Appendix 3B Visual Baseline</b>                                      | This appendix provides an overview of the visual baseline, an explanation of proposed viewpoint selection and initial baseline information for the community areas within the Study Area. |
| <b>Project Specific Supporting Documentation</b>                                                                 |                                                                                                                                                                                           |
| <b>Supplementary PEI Report Volume 2 Part B Chapter 1 Overview of the Section and Description of the Project</b> | A summary of the works within Section 5, including the permanent infrastructure, temporary construction works, and operational activities.                                                |
| <b>Supplementary PEI Report Volume 3 Part A Appendix 2A Key Legislation</b>                                      | A list of identified environmental legislation considered relevant to the Project, which will be updated and amended as required to inform the Environmental Statement (ES).              |
| <b>Supplementary PEI Report Volume 3 Part A Appendix 2B National and Regional Planning Policy</b>                | A list of national and regional policies generally applicable to the assessment principles which underpin the June 2025 PEI Report, Supplementary PEI Report and ES.                      |
| <b>Supplementary PEI Report Volume 3 Part A Appendix 2C Local Plan Policy</b>                                    | An outline of the potentially relevant local planning policy allocations affecting Section 5 of the Project.                                                                              |
| <b>Supplementary PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered</b>                           | A summary of the main alternatives considered in relation to Section 5 of the Project during the design development process, including the main reasons for selecting the chosen option.  |



| Supporting Information                                                                                      | Description                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Supplementary PEI Report Volume 2 Part A Chapter 4 Approach to Preliminary Environmental Information</b> | Sets out the Environmental Impact Assessment (EIA) approach and general methodology that has been used in developing the Supplementary PEI Report for Section 5 of the Project.                                                                         |
| <b>Supplementary PEI Report Volume 2 Part A Chapter 5 Project Description</b>                               | An overarching description of the Project and its key components, including updated design and construction information relating to Section 5.                                                                                                          |
| <b>Supplementary PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice</b>       | Sets out control and management measures that will be undertaken during construction of the Project if granted consent. The final Code of Construction Practice (CoCP) will be submitted in support of the Development Consent Order (DCO) application. |

- 3.1.6 There are interrelationships between the potential effects on Visual and other environmental topics. Therefore, please also refer to the following chapters within **Supplementary PEI Report Volume 2 Part B** and **Part C**:
- i. **Supplementary PEI Report Volume 2 Part B Chapter 2 Landscape** should be consulted in relation to the landscape assessment. This helps to inform judgements on the value of the views and supports the Visual assessment.
  - ii. **Supplementary PEI Report Volume 2 Part B Chapter 4 Ecology and Biodiversity** should be consulted in relation to impacts on trees and woodland. An Arboricultural Impact Assessment will be presented as an appendix to the ES and will be cross referenced in relation to impacts on trees and woodland. Both documents will be used to help inform the baseline landscape and support the assessment of visual effects reported in the ES.
  - iii. **Supplementary PEI Report Volume 2 Part B Chapter 5 Historic Environment** should be consulted in relation to historic assets including historic landscapes and Registered Parks and Gardens, which may contribute to the value of the view. This helps to inform the baseline description and supports the Visual assessment.
  - iv. **Supplementary PEI Report Volume 2 Part B Chapter 9 Traffic and Movement** should be consulted in relation to increased traffic flows which may influence the character of the views through noise and visual disturbance. This helps to inform the baseline description and supports the Visual assessment.
  - v. **Supplementary PEI Report Volume 2 Part B Chapter 10 Noise and Vibration** should be consulted in relation to noise intrusion which may affect the perception and value of a view. This helps to inform the baseline description and supports the Visual assessment.
  - vi. **Supplementary PEI Report Volume 2 Part B Chapter 11 Socio-economics, Recreation and Tourism** should be consulted in relation to areas of recreational importance which may contribute to the value of the view. The outputs of the visual assessment will inform the assessment of effects on recreation and tourism.

- vii. **Supplementary PEI Report Volume 2 Part B Chapter 13 Summary** provides a concise, consolidated summary of the likely significant effects reported for all topics, based upon the preliminary assessment.
- viii. **Supplementary PEI Report Volume 2 Part C Route-wide Chapter 9 Cumulative Effects** reports those intra-project effects which could potentially act in combination to result in cumulative environmental effects. It also identifies a shortlist of other Committed Developments with which there may be potential for cumulative effects, and the relevant environmental topics for such effects (inter-project). The full cumulative effects assessment will be reported within the ES.

## 3.2 Legislation and Policy Framework

- 3.2.1 Legislation and national policy relevant to the Project and this chapter is described in **Supplementary PEI Report Volume 2 Part A Chapter 2 Legislative, Regulatory and Planning Policy** and supporting appendices, detail of which is set out **Table 3.1**.

### Regional and Local Policy

- 3.2.2 Regional and local plans or policies relevant to this assessment are as follows:
  - i. South East Lincolnshire Local Plan 2011 – 2036 (adopted 2019) (Ref 2).
    - Policy 31: Climate Change and Renewable and Low Carbon Energy. The development of renewable energy facilities associated infrastructure and the integration of decentralised technologies on existing or proposed structures will be permitted provided, individually, or cumulatively, there would be no significant harm to visual amenity (amongst other factors).

## 3.3 Scope of Assessment

- 3.3.1 The scope of the assessment has been informed by the Scoping Opinion (Ref 3) provided by the Planning Inspectorate in September 2024 on behalf of the Secretary of State, following the submission of the EIA Scoping Report (Ref 4). The scope has also been informed through consultation and engagement with relevant consultees. A summary of the Scoping Opinion together with a response against each point of relevance to the Visual chapter is provided in **Supplementary PEI Report Volume 3 Part A Appendix 4A Planning Inspectorate Scoping Opinion Responses**. A summary of the stakeholder engagement undertaken to date is provided in **Supplementary PEI Report Volume 3 Part A Appendix 4D Summary of Stakeholder Engagement**.
- 3.3.2 Non-statutory consultation feedback was discussed within the Grimsby to Walpole Stage 1 Consultation Feedback Report (Ref 5). Stage 2 Consultation feedback relevant to Section 5 is discussed within the **Grimsby to Walpole Section 5 Consultation Feedback Report**.
- 3.3.3 The scope of the construction and operation assessment covers the following receptor types:
  - i. Communities - People in communities for whom the surrounding environment is essential to their quality of life and work, including those engaging in recreational activities such as using Public Rights of Way (PROW) and waterways; and

- ii. Recreational Routes and Receptors - People using National Trails and regionally promoted routes, long distance cycle routes, and people at protected viewpoints, panoramas and viewing corridors and people visiting tourist attractions where views are important to the experience.

## 3.4 Assessment Methodology

- 3.4.1 The assessment scope, methodology, relevant guidance, key assumptions and limitations for the Visual assessment are set out in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**. This includes a description of how receptor sensitivity, magnitude of impact and significance of effects are all described and assigned to the assessment. A summary of the key components is outlined below.

### Approach

- 3.4.2 As explained in paragraph 6.1 of GLVIA3 (Ref 6)” *An assessment of visual effects deals with the effects of change and development on views available to people and their visual amenity*”. Changes in views can be experienced by individuals at various locations within the Study Area, including from static positions (typically assessed using representative viewpoints) and while moving through the landscape (commonly referred to as sequential views, such as those experienced from roads and footpaths).
- 3.4.3 Visual receptors are individuals or groups of people who may be affected by changes in views and visual amenity. As noted in paragraph 6.31 - 6.32 of GLVIA3 (Ref 6), they are usually grouped by their occupation or activity (e.g. residents, motorists, recreational users, tourists visiting a specific location or area) and the extent to which their attention is focused on the view.
- 3.4.4 The Visual assessment is based on communities within the jurisdiction boundaries of parishes (also referred to in this assessment as community areas) and the preliminary baseline for the community areas is presented in **Supplementary PEI Report Volume 3 Part B Appendix 3B Visual Baseline**.
- 3.4.5 The Visual assessment also includes consideration of the effects on sequential views<sup>1</sup>, for example from nationally designated and regionally promoted long distance footpaths and cycleways.
- 3.4.6 The Visual assessment is informed by a series of publicly accessible viewpoint locations. These have been carefully chosen to provide a representative overview of the Project’s potential visibility. Each viewpoint has been visited, with photography captured in line with TGN 06/19 to document the existing visual characteristics of Section 5. The baseline for the representative viewpoints is presented in the Visual section of **Supplementary PEI Report Volume 3 Part B Appendix 3B Proposed Viewpoints**.
- 3.4.7 In accordance with GLVIA 3 (Ref 6), the assessment of visual effects involves evaluating both the nature of the visual receptors (their sensitivity) and the nature of the effects on those receptors (the magnitude of effect). These factors are then

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<sup>1</sup> Views from multiple locations along a linear route such as a footpath or cycleway.

considered together to form an overall judgment regarding the significance of visual effects.

- 3.4.8 The Visual section of **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope** describes the methodology used to evaluate sensitivity and magnitude and how the judgements on sensitivity and magnitude of effect are combined to make an informed professional assessment on the significance of each visual effect. A summary of the approach is set out below.

#### **Establishing Visual Sensitivity**

- 3.4.9 In accordance with paragraph 6.31 of GLVIA3 (Ref 6), evaluations of the sensitivity of a visual receptor to change are based on consideration of the judgements on the value attached to the existing view (which is established and reported as part of the baseline) and the susceptibility of the receptor to changes in the view arising from the Project. These judgements are guided by the indicative criteria set out in the Visual section of **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**. Judgements on value and susceptibility are recorded as either very high, high, medium or low.

#### **Predicting the Magnitude of Change**

- 3.4.10 In accordance with paragraph 6.38 of GLVIA3 (Ref 6), judgements on the magnitude of visual change are informed by balanced consideration of the judgements on size/scale, geographical extent, duration and reversibility of the predicted change. They are guided by the indicative criteria set out in the Visual section of **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**. Judgements on the magnitude of visual change are recorded as large, medium, small and very small.

#### **Judging Levels of Visual Effect and Significance**

- 3.4.11 The final step in the assessment requires the judgements on the sensitivity of the visual receptors and the predicted magnitude of visual change to be combined to make an informed professional assessment on the significance of each visual effect. In accordance with paragraph 6.43 of GLVIA3 (Ref 6), the evaluations of the individual aspects set out above (susceptibility, value, size and scale, geographical extent, duration and reversibility) are considered together to provide an overall profile of each identified visual effect, guided by the indicative criteria set out in the Visual section of **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.
- 3.4.12 Professional judgement and experience are applied to balance the many variables that need to be considered and given different weight according to site-specific and location-specific considerations.
- 3.4.13 Levels of visual effect are identified as major, moderate, minor, or negligible, and the direction of change as beneficial or adverse. Effects judged to be moderate or major are considered significant in the context of the EIA Regulations (Ref 7). The general approach taken to determining the significance of effect in this preliminary assessment is only to state whether effects are likely or unlikely to be significant, rather than assigning significance levels, which will be presented in the ES.

## Assessment Assumptions and Limitations

- 3.4.14 All general assumptions and limitations for the topic are listed within **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**. There are no additional limitations and assumptions that have been identified which are specific to the assessment of Section 5.
- 3.4.15 The key parameters and assumptions which inform the assessment will be reviewed based on the design presented in the DCO application and, where required, updated, or refined, for the ES. The ES will present the final key limitations and assumptions applicable to the full assessment, particularly drawing attention to any areas that may have changed from that presented in this preliminary assessment.

## 3.5 Baseline Conditions

### Study Area

- 3.5.1 The Study Area for the preliminary Visual assessment is shown on **Supplementary PEI Report Volume 2 Part B Section 5 Figure 3.1 Visual Receptors and Viewpoints**. The extent of the Study Area for the preliminary Visual assessment (based on the same approach which will be adopted when defining the EIA study area), extends 5 km from the Limits of Deviation (LoD) for the new 400 kV overhead line<sup>2</sup>. This distance was informed by the ZTV, the scale and appearance of the pylons (as detailed in **Supplementary PEI Report Volume 2 Part A Chapter 5 Project Description**), field survey and professional judgment, and is considered sufficient to capture the likely significant visual effects. Although the ZTV indicates potential visibility beyond 5 km in certain directions, based on experience of similar schemes, significant visual impacts are highly unlikely to arise beyond this distance.
- 3.5.2 The preliminary cumulative Visual assessment Study Area extends to 10 km from the LoD for the new 400 kV overhead line. This radius was established to evaluate potential cumulative landscape impacts in conjunction with other committed developments.
- 3.5.3 The ZTV map, which incorporates screening elements such as buildings and woodland, is presented in **Supplementary PEI Report Volume 2 Part B Section 5 Figure 3.2 Zone of Theoretical Visibility (ZTV)**. Based on pylon locations provided by design engineers, the ZTV identifies areas where the new 400 kV overhead line may theoretically be visible. It also helps determine the extent of the Study Area for the Visual assessment. The theoretical visibility of individual pylons is limited to a maximum distance of 10 km, as beyond this distance the pylons would be almost imperceptible. This also covers the full extent of the Study Area for the cumulative assessment.
- 3.5.4 Further information on Study Area definition is presented in the Visual section of **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.

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<sup>2</sup> The Study Area for the preliminary assessment is measured from the LoD for the new 400 kV overhead line as significant effects are most likely to result from construction and operation of the new substations and 400 kV overhead line rather than the temporary access tracks, which in some instances could extend several kilometres from the draft Order Limits but are unlikely to result in significant effects.



- 3.5.5 To ensure that all likely significant effects are captured in the assessment, the extent of the Study Area will continue to be reviewed in the light of feedback received during statutory consultation, ongoing site surveys, and following the production of the ZTV as the Project develops.

## Data Collection

- 3.5.6 The following data has been used to inform the baseline conditions:
- i. Ordnance Survey (OS) 1:10,000, 1:25,000, 1:50,000 and 1:250,000 base mapping;
  - ii. OS Terrain® 50 mid-resolution and LIDAR Composite 2017 – 50 cm Digital Terrain Model (DTM);
  - iii. Google Earth Pro aerial photography, and Google Maps Street View;
  - iv. Base mapping from ArcGIS Map Service;
  - v. Open source Geographic Information System (GIS) data;
- 3.5.7 Site surveys were carried out during several visits under differing weather conditions between spring 2023 and summer 2025.

## Existing Baseline

- 3.5.8 The following section outlines the Visual baseline. The baseline section should be read in conjunction with the following supporting Figures and Appendices as found within **Supplementary PEI Report Volume 2** and **Volume 3** respectively:
- i. **Supplementary PEI Report Volume 2 Part B Section 5 Figure 3.1 Visual Receptors and Viewpoints;**
  - ii. **Supplementary PEI Report Volume 3 Part B Appendix 3A Proposed Viewpoints;**
  - iii. **Supplementary PEI Report Volume 3 Part B Appendix 3B Visual Baseline;** and
  - iv. **Supplementary PEI Report Volume 2 Part B Figure 2.1 Landscape Designations and Features** shows the distribution of woodland across the Study Area.

## Communities

- 3.5.9 The following communities, defined by parish jurisdictional boundaries, are considered receptors within the Study Area for Section 5. The viewpoint numbers refer to the representative viewpoints used to inform the assessment.
- 3.5.10 The people within the communities listed below are considered to be highly susceptible to visual change resulting from the Project, while the characteristics of the landscape indicate that the value of the views is assessed as medium.
- |                            |                                                    |
|----------------------------|----------------------------------------------------|
| i. Holbeach (VP93, VP113)  | iv. The Moultons (VP90, VP91, VP115, VP118, VP119) |
| ii. Pinchbeck (VP83, VP85) | v. Weston (VP84, VP87, VP116, VP117, VP120)        |
| iii. Surfleet (VP82, VP83) |                                                    |

vi. Whaplode (VP92, VP114)

- 3.5.11 Descriptions of the baseline visual amenity of these community areas are provided in **Supplementary PEI Report Volume 3 Part B Appendix 3B Visual Baseline**. This includes a description of each community area and its key visual receptors and susceptibility, as well as a judgement on the value of the views currently experienced.

### Recreational Routes and Receptors

- 3.5.12 The following recreational routes are within Section 5. People using them are considered highly susceptible to visual change resulting from the Project.
- i. Greenwich Meridian Trail – A 440 km long distance trail which broadly follows the Greenwich Meridian Line between East Sussex and East Yorkshire. It crosses the Study Area in Sections 2, 4, 5 and 6. As views contribute to the landscape setting enjoyed by people using the trail, their susceptibility to the Project is high. Within Section 5, the trail crosses the Study Area between Fosdyke Bridge and Holbeach. As the trail passes beneath the existing 132 kV overhead line near Holbeach St Marks, with an existing 400 kV overhead line located to the west of Holbeach, pylons become a prominent feature in the sequential views along the route. Their presence diminishes the scenic quality of the surrounding farmland, resulting in views of medium value within Section 5.
  - ii. The Macmillan Way – A 290-mile trail from Boston to Abbotsbury in Dorset, which follows footpaths, bridleways, byways, and minor roads, showcasing diverse English landscapes. It also crosses the Study Area of Section 4 New Lincolnshire Connection Substation B to New Weston Marsh Substations A and B. In Section 5, the trail runs through South Holland's fenland, including a scenic stretch through arable farmland from Fosdyke Bridge along the River Welland. As the trail nears Holbeach St Marks, it passes beneath the existing 132 kV overhead power line, while an existing 400 kV line crosses the farmland to the west of Holbeach. The pylons dominate the views along the route, diminishing the scenic quality of the surrounding farmland. Consequently, the views are considered to be of medium value, within Section 5.
- 3.5.13 Descriptions of the baseline visual amenity from these recreational routes is provided in **Supplementary PEI Report Volume 3 Part B Appendix 3B Visual Baseline**. This includes a description of the route within the Study Area, susceptibility and the value of views.

### Future Baseline

- 3.5.14 The future baseline relates to known or foreseeable changes to the current baseline in the future, against which the effects of the Project during construction and operation are assessed. Specifically, it accounts for anticipated changes including: those caused by changing climatic conditions, policy, legislation, advances in technology and by other confirmed development projects which will be complete prior to the construction of the Project.
- 3.5.15 At this preliminary stage, a full assessment of the implications of any confirmed development projects with regard to future baseline conditions has not been undertaken. A list of the currently known developments which are anticipated to be included within the future baseline scenario is provided within **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment**



**Methodologies and Scope Annex A Developments for Consideration Within the Future Baseline.** This will be reviewed and updated as appropriate during development of the ES, as with other information which informs assessment of the future baseline.

- 3.5.16 Ash trees (*Fraxinus excelsior*) within the Study Area for Section 5 may be affected by ash dieback, a frequently fatal disease caused by the fungus *Hymenoscyphus fraxineus*. Therefore, the future baseline assumes long-term ash tree loss, with other species filling gaps in the short term, keeping overall vegetation levels similar. This will remain under review during development of the ES and further consideration of any appropriate changes to the assumed future baseline characterised within this Supplementary PEI Report. This will include completion of an Arboricultural Impact Assessment, which will record incidents of ash dieback, which in turn will inform the detailed Visual assessment presented in the ES.

## 3.6 Design, Control and Additional Mitigation Measures

### Design Mitigation Measures

- 3.6.1 The Project is being designed to avoid sensitive receptors as far as practicable. This is in accordance with the 'Holford Rules' (Ref 8) applicable to routing of new overhead lines and the 'Horlock Rules' (Ref 9), which apply to the design and siting of substations. These approaches are explained in further detail within the Corridor Preliminary Routeing and Siting Study (CPRSS) (Ref 10) and **Supplementary PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered**. Principles include, but are not limited to, seeking to avoid areas of highest amenity, cultural or scientific value, taking advantage of natural screening provided by existing landform and features (e.g. woodland) and keeping visual, noise and other environmental effects to a minimum.
- 3.6.2 Following selection of the preferred route corridor, environmental specialists have been integral to ongoing design refinement of works within Section 5. This has further contributed to the avoidance or reduction of the potential environmental impacts of the Project. Specific examples relevant to the assessment include:
- i. Locating the new Weston Marsh Substation A close to the tee point between existing 400 kV overhead lines to reduce the amount of new overhead line required and reduce spread of infrastructure in views;
  - ii. Locating the new Weston Marsh Substation B where it balances the overhead line requirements for this Project and other proposed connections and reduces number of pylons required within views; and
  - iii. Amendments to locations of access tracks and bellmouths and the overhead line alignment to minimise loss of vegetation, which in turn would help to screen and filter views of the Project.
- 3.6.3 The Project has also committed to producing an Outline Landscape and Environmental Management Plan (LEMP) (commitment GG06), which will set out the measures to protect existing vegetation and details regarding reinstatement and additional planting. This will also account for biodiversity net gain targets (see **Supplementary PEI Report Volume 2 Part B Chapter 4: Ecology and Biodiversity**) and will accompany the ES and DCO application.

- 3.6.4 A detailed mitigation plan for Section 5 will be presented in the ES. This will include proposals for planting, including indicative species mixes and will be presented as part of the Outline LEMP.

## Control Mitigation Measures

### Construction

- 3.6.5 A Preliminary Code of Construction Practice (CoCP) is provided in **Supplementary PEI Report Volume 3 Appendix 5A Preliminary CoCP**. The control measures included within the Preliminary CoCP relevant to the Visual assessment of Section 5 are the same as those presented in June 2025 PEI Report Volume 2 Part B Section 5 Chapter 3 Visual (Ref 11) and include:
- i. LV01: The contractor(s) will retain vegetation where practicable. Where vegetation is lost and trees cannot be replaced in situ due to the restrictions associated with land rights required for operational safety, native shrub planting approved by National Grid will be used as a replacement, in accordance with the outline vegetation reinstatement plans included within the LEMP. Replacement vegetation will be planted as close by as practicable and will complement landscape character and be sympathetic to the local habitat type in order to provide a high biodiversity value.
  - ii. LV02: The contractor(s) will apply the relevant protective principles set out in BS 5837:2012: Trees in relation to design, demolition, and construction (Ref 12). This will be applied to trees within the Order Limits which will be preserved through the construction phase, and to trees outside of the Order Limits where such measures do not hinder or prevent the use of the relevant working width for construction. An Arboricultural Clerk of Works will ensure the suitability of tree protection before and during the construction phase. All works to high grade trees, including trees under Tree Preservation Orders and veteran trees, will be undertaken, or supervised by a suitably qualified arboriculturist.
  - iii. LV03: A five-year aftercare period will be established for all reinstatement and mitigation planting, details of which will be set out in the LEMP.
  - iv. LV04: Construction lighting will be of the lowest luminosity necessary to safely perform tasks. Lighting will be directional and minimised where possible.
  - v. B08: Where the works require the crossing or removal of hedgerows, the gap will be reduced to a width required for safe working. Where hedge removals are necessary, 'dead hedging' should be used, where practicable, in the interim periods to retain connectivity during construction. Dead hedging can comprise vegetation arisings or artificial provision, such as willow screening panels or Heras fencing covered in camouflage netting. New hedgerow planting will contain native, woody species of local provenance.
  - vi. NV01: Construction working will be undertaken within the agreed working hours set out within the DCO unless the works are under an exception to the set working hours in which case they will be carried out in a manner that minimises noise and vibration at all times. Best practicable means to reduce construction noise will be set out within the Construction Environmental Management Plans (CEMP).

## Additional Mitigation Measures

- 3.6.6 Additional mitigation measures are those required to reduce likely significant adverse environmental effects which may still occur despite the inclusion of the embedded design and control measures described above.
- 3.6.7 Potential additional mitigation measures which may be required to reduce the effects of the Project upon Visual are in the early stages of development, based upon an iterative process informed by ongoing survey and assessment. These typically include additional measures which specifically serve a mitigation function, to reduce the scale of potential impacts.
- 3.6.8 As set out within **Supplementary PEI Report Volume 2 Part B Chapter 1 Overview of the Section and Description of the Project** and illustrated on **Supplementary PEI Report Volume 2 Part B Figure 1.3 Permanent and Operational Features** the preliminary additional mitigation measures embedded into the design of Section 5 for Visual includes areas of woodland planting around the new Weston Marsh Substations A and B to provide visual screening and reduce the effects for visual receptors, integrating the substations into the surrounding landscape.
- 3.6.9 Any measures to be included within the Project will be informed by further design development and consultation with the relevant stakeholders, including engagement with the statutory consultees.
- 3.6.10 Finalised additional mitigation measures will be detailed within the ES.

## 3.7 Preliminary Assessment of Effects

- 3.7.1 The following section presents the findings of the preliminary assessment of effects upon the receptors, identified within the Study Area, as a result of construction and/or operational activities within Section 5.
- 3.7.2 The preliminary assessment of effects reported below takes into account the Design Mitigation Measures, Control Mitigation Measures and Additional Mitigation Measures as previously described.
- 3.7.3 For a summary of the likely significant effects please refer to **Supplementary PEI Report Volume 2 Part B Chapter 13 Summary**. A supplementary summary of all non-significant effects is also included within this Section in **Table 3.2**, based upon the assessment scope detailed in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.
- 3.7.4 The visual effects of maintenance activities during operation are scoped out of the assessment as agreed in the Scoping Opinion adopted by the Secretary of State on 10 September 2024 (Ref 3). As agreed in the Scoping Opinion adopted by the Secretary of State on 10 September 2024 (Ref 3), effects on people using the road or rail network or those working within the Study Area, are scoped out of the assessment as an appreciation of the wider landscape and views is generally not integral to their activities. These receptors are typically considered to have lower susceptibility to changes in the view and will often share views of the Project with receptors who have a greater susceptibility and are therefore included in the assessment in any event.
- 3.7.5 It should be noted that where an effect is reported in this Supplementary PEI Report it is an adverse effect unless stated otherwise.

- 3.7.6 Reference is made in the assessment and accompanying appendices to ‘direct’ and ‘indirect effects’. Direct effects occur within the draft Order Limits and involve physical changes to components of the landscape such as vegetation removal or presence of new structures, while indirect effects arise from the interaction between the Project and its surrounding context for example, effects on views and how they are perceived.
- 3.7.7 It is noted that this assessment is subject to change due to the ongoing design development of the Project, statutory consultation feedback and further stakeholder engagement. A full assessment will be included within the ES submitted with the DCO application.

## Likely Significant Effects

### Construction

- 3.7.8 Changes in the character and perception of a view could occur during construction as a result of physical impacts on the landscape, including vegetation clearance and the establishment and operation of construction compounds, storage areas, access tracks, and the movement of plant (such as mobile cranes), vehicles, and personnel. However, these effects would be temporary and reversible, with the landscape reinstated upon completion of the works<sup>3</sup>.

### Communities

- 3.7.9 One of the six community areas has been identified as being potentially significantly affected during construction of the Project in Section 5. All other community areas would experience effects which have been judged to be not significant and are included in **Table 3.2**. There may be individual properties within community areas that would experience a greater effect from the Project. These will be identified and reported at the ES stage as part of the Residential Visual Amenity Assessment (RVAA).

#### Weston

- 3.7.10 Weston Parish is located within Section 5, although a large part of the community is also located within Section 6 New Weston Marsh Substations A and B to New Walpole B Substation. The preliminary assessment of the effects on people living and moving around Weston Parish presented below considers the part of the community that is located within the Study Area for Section 5.
- 3.7.11 The community of Weston Parish is considered highly susceptible to visual change resulting from the Project, whilst the characteristics of the landscape indicate that the value of the views across the parish is judged to be medium.
- 3.7.12 This parish would be directly impacted by close proximity views of the construction of new Weston Marsh Substation A and new Weston Marsh Substation B with the associated construction compounds, haul road, and construction of the overhead line including pylons LW200-LW204, RJ12-RJ15, 4ZM413-N to 4ZM419-N, 2WS007-N to 2WS012-N, replacement of approximately 2.5 km of existing 400 kV overhead line

<sup>3</sup> To prevent double counting, the effects resulting from vegetation loss are assessed as part of the operational phase rather than the construction phase. This approach ensures that the long-term impacts of vegetation removal on visual amenity are considered in the context of the final, post-construction condition.

including RJ3-RJ11 and removal of 2WS006 to 2WS009. Views out of the parish to the north and south would also be affected by construction activities associated with the proposed 400 kV overhead line in Sections 4 and 6. The works would be viewed in at close range and overall, this could result in a large magnitude of change and likely significant effects.

- 3.7.13 When considering the construction phase of the Project in its entirety across all Sections, the overall magnitude of predicted change remains large, the main potential impacts being the construction of the substations. This is primarily to the large-scale of the works associated with construction of the substations. When combined with the medium value and high susceptibility, the Project would give rise to a likely significant effect.

### Recreational Routes and Receptors

- 3.7.14 No significant effects for recreational routes or receptors have been identified in Section 5 during construction. Effects which have been judged to be not significant are included in **Table 3.2**.

### Operation

- 3.7.15 The potential impacts that could result from the operation of the Project are the changes to the composition, character and perception of views due to long-term loss of elements and features in the landscape, changes to the landform, introduction of new infrastructure and introduction of landscape elements such as trees and hedgerows. The effects would be long-term and are considered permanent.

### Communities

- 3.7.16 One of the six community areas has been identified as being potentially significantly affected during operation of the Project in Section 5. All other community areas would experience effects which have been judged to be not significant and are included in **Table 3.2**. There may be individual properties within community areas that would experience a greater effect from the Project. These will be identified and reported at the ES stage as part of the RVAA.

#### Weston

- 3.7.17 Weston Parish is located within Section 5, although a large part of the community is also located within Section 6 New Weston Marsh Substations A and B to New Walpole Substation B. The preliminary assessment of the effects on people living and moving around Weston Parish presented below considers the part of the community that is located within the Study Area for Section 5.
- 3.7.18 The community of Weston Parish is considered highly susceptible to visual change resulting from the Project, whilst the characteristics of the landscape indicate that the value of the views across the parish is judged to be medium.
- 3.7.19 The parish would be directly impacted by the presence of approximately 5 km of new 400 kV overhead line including pylons LW200-LW204, RJ12-RJ15, 4ZM413-N to 4ZM419-N, 2WS007-N to 2WS012-N, new Weston Marsh Substation A and new Weston Marsh Substation B, resulting in close proximity views of the Project for people within the parish. While views are already influenced by the existing 400 kV overhead lines, the Project would extend the area affected by overhead line infrastructure, increasing the number of visible pylons for residents and those moving



through the parish. The new 400 kV overhead line and the substations would be noticeable in views across the central part of the community area. Overall, this would result in a medium magnitude of change and likely significant effects.

- 3.7.20 Although views are already affected by the existing 400 kV overhead lines, the Project would spread the effects of overhead line infrastructure across a wider area and increase the numbers of pylons visible for people living and moving around the parish. The new 400 kV overhead line and substations would be noticeable in views in the central part of this community area. While proposed mitigation planting would help screen and soften views of the substations, they would potentially remain a new discordant feature. Overall, this would result in a medium magnitude of change and likely significant effects.
- 3.7.21 When considering the operation phase of the Project in its entirety across all Sections, the overall magnitude of predicted change remains medium. While new Weston Marsh Substation A and new Weston Marsh Substation B are within this parish and mitigation planting would help screen views from visual receptors within the community, there would also be an increase in the pylons visible and infrastructure spread across the northern areas of the parish. When combined with the medium value and high susceptibility, the Project would give rise to a likely significant effect.

#### Recreational receptors

- 3.7.22 No significant effects for recreational routes or receptors have been identified in Section 5 during operation. Effects which have been judged to be not significant are included in **Table 3.2**.

### Likely Non-Significant Effects

- 3.7.23 For completeness, **Table 3.2** summarises the findings of the preliminary assessment with respect to those impacts that are not predicted to result in significant Visual effects.
- 3.7.24 There are some visual receptors where the effects are likely to be not significant when considering only impacts within Section 5, however when considering the Project in its entirety would result in a likely significant effect. For those receptors, additional information is presented below to describe the effects in Section 5 and which other Sections of the Project would result in a greater effect.

### Construction

#### Greenwich Meridian Trail

- 3.7.25 The Greenwich Meridian Trail is located within Section 5 and is also located within Section 2 Grimsby West Substation to Lincolnshire Connection Substation A, Section 4 New Lincolnshire Connection Substation B to New Weston Marsh Substations A and B and Section 6 New Weston Marsh Substations A and B to New Walpole B Substation. The preliminary assessment of the effects on people using the Greenwich Meridian Trail presented below only considers the effects of the Project in Section 5.
- 3.7.26 People using the Greenwich Meridian Trail have a high susceptibility to change arising from the Project while the characteristics of the landscape in Section 5



indicate that the value of the sequential views experienced is judged to be medium. Due to the flat landform and intervening vegetation cover, views of construction activities would be limited. While taller equipment may be visible from a distance, these views would not be in close proximity and would be temporary in nature. As a result, the magnitude of change would be very small. When combined with the medium value and high susceptibility, the Project would not give rise to a likely significant effect.

- 3.7.27 When considering the construction phase of the Project in its entirety across all Sections, the overall magnitude of predicted change would increase to medium. This is mainly due to the close proximity of the route to construction activities in Section 6, as trail users are unlikely to encounter construction activities in multiple sections of the route within a short timeframe, given the distances between sections. When combined with the medium value and high susceptibility, the Project would give rise to a likely significant effect.

## Operation

### The Moultons

- 3.7.1 The Moultons Parish is located within Section 5, although a large part of the community, is also located within Section 6 New Weston Marsh Substations A and B to New Walpole Substation B.
- 3.7.2 The preliminary assessment of the effects on people living and moving around The Moultons Parish presented below considers the part of the community that is located within the Study Area for Section 5.
- 3.7.3 The community of The Moultons Parish is considered highly susceptible to visual change resulting from the Project, whilst the characteristics of the landscape indicate that the value of the views across the parish is judged to be medium.
- 3.7.4 The parish would be indirectly impacted by the operation of both new substations and overhead line to the west. However, views are already affected by the existing 400 kV overhead lines, so the Project would be seen in this context. The magnitude of change is considered to be small. When combined with the medium value and high susceptibility, the Project is unlikely to give rise to a likely significant effect.
- 3.7.5 When considering the operation phase of the Project in its entirety across all Sections, the overall magnitude of predicted change increases to medium. This is due to the effects associated within Section 6 where the Project crosses this community and would therefore be visible in close proximity. When combined with the medium value and high susceptibility, the Project would give rise to a likely significant effect.

### Whaplode

- 3.7.6 Whaplode Parish is located within Section 5, although a large part of the community, is also located within Section 6 New Weston Marsh Substations A and B to New Walpole Substation B.
- 3.7.7 The preliminary assessment of the effects on people living and moving around Whaplode Parish presented below considers the part of the community that is located within the Study Area for Section 5.

- 3.7.8 The community of Whaplode Parish is considered highly susceptible to visual change resulting from the Project, whilst the characteristics of the landscape indicate that the value of the views across the parish is judged to be medium.
- 3.7.9 The parish would be indirectly impacted by the operation of the overhead line to the west. However, views are already affected by the existing 400 kV overhead lines, so the Project would be seen in this context. The magnitude of change is considered to be small. When combined with the medium value and high susceptibility, the Project is unlikely to give rise to a likely significant effect.
- 3.7.10 When considering the operation phase of the Project in its entirety across all Sections, the overall magnitude of predicted change increases to medium. This is due to the effects associated within Section 6 where the Project crosses this community and would therefore be visible in close proximity. When combined with the medium value and high susceptibility, the Project would give rise to a likely significant effect.

Table 3.2 Preliminary summary of non-significant Visual effects – Section 5

| Receptor               | Value of Views and Susceptibility of Receptor    | Impact                                                                                                                                                                                     | Magnitude of Change       | Significance                   | Rationale                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Communities</b>     |                                                  |                                                                                                                                                                                            |                           |                                |                                                                                                                                                                                                                                                                                                                                                                                             |
| Holbeach (VP93, VP113) | Value of Views – Medium<br>Susceptibility – High | Indirectly affected by views of construction activities associated with overhead line and two substations in Section 5.<br><br>Indirectly affected by the presence of pylons in Section 5. | Construction – very small | Construction – not significant | The flat landscape means that the visual effects would be confined to occasional glimpses of the taller equipment associated with the works. These views would not be from close proximity, and the effects would be temporary.<br><br>The magnitude of change is considered to be very small and effects on this community area during construction are unlikely to be significant.        |
|                        |                                                  |                                                                                                                                                                                            | Operation – small         | Operation – not significant    | At 3.8 km distance, the new overhead line may be perceptible but would be seen in the context of the existing 400 kV overhead line. The Project would not fundamentally alter the composition or character of the views currently experienced.<br><br>The magnitude of change is considered to be small and effects on this community area during operation are unlikely to be significant. |
| Pinchbeck (VP83, VP85) | Value of Views – Medium<br>Susceptibility – High | Indirectly affected by views of construction activities and presence of pylons during                                                                                                      | Construction – small      | Construction – not significant | The tops of the taller construction equipment may be perceptible but would be temporary in nature and seen at a distance. There may be views across the River Welland towards the construction activities associated with the                                                                                                                                                               |

| Receptor              | Value of Views and Susceptibility of Receptor    | Impact                                                                                              | Magnitude of Change  | Significance                   | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------|--------------------------------------------------|-----------------------------------------------------------------------------------------------------|----------------------|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                       |                                                  | operation in Section 5 and 6.                                                                       |                      |                                | <p>substations but only from the most northern part of the parish.</p> <p>The magnitude of change is considered to be small and effects on this community area during construction are unlikely to be significant.</p>                                                                                                                                                                                                                                                                                                 |
|                       |                                                  |                                                                                                     | Operation – small    | Operation – not significant    | <p>The taller components of the Project may be perceptible but would be seen in the context of the existing 400 kV overhead lines. Therefore the Project would not fundamentally alter the composition or character of the views currently experienced. Mitigation planting around the substations would over time help to screen and filter views.</p> <p>The magnitude of change is considered to be small and effects on this community area during operation are unlikely to be significant.</p>                   |
| Surfleet (VP82, VP83) | Value of Views – Medium<br>Susceptibility - High | Indirectly affected by views of construction activities and presence of pylons in Sections 4 and 5. | Construction – small | Construction – not significant | <p>Although there would be open views of construction activity to the east of this large community area, the flat landscape means that the visual effects would be confined to occasional glimpses of the taller equipment associated with the works. These views would not be from close proximity, and the effects would be temporary. The visual effects of access routes would be limited to the immediate fields.</p> <p>The magnitude of change is considered to be small and effects on this community area</p> |

| Receptor                                       | Value of Views and Susceptibility of Receptor    | Impact                                                                                                  | Magnitude of Change  | Significance                   | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------------------------|--------------------------------------------------|---------------------------------------------------------------------------------------------------------|----------------------|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                |                                                  |                                                                                                         |                      |                                | during construction are unlikely to be significant.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                                                |                                                  |                                                                                                         | Operation – small    | Operation - not significant    | <p>The new 400 kV overhead line would be noticeable in views to the east. These views are already affected by the existing 4ZM overhead line, which the Project parallels, and therefore the Project would not fundamentally alter the composition or character of the views currently experienced. From most of the community area, the Project would be seen beyond the existing overhead line, which would remain the more prominent feature.</p> <p>The magnitude of change is considered to be small and effects on this community area during operation are unlikely to be significant.</p> |
| The Moultons (VP90, VP91, VP115, VP118, VP119) | Value of Views – Medium<br>Susceptibility – High | Indirectly affected by construction and operation of new overhead line and two substations to the west. | Construction – small | Construction – not significant | <p>Although there would be open views of construction activity to the west of this large community area, the flat landscape means that the visual effects would be confined to occasional glimpses of the taller equipment associated with the works. These views would not be from close proximity, and the effects would be temporary. The visual effects of access routes would be limited to the immediate fields.</p> <p>The magnitude of change is considered to be small and effects on this community area during construction are unlikely to be significant.</p>                        |

| Receptor               | Value of Views and Susceptibility of Receptor    | Impact                                                                              | Magnitude of Change      | Significance                   | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------|--------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                        |                                                  |                                                                                     | Operation - small        | Operation - not significant    | <p>The new 400 kV overhead line would be noticeable in views to the west. These views are already affected by the existing 4ZM overhead line and the 2WS, and therefore the Project would not fundamentally alter the composition or character of the views currently experienced. From most of the community area, the Project would be seen beyond the existing overhead line, which would remain the more prominent feature. The substations would be screened and filtered by maturing planting.</p> <p>The magnitude of change is considered to be small and effects on this community area during operation are unlikely to be significant.</p> |
| Whaplode (VP92, VP114) | Value of Views – Medium<br>Susceptibility – High | Indirectly affected by construction and operation of new overhead line to the west. | Construction –very small | Construction – not significant | <p>Due to the flat landform, views of construction activities would be limited. Visual effects would be confined to occasional glimpses of the taller equipment associated with the works. These views would not be from close proximity, and the impact would be temporary. The magnitude of change is considered to be very small and effects on this community area during construction are unlikely to be significant.</p>                                                                                                                                                                                                                        |
|                        |                                                  |                                                                                     | Operation - small        | Operation - not significant    | <p>Views are already affected by the existing 400 kV overhead lines and therefore the Project would not fundamentally alter the composition</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |



| Receptor                                 | Value of Views and Susceptibility of Receptor    | Impact                                                                                    | Magnitude of Change       | Significance                   | Rationale                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------------------|--------------------------------------------------|-------------------------------------------------------------------------------------------|---------------------------|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                          |                                                  |                                                                                           |                           |                                | <p>or character of the views currently experienced.</p> <p>The magnitude of change is considered to be small and effects on this community area during operation are unlikely to be significant.</p>                                                                                                                                                                                |
| <b>Recreational Routes and Receptors</b> |                                                  |                                                                                           |                           |                                |                                                                                                                                                                                                                                                                                                                                                                                     |
| Greenwich Meridian Trail                 | Value of Views – Medium<br>Susceptibility – High | Indirectly affected by construction and operation of pylons and substations in Section 5. | Construction – very small | Construction – not significant | <p>Due to the flat landform, views of construction activities would be limited. There may be glimpses of taller equipment associated with the works, however not in close proximity and would be temporary in nature.</p> <p>The magnitude of change is considered to be very small and effects on this community area during construction are unlikely to be significant.</p>      |
|                                          |                                                  |                                                                                           | Operation – very small    | Operation – not significant    | <p>At 5 km, the new overhead line may be perceptible but seen in the context of the existing 400 kV overhead line. The Project would not fundamentally alter the composition or character of the views currently experienced.</p> <p>The magnitude of change is considered to be very small and effects on this community area during operation are unlikely to be significant.</p> |
| MacMillan Way                            | Value of Views – Medium                          | Indirectly affected by construction in Section 4 and Section 5, the route crosses the     | Construction – small      | Construction – not significant | <p>Although in close proximity, views of access roads and working areas associated with the proposed 400 kV overhead line in Section 4 would be filtered by vegetation along the River</p>                                                                                                                                                                                          |

| Receptor | Value of Views and Susceptibility of Receptor | Impact                                                                                                                                  | Magnitude of Change | Significance                | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|---------------------|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          | Susceptibility – High                         | Project between pylons LW199 and LW200.                                                                                                 |                     |                             | <p>Welland. These views would be experienced transiently and from a short section of the route. Taller equipment may be visible above the intervening vegetation and at some distance, but its effect on views would be temporary.</p> <p>The magnitude of change is considered to be small and effects on people using the footpath during construction are unlikely to be significant.</p>                                 |
|          |                                               | Indirectly affected by the presence of pylons in Section 4 and Section 5, the route crosses the Project between pylons LW199 and LW200. | Operation - small   | Operation - not significant | <p>Although the Project would introduce new pylons into views from the Macmillan Way along the boundary between Sections 4 and 5, pylons are not an unusual feature in the area, as the existing 400 kV overhead line already crosses these sections of the footpath.</p> <p>The magnitude of change is considered to be small and effects on people using the footpath during operation are unlikely to be significant.</p> |

## **3.8 Monitoring**

- 3.8.1 No visual monitoring is currently proposed for Section 5, as it is only necessary to ensure the establishment of mitigation planting. A five-year aftercare period for mitigation planting is secured through the Preliminary CoCP, eliminating the need for additional monitoring measures.

# References

- Ref 1 National Grid (2025). Grimsby to Walpole Preliminary Environmental Information Report [online]. Available at: <https://www.nationalgrid.com/the-great-grid-upgrade/grimsby-to-walpole/document-library#4257225834-2751832287> [Accessed 14 October 2025].
- Ref 2 South East Lincolnshire Joint Strategic Planning Committee (2019). South East Lincolnshire Local Plan 2011-2036 (adopted 2019). [online] Available at: <https://southeastlincslocalplan.org/article/20102/Adopted-Plan>. [Accessed 11 March 2025]
- Ref 3 The Planning Inspectorate (2024). Scoping Opinion: Proposed Grimsby to Walpole Project [online]. Available at: <https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN020036-000109-Scoping%20Opinion%202017%20EIA%20Regs.pdf> [Accessed 18 October 2024].
- Ref 4 National Grid Electricity Transmission (2024). Grimsby to Walpole Environmental Impact Assessment Scoping Report [online]. Available at: <https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN020036-000004-EN020036%20-%20Scoping%20Report%20Volume%201%20Main%20Report.pdf> [Accessed 18 October 2024].
- Ref 5 National Grid (2025). Grimsby to Walpole Stage 1 Consultation Feedback Report [online]. Available at: <https://www.nationalgrid.com/document/560496/download> [Accessed 19 September 2025].
- Ref 6 Landscape Institute and Institute for Environmental Management and Assessment (IEMA) (2013) Guidelines for Landscape and Visual Impact Assessment – 3rd Edition (GLVIA3).
- Ref 7 His Majesty’s Stationary Office (HMSO) (2017), Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (EIA Regulations) [online] Available at: <https://www.legislation.gov.uk/uksi/2017/572/contents> [Accessed 20 September 2024].
- Ref 8 National Grid. The Holford Rules: Guidelines on Overhead Line Routeing. [online] Available at: <https://www.nationalgrid.com/sites/default/files/documents/13795-The%20Holford%20Rules.pdf> [Accessed 20 September 2024].
- Ref 9 National Grid. NGC Substations and the Environment: Guidelines on Siting and Design. [online] Available at: <https://www.nationalgrid.com/sites/default/files/documents/13796-The%20Horlock%20Rules.pdf> [Accessed 20 September 2024].
- Ref 10 National Grid Electricity Transmission (2024). Grimsby to Walpole Corridor Preliminary Routeing and Siting Study [online]. Available at: <https://www.nationalgrid.com/document/352621/download> [Accessed 3 March 2025].
- Ref 11 National Grid (2025). Preliminary Environmental Information Report Volume 2 Part B Section 5 Chapter 3 Visual [online]. Available at: <https://www.nationalgrid.com/the-great-grid-upgrade/grimsby-to-walpole/document-library#4257225834-2751832287> [Accessed 14 October 2025].

Ref 12      British Standard (BS) 5837:2012: Trees in relation to Design, Demolition and Construction – Recommendations.

# 4. Ecology and Biodiversity



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## 4. Ecology and Biodiversity

### 4.1 Introduction

- 4.1.1 This chapter presents the Supplementary Preliminary Environmental Information (PEI) in relation to the Ecology and Biodiversity assessment for the New Weston Marsh Substations A and B Section (Section 5) of the Grimsby to Walpole Project (the Project).
- 4.1.2 The preliminary assessment for Section 5 reported within this chapter presents an update to the previously published June 2025 PEI Report (Ref 1), which formed part of the Stage 2 Consultation completed between 11 June and 6 August 2025. This update reflects the fact that since the launch of the Stage 2 Consultation, further design development has been completed to confirm the requirement for two substations within Section 5, the preferred location of the new Weston Marsh Substation A and new Weston Marsh Substation B and the associated overhead line and underground cable connections. The draft Order Limits for Section 5 have also now been defined, whereas the June 2025 PEI Report was based upon a wider 'Refined Weston Marsh Substation Siting Zone' which covered a greater total area than the Section 5 draft Order Limits.
- 4.1.3 Updates to the assessment are primarily limited to refinement of the Baseline Conditions (section 4.4), based upon the draft Order Limits boundary and any further surveys which have been completed since publication of the June 2025 PEI Report, and the Preliminary Assessment of Effects (section 4.7), which has been refined based upon the additional design information.
- 4.1.4 Specifically, the chapter includes the following sections:
- i. An introduction to the topic (section 4.1);
  - ii. Identification of key local and regional policy relevant to the assessment (section 4.2). A full overview of the legislation and national, regional onshore and marine planning policy context that applies to the Project is presented within the **Supplementary PEI Report Volume 2 Part A Chapter 2 Legislative, Regulatory and Planning Policy Context** and supporting appendices;
  - iii. A summary of the assessment scoping process and the subsequent scope of the Ecology and Biodiversity assessment (section 4.3). Further detail is provided within **Supplementary PEI Volume 3 Part A Appendix 4A Planning Inspectorate Scoping Opinion Responses**;
  - iv. A high-level summary of the methodology of the Ecology and Biodiversity assessment within Section 5 (section 4.4). A detailed description of the assessment methods and scope, applicable to the whole Project, is contained in **Supplementary PEI Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**;
  - v. A description of the environmental baseline within the Section 5 Study Area relevant to the assessment, updated since publication of the June 2025 PEI Report based upon the draft Order Limits (section 4.5);

- vi. A description of mitigation measures included for the purposes of the Ecology and Biodiversity assessment reported within this Additional PEI (section 4.6). Further information regarding design development can be found in **Supplementary PEI Volume 2 Part A Chapter 3 Main Alternatives Considered** and the **Supplementary Design Development Report for Section 5**;
  - vii. The likely significant and non-significant Ecology and Biodiversity effects arising during construction and operation/maintenance of the Project within Section 5, based upon the assessment completed to date (section 4.7); and
  - viii. An outline of the proposed monitoring requirements in relation to Ecology and Biodiversity (section 4.8).
- 4.1.5 Further supporting information is set out in **Table 4.1** below, including supporting figures and technical appendices.

Table 4.1 Supporting documentation

| Supporting Information                                                                                    | Description                                                                                                                                                                                                                                                                                       |
|-----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Topic Specific Supporting Documentation</b>                                                            |                                                                                                                                                                                                                                                                                                   |
| <b>Supplementary PEI Volume 2 Part B Figures</b>                                                          | <b>Figure 4.1 Sites Statutorily Designated for their International Biodiversity Importance</b><br><b>Figure 4.2 Sites Statutorily Designated for their National and County Biodiversity Importance</b><br><b>Figure 4.3 Sites Statutorily designated for their County Biodiversity Importance</b> |
| <b>Supplementary PEI Volume 3 Part B Appendix 4A Bird Survey Data 2023</b>                                | Reports the suite of bird survey data collected within the Section 5 Survey Area at the time of the Supplementary PEI Report production, including species recorded and counts.                                                                                                                   |
| <b>Project Supporting Documentation</b>                                                                   |                                                                                                                                                                                                                                                                                                   |
| <b>Supplementary PEI Volume 2 Part B Chapter 1 Overview of the Section and Description of the Project</b> | A summary of the works within Section 5, including the permanent infrastructure, temporary construction works, and operational activities.                                                                                                                                                        |
| <b>Supplementary PEI Volume 3 Part A Appendix 2A Key Legislation</b>                                      | A list of identified environmental legislation considered relevant to the Project, which will be updated and amended as required to inform the Environmental Statement (ES).                                                                                                                      |
| <b>Supplementary PEI Volume 3 Part A Appendix 2B National and Regional Planning Policy</b>                | A list of national and regional policies generally applicable to the assessment principles which underpin the June 2025 PEI Report, Supplementary PEI Report and ES.                                                                                                                              |
| <b>Supplementary PEI Volume 3 Part A Appendix 2C Local Plan Policy</b>                                    | An outline of the potentially relevant local planning policy allocations affecting Section 5 of the Project.                                                                                                                                                                                      |

| Supporting Information                                                                                | Description                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Supplementary PEI Volume 2 Part A Chapter 3 Main Alternatives Considered</b>                       | A summary of the main alternatives considered in relation to Section 5 of the Project during the design development process, including the main reasons for selecting the chosen option.                                                                |
| <b>Supplementary PEI Volume 2 Part A Chapter 4 Approach to Preliminary Environmental Information</b>  | Sets out the Environmental Impact Assessment (EIA) approach and general methodology that has been used in developing the PEI Report for Section 5 for the Project.                                                                                      |
| <b>Supplementary PEI Volume 2 Part A Chapter 5 Project Description</b>                                | An overarching description of the Project and its key components, including updated design and construction information relating to Section 5 of the Project.                                                                                           |
| <b>Supplementary PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice</b> | Sets out control and management measures that will be undertaken during construction of the Project if granted consent. The final Code of Construction Practice (CoCP) will be submitted in support of the Development Consent Order (DCO) application. |

- 4.1.6 There are also interrelationships between the potential effects on Ecology and Biodiversity and other environmental topics. Therefore, please also refer to the following chapters within **Supplementary PEI Report Volume 2 Part B** and **Part C**:
- i. **Supplementary PEI Report Volume 2 Part B Chapter 6 Water Environment and Flood Risk** includes an assessment of effects upon sensitive surface water features, including Water Framework Directive (WFD) waterbodies, which are relevant to the assessment of impacts upon important ecological features, such as wetland Habitats of Principal Importance (HPI) and aquatic fauna.
  - ii. **Supplementary PEI Report Volume 2 Part B Chapter 7 Geology and Hydrogeology** includes effects identified by the geology and hydrogeology assessment that may affect ecological receptors.
  - iii. **Supplementary PEI Report Volume 2 Part B Chapter 8 Agriculture and Soils** includes details of Agri-environment and Woodland and Forestry schemes, as well as relevant factors related to soil ecosystem services.
  - iv. **Supplementary PEI Report Volume 2 Part B Chapter 10 Noise and Vibration** includes detail of the potential noise and vibration effects within Section 5 which are used to inform assessment of effects upon sensitive ecological features.
  - v. **Supplementary PEI Report Volume 2 Part B Chapter 12 Air Quality** includes supporting detail on the potential impacts of any changes in air quality upon sensitive ecological features, such as designated sites and ancient woodland.
  - vi. **Supplementary PEI Report Volume 2 Part B Chapter 13 Summary** provides a concise, consolidated summary of the likely significant effects reported for all topics, based upon the preliminary assessment.

- vii. **Supplementary PEI Report Volume 2 Part C Route-wide Chapter 2 Ecology and Biodiversity** presents a summary of the route-wide preliminary impacts and likely significant effects of Section 5 of the Project upon the ecology and biodiversity.
- viii. **Supplementary PEI Report Volume 2 Part C Route-wide Chapter 9 Cumulative Effects** reports those intra-project effects which could potentially act in combination to result in cumulative environmental effects. It also identifies a shortlist of other Committed Developments with which there may be potential for cumulative effects, and the relevant environmental topics for such effects (inter-project). The full cumulative effects assessment will be reported within the ES.

## 4.2 Legislation and Policy Framework

### Legislation and National Policy

- 4.2.1 Legislation and national policy relevant to the Project and this chapter are described in **Supplementary PEI Report Volume 2 Part A Chapter 2 Legislative, Regulatory and Planning Policy Context** and supporting appendices, the details of which is set out in **Table 4.1**.

### Regional and Local Policy

- 4.2.2 Regional and local plans or policies relevant to this assessment are as follows:
  - i. South East Lincolnshire Local Plan 2011-2036 (Combined Boston Borough Council, South Holland District Council Local Plan) (Ref 2):
    - Policy 28 - The Natural Environment: supports protecting, managing and enhancing a high quality, comprehensive ecological network of interconnected designated sites, sites of nature conservation importance and wildlife-friendly greenspace.
    - Policy 31 - Climate Change and Renewable and Low Carbon Energy: notes that all development proposals will be required to demonstrate that the consequences of current climate change have been addressed, minimised and mitigated by (amongst other measures) incorporating measures which promote and enhance green infrastructure and provide an overall net gain in biodiversity. This policy also stipulates that the development of renewable energy facilities and associated infrastructure will be permitted provided that individually or cumulatively, there would be no significant harm to the natural environment.

### Biodiversity Net Gain

- 4.2.3 National Grid Electricity Transmission plc (National Grid) has committed to 10 per cent net gain in environmental value, including as a minimum a 10 per cent Biodiversity Net Gain (BNG) across all its construction projects, including the Project, in line with the Environment Act 2021 (although the statutory requirement is not yet in force for Nationally Significant Infrastructure Projects (NSIPs)).

## 4.3 Scope of Assessment

- 4.3.1 The scope of the assessment for Ecology and Biodiversity has been informed by the Scoping Opinion (Ref 3) provided by the Planning Inspectorate in September 2024 on behalf of the Secretary of State, following the submission of the EIA Scoping Report (Ref 4). The scope has also been informed through consultation and engagement with relevant consultees. A summary of the Scoping Opinion together with a response against each point of relevance to the Ecology and Biodiversity chapter is provided in **Supplementary PEI Report Volume 3 Part A Appendix 4A Planning Inspectorate Scoping Opinion Responses**. A summary of the stakeholder engagement undertaken to date is provided in **Supplementary PEI Report Volume 3 Part A Appendix 4D Summary of Stakeholder Engagement**.
- 4.3.2 Non-statutory consultation feedback has been addressed within the Grimsby to Walpole Stage 1 Consultation Feedback Report (Ref 5). Stage 2 Consultation Feedback relevant to Section 5 is discussed within the **Grimsby to Walpole Section 5 Consultation Feedback Report**.
- 4.3.3 The scope of the Ecology and Biodiversity assessment for Section 5 includes the consideration of the effects of construction and operation/maintenance of Section 5 of the Project. A summary of the sensitive receptors and potential impacts considered is provided below:
- i. Sites statutorily designated for their biodiversity value – habitat loss, habitat modification/degradation, fragmentation, and direct and indirect changes in surface water quality and quantity, and effects on qualifying features/notified species (disturbance, mortality, injury, loss of functionally linked land);
  - ii. Sites non-statutorily designated for their biodiversity value – habitat loss, habitat modification/degradation, fragmentation and direct and indirect changes in surface water quality and quantity, and effects on qualifying features/notified species (disturbance, mortality, injury);
  - iii. Ancient Woodland - habitat loss, habitat modification and fragmentation and change in surface water quality;
  - iv. Aquatic and terrestrial habitats present within the Ecology and Biodiversity Study Area, including HPI - habitat loss, habitat modification, fragmentation and change to surface water quality or flows;
  - v. Protected or notable species (e.g. Species of Principal Importance (SPIs)) which are either confirmed present or potentially present within the Section 5 Survey Area which could be impacted through habitat loss or degradation, disturbance (e.g. due to noise or light pollution) or killing/injury. Species considered are:
    - terrestrial invertebrates;
    - great crested newt;
    - reptiles;
    - wintering and passage birds;
    - breeding birds;
    - badger;
    - bats;



- otter;
  - water vole;
  - fish;
  - aquatic macroinvertebrates and macrophytes; and
  - other notable species such as brown hare or hedgehog.
- vi. invasive non-native species (INNS) – risk of spread due to construction and operational/maintenance activities and influence of presence upon habitat condition.

## 4.4 Assessment Methodology

- 4.4.1 The assessment scope, methodology, relevant guidance, key assumptions and limitations for the Ecology and Biodiversity assessment are set out in **Supplementary PEI Report Volume 3 Part A Appendix 4B EIA Assessment Methodologies and Scope**. This includes a description of how receptor sensitivity, magnitude of impact and significance of effects are all defined and assigned to the assessment. A summary of the key components of the assessments, assumptions and limitations is outlined below.
- 4.4.2 The Ecology and Biodiversity assessment is being undertaken principally with reference to the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland Terrestrial, Freshwater, Coastal and Marine (Ref 6).
- 4.4.3 Where possible, nationally recognised standard survey methods have and will continue to be used to inform biodiversity evaluation and impact assessment. The explanation of the methods and status of surveys are summarised in **Supplementary PEI Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.
- 4.4.4 The current assessment presented in this Supplementary PEI Report is preliminary and is likely to be subject to change as more detailed baseline data becomes available, such as completed ecological survey results. Additionally, the design will also be subject to further refinement prior to submission of the ES. On this basis, a precautionary approach has been taken to the preliminary assessment.

## Assessment Assumptions and Limitations

- 4.4.5 All general assumptions and limitations for the topic are listed within **Supplementary PEI Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**. There are no additional limitations and assumptions that have been identified which are specific to the assessment of Section 5.
- 4.4.6 The key parameters and assumptions which inform the assessment will be reviewed based on the design presented in the DCO application and, where required, updated, or refined, for the ES. The ES will present the final key limitations and assumptions applicable to the full assessment, particularly drawing attention to any areas that may have changed from that presented in this preliminary assessment.



4.5 Baseline Conditions

Study Areas and Survey Areas

- 4.5.1 The desk Study Areas for the Ecology and Biodiversity assessment of Section 5 have been informed by published guidance and professional judgement. They include the area within the draft Order Limits and a wider zone of potential influence. This zone represents the areas within which effects could reasonably occur as a result of the Project and associated activities within Section 5. It should be noted that in relation to each assessed receptor, the Project’s zone of influence can vary, for example depending on the importance or sensitivity of the identified designated ecological sites. This could for example relate to where the features that define a given site are mobile or there could be connectivity between the proposed Project and a given site. The Study Areas will be reviewed and, as appropriate, refined for the assessment presented in the ES.
- 4.5.2 The desk Study Areas for different ecological features (hereafter referred to as ‘the Study Areas’) relevant to this assessment are set out in **Table 4.2** below.
- 4.5.3 The field Survey Areas for the Ecology and Biodiversity assessment of Section 5 have also been informed by published guidance and professional judgement. As with the desk Study Areas, the Survey Areas are defined on a case-by-case basis and differ for each of the ecological features surveyed. The Survey Areas typically include land within the draft Order Limits (i.e. within the ‘Site’ boundary) plus wider areas within the Zone of Influence (Zol), where the Project could result in impacts upon habitats or species.
- 4.5.4 The field Survey Areas for different ecological features (hereafter referred to as ‘the Survey Areas’) relevant to this assessment, including associated methods and status of surveys, are set out in **Supplementary PEI Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.

Table 4.2 Study Areas for key ecological features for Section 5

| Study Area (draft Order Limits) Feature |                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 30 km                                   | Special Areas of Conservation (SAC), Special Protection Areas SPA and Ramsar sites where bats or bird species with large foraging ranges are noted as, or one of, the qualifying features.                                                                                                                                                                |
| 10 km                                   | Statutory designated sites of international nature conservation importance e.g. SAC, SPA and Ramsar sites (as well as proposed or potential sites).                                                                                                                                                                                                       |
| 5 km                                    | Statutory designated sites of national and local nature conservation importance e.g. Sites of Special Scientific Interest (SSSI) (also referencing Natural England Impact Risk Zones for SSSIs on the ‘Multi-Agency Geographic Information for the Countryside’ (MAGIC) website (Ref 7) National Nature Reserves (NNR) and Local Nature Reserves (LNRs)). |
| 5 km                                    | Specific ornithological records and data for wetland birds from the British Trust for Ornithology (BTO) Wetland Birds Survey (WeBS).                                                                                                                                                                                                                      |

| Study Area (draft Order Limits) | Feature                                                                                                                                                                                        |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2 km                            | Non-statutory designated sites of nature conservation value e.g. Local Wildlife Sites (LWS), Roadside Nature Reserves (RNR), ancient woodland and other notable habitats (e.g. HPI's (Ref 8)). |
| 2 km                            | Records of protected and notable species received from Local Environmental Records Centres (LERC), including general ornithological records and INNS.                                          |

## Data Collection

- 4.5.5 Desk study data sources have comprised LERCs, including requests to Greater Lincolnshire Nature Partnership (GLNP) (initially contacted in March 2024) for information on pre-existing ecological data (i.e. locations of non-statutory sites designated for nature conservation, existing records of protected, notable and INNS).
- 4.5.6 Online data resources have comprised:
- the Natural England website (Ref 9) for information on statutory designated sites of nature conservation interest;
  - the MAGIC website (Ref 7) to identify the location (and details) of statutorily designated sites, ancient woodland, HPI (including Priority River Habitat) and for any granted European Protected Species Licence applications;
  - the Joint Nature Conservation Committee (JNCC) website (Ref 10) for site information and designation details of SACs, SPAs and Ramsar sites;
  - aerial imagery (Google Maps);
  - Environment Agency (EA) Ecology and Fish Data for species records of fish, macroinvertebrate and macrophytes species (Ref 11); and
  - EA Catchment Data Explorer for data on WFD water bodies and water catchments (Ref 12).
- 4.5.7 In addition to these desk-based data, field survey data are in the process of being collected, and this work is on-going. Apart from pre-construction surveys and those specifically required to collect data to inform any applications for protected species licences, these surveys are anticipated to be complete by the end of 2025. Once planned surveys to support the DCO application are complete, the results will be collated with the survey data already collected to date, for inclusion within the ES to be submitted with the DCO application (see **Supplementary PEI Volume 2 Part A Appendix 4B Environmental Impact Assessment Methodology and Scope** for a summary of surveys undertaken and those planned for 2025).
- 4.5.8 Features of ecological importance are in the process of being assessed. The data available at the time of writing this Supplementary PEI Report varies for any given ecological feature, dependent on the extent of surveys undertaken. This is due to specific survey requirements (such as optimal timing of surveys) and/or where only partial access to land has been secured in advance of the Supplementary PEI Report being developed. The survey data being collected is as follows:

- i. Habitat survey and assessments, using the UK Habitat (Ref 13) Classification for terrestrial habitats and BNG condition assessments for applicable habitats;
- ii. Aquatic habitat surveys results including an appraisal for suitability for fish, aquatic macrophytes and aquatic macroinvertebrates;
- iii. Results from protected species surveys:
  - great crested newt;
  - reptiles;
  - wintering and passage birds;
  - breeding birds;
  - badger;
  - bats;
  - otter; and
  - water vole.

iv. INNS surveys.

4.5.9 Incidental records of other notable species such as brown hare and hedgehog have also been recorded.

4.5.10 In addition to the above, arboricultural surveys are being undertaken in 2025. The results of which will be integrated into the ecological data collected for habitats (i.e. hedges, trees and woodland) and included within the ES.

## Existing Baseline

4.5.11 The following section outlines the Ecology and Biodiversity baseline for Section 5 to date. The baseline section should be read in conjunction with the following supporting Figure and Appendices as found within Supplementary PEI **Volume 2** and **Volume 3** respectively.

- i. **Supplementary PEI Volume 2 Part B Figure 4.1 Sites Statutorily Designated for their International Biodiversity Importance;**
- ii. **Supplementary PEI Volume 2 Part B Figure 4.2 Sites Statutorily Designated for their National and County Biodiversity Importance;**
- iii. **Supplementary PEI Volume 2 Part B Figure 4.3 Sites Statutorily Designated for their County Biodiversity Importance; and**
- iv. **Supplementary PEI Volume 3 Part B Appendix 4A Bird Survey Data 2022-2024.**

## Section Overview

4.5.12 A description of the works within Section 5, is provided within **Supplementary PEI Volume 2 Part B Chapter 1 Overview of the Section and Description of the Project**. In summary, Section 5 includes the construction of: the two new substations (New Weston Marsh Substation A and New Weston Marsh Substation B); new overhead line and modification of existing overhead lines; and construction of a new underground cable route between the two new substations.

- 4.5.13 Section 5 is located the entirely within South Holland local planning authority area, between the route-section boundary with Section 4, immediately north of the River Welland, and the route-section boundary with Section 6, to the north of the A151 in the locality of Weston and Spalding.
- 4.5.14 The habitats within the Section 5 Study Area are dominated by arable farmland divided by a network of boundary hedgerows and ditches, with small woodlands also scattered across the area. There are a number of water bodies located within the Section 5 Study Area, including the River Welland, which would be crossed by overhead line near the connection with Section 4.

### Designated Sites

- 4.5.15 No site (nor part of any site) statutorily designated for its biodiversity importance is present within the Section 5 draft Order Limits. There are however a number of statutory designated sites present within the defined Study Areas described in **Table 4.2**. A brief description of each of the designated sites within the Section 5 Study Area is provided in **Table 4.3**, which includes a summary of the main qualifying features and their relative distances from the Section 5 draft Order Limits at the closest point.
- 4.5.16 The Wash SPA and Ramsar site and The Wash and North Norfolk Coast SAC fall within 10 km of the draft Order Limits. In addition, Nene Washes SPA and Ramsar site, where bird species with large foraging ranges are noted as, or one of, the qualifying features, fall within 30 km of the draft Order Limits.
- 4.5.17 There are two SSSIs and one LNR within the Section 5 Study Area (i.e. within 5 km of the draft Order Limits and/or where the SSSI Impact Risk Zones (IRZ's) overlap). The IRZ's for Surfleet Lows SSSI and The Wash SSSI partially overlap with the Section 5 draft Order Limits.
- 4.5.18 There are 17 sites non-statutorily designated for their biodiversity value as Local Wildlife Sites (LWSs) within the 2 km Study Area, one of which, Surfleet Bank LWS, is within the Section 5 draft Order Limits, and two of which, Pinchbeck Marsh LWS and Vernatt's Drain LWS, are directly adjacent.

Table 4.3 Sites statutorily designated for their biodiversity value, their qualifying features and distance from the draft Order Limits

| Site                                          | Status      | Area (ha) | Brief description of site                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Distance and direction from draft Order Limits |
|-----------------------------------------------|-------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| <b>Internationally Designated (Statutory)</b> |             |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                |
| Nene Washes                                   | SPA         | 1,519     | <p>Qualifying features of the SPA:</p> <ul style="list-style-type: none"> <li>• Bewick's swan (<i>Cygnus columbianus bewickii</i>) – non-breeding</li> <li>• Black-tailed godwit (<i>Limosa limosa limosa</i>) – breeding</li> <li>• Gadwall (<i>Mareca strepera</i>) – breeding</li> <li>• Gadwall (<i>Mareca strepera</i>) – non-breeding</li> <li>• Garganey (<i>Anas querquedula</i>) – breeding</li> <li>• Pintail (<i>Anas acuta</i>) – non-breeding</li> <li>• Shoveler (<i>Spatula clypeata</i>) – breeding</li> <li>• Shoveler (<i>Spatula clypeata</i>) – non-breeding</li> <li>• Teal (<i>Anas crecca</i>) – non-breeding</li> <li>• Wigeon (<i>Mareca penelope</i>) – non-breeding</li> </ul> | 24.2 km south                                  |
| Nene Washes                                   | Ramsar site | 1,519     | <p>Designated under:</p> <p><b>Ramsar Criterion 2:</b> Important assemblage of nationally rare breeding birds. A wide range of raptors throughout the year. Nationally scarce plants and invertebrates.</p> <p><b>Ramsar Criterion 6:</b> Species/populations occurring at levels of international importance.</p> <p>Species with peak counts in winter:</p> <ul style="list-style-type: none"> <li>• Bewick's swan (<i>Cygnus columbianus bewickii</i>)</li> </ul> <p><b>Species/populations identified subsequent to designation for possible future consideration under Criterion 6</b></p> <p>Species with peak counts in spring/autumn:</p>                                                         | 24.2 km south                                  |

| Site     | Status | Area (ha) | Brief description of site                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Distance and direction from draft Order Limits |
|----------|--------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
|          |        |           | <ul style="list-style-type: none"> <li>Black-tailed godwit (<i>Limosa limosa islandica</i>)</li> </ul> <p>Species with peak counts in winter:</p> <ul style="list-style-type: none"> <li>Northern pintail (<i>Anas acuta</i>)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                |
| The Wash | SPA    | 63,135    | <p>Qualifying features of the SPA:</p> <ul style="list-style-type: none"> <li>Bar-tailed godwit (<i>Limosa lapponica</i>) – non-breeding</li> <li>Bewick's swan (<i>Cygnus columbianus</i>) – non-breeding</li> <li>Black-tailed godwit (<i>Limosa limosa islandica</i>) – non-breeding</li> <li>Common scoter (<i>Melanitta nigra</i>) – non-breeding</li> <li>Common tern (<i>Sternula hirundo</i>) - breeding</li> <li>Curlew (<i>Numenius arquata</i>) – non-breeding</li> <li>Dark-bellied brent goose (<i>Branta bernicla bernicla</i>) – non-breeding</li> <li>Dunlin (<i>Calidris alpina alpina</i>) – non-breeding</li> <li>Gadwall (<i>Mareca strepera</i>) – non-breeding</li> <li>Wigeon (<i>Mareca penelope</i>) – non-breeding</li> <li>Goldeneye (<i>Bucephala clangula</i>) – non-breeding</li> <li>Grey plover (<i>Pluvialis squatarola</i>) – non-breeding</li> <li>Knot (<i>Calidris canutus</i>) – non-breeding</li> <li>Little tern (<i>Sternula albifrons</i>) - breeding</li> <li>Oystercatcher (<i>Haematopus ostralegus</i>) – non-breeding</li> <li>Pink-footed goose (<i>Anser brachyrhynchus</i>) – non-breeding</li> <li>Pintail (<i>Anas acuta</i>) – non-breeding</li> <li>Redshank (<i>Tringa totanus</i>) – non-breeding</li> <li>Sanderling (<i>Calidris alba</i>) – non-breeding</li> <li>Shelduck (<i>Tadorna tadorna</i>) – non-breeding</li> </ul> | 5.7 km north-east                              |

| Site     | Status      | Area (ha) | Brief description of site                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Distance and direction from draft Order Limits |
|----------|-------------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
|          |             |           | <ul style="list-style-type: none"> <li>• Turnstone (<i>Arenaria interpres</i>) – non-breeding</li> <li>• Waterbird assemblage.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                |
| The Wash | Ramsar site | 63,135    | <p>Designated under:</p> <p><b>Ramsar Criterion 1:</b> Large shallow bay comprising very extensive saltmarshes, major intertidal banks of sand and mud, shallow water and deep channels.</p> <p><b>Ramsar Criterion 3:</b> Inter-relationship between saltmarshes, intertidal sand and mud flats and the estuarine waters. The saltmarshes and the plankton in the estuarine water provide a primary source of organic material which, together with other organic matter, forms the basis for the high productivity of the estuary.</p> <p><b>Ramsar Criterion 5:</b> Assemblages of international importance</p> <p>Species with peak counts in winter:</p> <p>292541 waterfowl (5 year peak mean 1998/99-2002/2003)</p> <p><b>Ramsar Criterion 6:</b> species/populations occurring at levels of international importance.</p> <p>Species with peak counts in spring/autumn:</p> <ul style="list-style-type: none"> <li>• Oystercatcher (<i>Haematopus ostralegus</i>) – Wintering</li> <li>• Grey plover (<i>Pluvialis squatarola</i>) - Wintering</li> <li>• Knot (<i>Calidris canutus</i>) – Wintering</li> <li>• Sanderling (<i>Calidris alba</i>)</li> <li>• Curlew (<i>Numenius arquata arquata</i>) – Breeding</li> <li>• Redshank (<i>Tringa totanus</i>)</li> <li>• Turnstone (<i>Arenaria interpres</i>)</li> </ul> <p>Species with peak counts in winter:</p> <ul style="list-style-type: none"> <li>• Pink-footed goose (<i>Anser brachyrhynchus</i>)</li> </ul> | 5.7 km north-east                              |



| Site                             | Status | Area (ha) | Brief description of site                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Distance and direction from draft Order Limits |
|----------------------------------|--------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
|                                  |        |           | <ul style="list-style-type: none"> <li>• Dark-bellied brent goose (<i>Branta bernicla</i>)</li> <li>• Shelduck (<i>Tadorna tadorna</i>)</li> <li>• Pintail (<i>Anas acuta</i>)</li> <li>• Dunlin (<i>Calidris alpina</i>)</li> <li>• Bar-tailed godwit (<i>Limosa lapponica</i>)</li> </ul> <p><b>Species/populations identified subsequent to designation for possible future consideration under Criterion 6</b></p> <p>Species with peak counts in spring/autumn:</p> <ul style="list-style-type: none"> <li>• Ringed plover (<i>Charadrius hiaticula</i>)</li> <li>• Black-tailed godwit (<i>Limosa limosa islandica</i>)</li> </ul> <p>Species with peak counts in winter:</p> <ul style="list-style-type: none"> <li>• Golden plover (<i>Pluvialis apricaria</i>)</li> <li>• Northern lapwing (<i>Vanellus vanellus</i>)</li> </ul> |                                                |
| The Wash and North Norfolk Coast | SAC    | 107,718   | <p>Designated features of the SAC:</p> <ul style="list-style-type: none"> <li>• H1110 Sandbanks which are slightly covered by sea water all the time</li> <li>• H1140 Mudflats and sandflats not covered by seawater at low tide</li> <li>• H1150 Coastal lagoons</li> <li>• H1160 Large shallow inlets and bays</li> <li>• H1170 Reefs</li> <li>• H1310 Salicornia and other annuals colonising mud and sand</li> <li>• H1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)</li> <li>• H1420 Mediterranean and thermo-Atlantic halophilous scrubs (<i>Sarcocornetea fruticosi</i>)</li> <li>• S1355 Otter, <i>Lutra lutra</i></li> <li>• S1365 Harbour (common) seal, <i>Phoca vitulina</i></li> </ul>                                                                                                                | 5.7 km east                                    |

| Site                                     | Status | Area (ha) | Brief description of site                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Distance and direction from draft Order Limits |
|------------------------------------------|--------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| <b>Nationally Designated (Statutory)</b> |        |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                |
| Surfleet Lows                            | SSSI   | 3.8       | Surfleet Lows is one of the few remaining wet alluvial meadows in Lincolnshire that has not be subjected to agricultural improvement. Meadows of this type are now rare throughout lowland Britian. The typical range of meadow plants are present along with species more characteristic of coastal locations. Species include: marsh foxtail ( <i>Alopecurus geniculatus</i> ), floating sweet-grass ( <i>Glyceria fluitans</i> ), hammer sedge ( <i>Carex hirta</i> ) and tubular water-dropwort ( <i>Oenanthe fistulosa</i> ). Areas of marsh are present along with wet fen woodland, pools and tall fen vegetation. Winter flooding attracts birds with at least 50 species recorded. Reed warblers ( <i>Acrocephalus scirpaceus</i> ) are known to breed here. | 2.3 km west                                    |
| The Wash                                 | SSSI   | 62,046    | The whole area is of exceptional biological interest. The intertidal mudflats and saltmarshes represent one of Britain's most important winter-feeding areas for waders and wildfowl outside of the breeding season. Enormous numbers of migrant birds, of international significance, are dependant on the rich supply of invertebrate food. The saltmarsh and shingle communities are of considerable botanical interest and the mature saltmarsh is a valuable bird breeding zone. In addition the Wash is also very important as a breeding ground for common seals.                                                                                                                                                                                              | 5.7 km north-east                              |
| Vernatts                                 | LNR    | 1.42      | Council and volunteer run nature reserve transformed from wasteland. Area now has a woodland walk with bluebells and is a small haven for wildlife.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1.8 km south-west                              |
| <b>County Designated (Non-statutory)</b> |        |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                |
| A16 East Verge North of the River Glen   | LWS    | N/A       | Road verges running along the A16.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1 km north-west                                |
| A16 East Verge South of the River Glen   | LWS    | N/A       | Road verges running along the A16.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0.8 km west                                    |

| Site                             | Status | Area (ha) | Brief description of site                                                                                                                                                                                                                                                                                             | Distance and direction from draft Order Limits |
|----------------------------------|--------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| Blue Gowt Drain, North           | LWS    | N/A       | Drainage channel that comes off from the river Glen LWS. Runs alongside a golf course.                                                                                                                                                                                                                                | 0.8 km west                                    |
| Blue Gowt Drain, West Marsh Road | LWS    | N/A       | Section of the Blue Gowt Drain, and both banks, near the northern edge of Spalding.                                                                                                                                                                                                                                   | 0.3 km west                                    |
| Coronation Channel               | LWS    | N/A       | A diversion around Spalding of the River Welland to reduce flooding in the town. Area is now a LWS with footpaths running along both sides. Birds can be seen within the channel. Coastal and floodplain grazing marsh runs along it.                                                                                 | 1.3 km south-west                              |
| Moulton River                    | LWS    | N/A       | Stretch of canalised drain prone to drying and both banks.                                                                                                                                                                                                                                                            | 1.7 km north-east                              |
| Moulton Park and River           | LWS    | 10.9      | Large green space area                                                                                                                                                                                                                                                                                                | 1.5 km south-east                              |
| Pinchbeck Marsh                  | LWS    | N/A       | Large area of arable land between the Vernatt's Drain and the River Welland.                                                                                                                                                                                                                                          | Adjacent to the draft Order Limits             |
| Spalding Cemetery                | LWS    | 7.9       | Suburban cemetery. Rich in birdlife with at least one breeding pair of sparrow hawks ( <i>Accipiter nisus</i> )                                                                                                                                                                                                       | 1.8 km south-west                              |
| South Bank Fosdyke               | LWS    | N/A       | A man-made raised floodbank with wide berm along the southern side of the River Welland.                                                                                                                                                                                                                              | 1.5 km north-east                              |
| Surfleet Bank                    | LWS    |           | A long strip of sandy embankment and adjacent flat pasture on the north-western side of the tidal River Welland, just downstream from the River Glen confluence. One of only two localities in Lincolnshire where the autumn ladies tresses orchid ( <i>Spiranthes spiralis</i> ) has been seen in the last 20 years. | Within the draft Order Limits                  |
| Surfleet Seas End Saltmarsh      | LWS    | N/A       | Area running alongside river Welland that contains coastal and floodplain grazing marsh and mudflats.                                                                                                                                                                                                                 | 0.4 km west                                    |

| Site                      | Status | Area (ha) | Brief description of site                                                                                                         | Distance and direction from draft Order Limits |
|---------------------------|--------|-----------|-----------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| Risegate Eau              | LWS    | N/A       | The central 9 km of a 15 km long watercourse.                                                                                     | 1.6 km north-west                              |
| River Glen Corridor       | LWS    | N/A       | A botanically rich 20 km stretch of the River Glen                                                                                | 0.7 km west                                    |
| River Welland in Spalding | LWS    | N/A       | River that runs through Spalding and is connected to the Coronation channel. Water flows out towards the Wash.                    | 1.4 km south-west                              |
| Vernatt's Drain           | LWS    | N/A       | Drainage channel that runs through arable land close to the River Welland                                                         | Adjacent to the draft Order Limits             |
| Vernatt's Nature Reserve  | LWS    | 1.7       | Small area on the northern edge of Spalding. The majority of the site is wooded but there is also a pond and an area of grassland | 1.8 km south-west                              |

## Habitats

### Habitats of Principal Importance

4.5.19 The following HPI have been identified within the Section 5 Study Area:

- i. Coastal and Floodplain Grazing Marsh;
- ii. Woodland; and
- iii. Hedgerows.

### Ancient Woodland

4.5.20 Based upon available data sources, no ancient woodland is present within the Section 5 Study Area.

### Terrestrial Habitats

- 4.5.21 Where the UKHab surveys have been completed within the Section 5 Survey Area, the main habitat identified was cropland, which is of negligible ecological importance. The surrounding arable field margins, hedgerows and patches of low diversity scrub, do however provide important connectivity through the landscape, and are therefore considered to be of Local importance.
- 4.5.22 A small woodland was located along Lord's Drain at the eastern extent of the Section 5 draft Order Limits, which has not been assessed to date. This woodland is considered to be of up to i County importance (if confirmed to be HPI).
- 4.5.23 Areas of other neutral grassland were also present throughout the Section 5 Survey Area, some of which are classified as Coastal and Floodplain Grazing Marsh (notably along the River Welland). Coastal and Floodplain Grazing Marsh is recognised as HPI and is assessed as being of up to County importance due to its ecological significance and contribution to biodiversity. Urban areas were found along the route, which are of negligible ecological importance.
- 4.5.24 Further survey work to inform the ES will conclude in 2026, to characterise the terrestrial habitat types which are present within the Section 5 Survey Area, their constituent flora and fauna, and to confirm the condition of relevant habitats. The completed survey findings will inform the design of appropriate mitigation and the assessment of impacts and effects reported within the ES.

### Aquatic Habitats

- 4.5.25 The draft Order Limits cross the River Welland at the northern extent of Section 5. This watercourse is a Main River and assessed to be of County importance. This Main River flows in a northeasterly direction towards the Wash and is tidally influenced across the reach located within the Section 5 Study Area.
- 4.5.26 A network of smaller ditches/drains, including watercourses maintained by the Internal Drainage Board (IDB), are also located within the Section 5 Study Area. These are assessed to be of Local importance.
- 4.5.27 A total of 11 ponds were identified within the Section 5 Survey Area which are of Local importance.

- 4.5.28 Further survey work to inform the ES will conclude in 2026, to characterise the aquatic habitat types which are present within the Section 5 Survey Area, their constituent flora and fauna, and to confirm the condition of relevant habitats. The survey findings will inform the design of appropriate mitigation and the assessment of impacts and effects reported within the ES.

### **Water Framework Directive (WFD) Waterbodies**

- 4.5.29 Within the Section 5 draft Order Limits, three WFD waterbodies may be crossed by the Project.
- i. River Welland WFD Transitional and Coastal Water Body (Water Body ID: GB530503100400); and
  - ii. Moulton River (Water Body ID: GB205031050755). This is an IDB managed watercourse also known as Lord's Drain, classified as a blue line watercourse; and
  - iii. Vernatt's Drain WFD River (Water Body ID: GB205031050705). This is an IDB managed watercourse which discharges into the River Welland via a pumping station.
- 4.5.30 Further details of these WFD waterbodies are provided within **Supplementary PEI Volume 2 Part B Chapter 6 Water Environment and Flood Risk**.

### **Protected and Notable Species**

- 4.5.31 Surveys are being undertaken following the methodology included within the **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**. The extent of planned surveys is based upon the area within the draft Order Limits and a wider zone of influence which is also described within this supporting Appendix. As detailed in this section, this Supplementary PEI Report provides some updated data from surveys conducted after publication of the June 2025 PEI Report, however as previously stated, the full suite of survey work for protected and notable species is still currently incomplete and will continue through the remainder of 2025 and 2026 (if necessary).

### **Terrestrial Invertebrates**

- 4.5.32 The habitats within the Section 5 Survey Area largely comprise agricultural land which is of limited value to terrestrial invertebrates. Floodplain grazing marsh, hedgerow and woodland habitats were also recorded within the Section 5 Survey Area, which provide potential for a more diverse assemblage of terrestrial invertebrates. However areas of these habitats within the draft Order Limits were small and localised. Terrestrial invertebrates within Section 5 are therefore considered to be of no more than Local importance
- 4.5.33 No targeted surveys for terrestrial invertebrates are currently planned to be undertaken within Section 5 due to the limited loss of suitable habitat

### **Great Crested Newt (GCN)**

- 4.5.34 There were no desk study records of GCN within the Section 5 Study Area.
- 4.5.35 Great crested newt surveys to date have included various waterbodies across several locations within the Section 5 Survey Area. Surveys have included Habitat

Suitability Index (HSI) survey and analysing water samples from ponds for great crested newt eDNA<sup>1</sup>.

- 4.5.36 A total of 11 ponds and 9 ditches were scoped for survey within the Section 5 Survey Area. Four ponds and eight ditches were surveyed in 2024/25 and were found to either be unsuitable for eDNA surveys (i.e. were dry) or were found to be negative for great crested newts.
- 4.5.37 Seasonal survey work will continue in spring 2026 to confirm the status of GCN, and the survey results will be used to inform the full assessment of impacts and effects and the details of appropriate mitigation to be presented in the ES.

### Reptiles

- 4.5.38 Desk study research has indicated that there are no records for reptile species within the Section 5 Study Area.
- 4.5.39 The floodplain grazing marsh, hedgerow and woodland habitats in the Section 5 Study Area have potential for common reptiles. However, any wider habitats within the remaining Section 5 Study Area that are suitable for reptiles appear to be limited in extent, being confined to field boundaries and the margins of ditches. Therefore, as any use of the habitats by reptiles is likely to be localised, Section 5 is considered to be of no more than Local importance for reptile species.
- 4.5.40 No targeted reptile surveys are being undertaken within Section 5 due to the limited suitable habitat being lost.

### Wintering Birds

- 4.5.41 Surveys for wintering birds were carried out within between November 2022 and March 2023. Surveys involved monthly vantage point (VP) surveys (November 2022 to March 2023), split walked/driven transects (December 2022 to March 2023), and driven transects (once in January 2023 and once in March 2023). There was one VP in Section 5 (VP 4). Data relevant to the draft Order Limits were recorded, including a 500 m buffer to account for the mobility of birds and the limited coverage of survey extents.
- 4.5.42 Within the ornithological surveys of Section 5, the species found to be present in winter, are presented in **Supplementary PEI Report Volume 3 Part B Appendix 4A Bird Survey Data 2022-24, Table 4A.1**. Noting the limited survey extent, a range of target species were recorded with limited diversity, including gulls and (predominantly) waders. Twenty Canada goose (*Branta canadensis*) were observed. A maximum count of 240 lapwing (in flight) was noted. Thirteen Amber-listed species were recorded, and two Red-listed species were observed (lapwing (*Vanellus vanellus*) and golden plover (*Pluvialis apricaria*)) (Ref 12). Over winter, no species recorded are considered to be of County importance or greater. As **Table 4A.3** summarises, the majority of wintering species recorded are considered to be of Local importance or of lower value.
- 4.5.43 Further avian survey work has been undertaken across the winter of 2024/2025 and will be analysed (along with all of the avian survey data) to inform the full assessment

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<sup>1</sup> eDNA refers to tiny traces of genetic material shed by organisms in their environment. For great crested newts, this could be skin cells left in the water. By collecting water samples and analysing them for newt DNA, their presence or absence from a particular waterbody may be determined.



of impacts and effects and the details of appropriate mitigation to be presented in the ES.

### Breeding Birds

- 4.5.44 Surveys for breeding birds were carried out between March 2024 and July 2024. A single transect partly covered the Section 5 Survey Area.
- 4.5.45 For breeding bird data, the numbers of territories is derived from a standardised approach of assessing breeding status given proximity of observations (including acoustic records) and the distribution of suitable habitat.
- 4.5.46 Data presented represent only those species of conservation concern as defined by Red or Amber listed species (Ref 14) species of principal importance under Section 41 of the NERC Act (Ref 15), and Schedule 1 species of the Wildlife and Countryside Act 1981.
- 4.5.47 Breeding season data, showing the species and the numbers of territories recorded within 500m of the draft Order Limits, are presented in **Supplementary PEI Report Volume 3 Part B Appendix 4A Bird Survey Data 2022-24, Table 4A.2**. A range of bird species were recorded on site, typical of an arable landscape. Species included farmland specialists, such as skylark (*Alauda arvensis*), yellow wagtail (*Motacilla flava*), and corn bunting (*Emberiza calandra*). One marsh harrier (*Circus aeruginosus*) and one peregrine falcon (*Falco peregrinus*) territory were recorded in this Section. Eight Red-listed species and eleven Amber-listed species were recorded in Section 5. However, the transect only had partial coverage of the Section 5 Survey Area and thus the number of territories does not represent the total number of birds breeding or those using this area in the breeding season.
- 4.5.48 All of the recorded species are considered to be of Local importance, apart from marsh harrier, which is considered to be of County importance, based upon a combination of survey records, local distribution and Birds of Conservation Concern (BoCC) status (see **Supplementary PEI Report Volume 3 Part B Appendix 4A Bird Survey Data 2022-24, Table 4A.3**).
- 4.5.49 Upon assessment of the Year 1 breeding bird survey results, further survey work was recommended to be required in 2025. Further breeding bird surveys have been undertaken in 2025; however, the results have not been fully assessed at this stage. Therefore, the results presented in **Supplementary PEI Volume 3 Part B Appendix 4A Bird Survey Data 2022-24** are incomplete. Once available, the full survey results will be assessed and presented within the ES.
- 4.5.50 It is important to note that this section considers the importance of a species in the context of the geographical extent of Section 5 only. An initial route-wide assessment is included in **Supplementary PEI Report Volume 2 Part C Route-wide Assessment Chapter 3 Ecology and Biodiversity**.

### Badger

- 4.5.51 Desk study survey records included 16 records of badger within the Section 5 Study Area. These included recorded setts and signs of badger activity and badger casualties on roads (mainly along the A16 to the west).
- 4.5.52 Surveys for badger were conducted between November 2024 and March 2025 and incidental records of badger field signs were recorded during other species and habitat surveys.

- 4.5.53 Two potential main badger setts and multiple feeding signs were recorded within the Section 5 Survey Area. The results of the completed badger surveys (including the locations of the setts) will be presented in a Confidential Appendix to the ES.
- 4.5.54 Given its common status and widespread distribution within the county, where badger is present, the species is assessed as being of Local importance.

#### Bats

- 4.5.55 Local Records Centre data for the Section 5 Study Area included records of roosting brown long-eared bat (*Plecotus auritus*), soprano pipistrelle (*Pipistrellus pygmaeus*) and Daubenton's bat (*Myotis daubentonii*). Of these bat roost records, five fall within the draft Order Limits, two for Daubenton's bat and three for brown long-eared bats.
- 4.5.56 There were no European Protected Species Mitigation Licences (EPSML) for bats within the Section 5 Study Area.
- 4.5.57 Initial surveys for bats were carried out between May and October 2024. The initial surveys completed confirmed that the bat species present within the Section 5 Survey Area include common pipistrelle (*pipistrellus pipistrellus*), soprano pipistrelle, *Myotis* sp., Leisler's bat (*Nyctalus leisleri*), Nathusius pipistrelle (*Pipistrellus nathusii*), Daubenton's bat, brown long-eared, barbastelle (*Barbastella barbastellus*) and noctule (*Nyctalus noctula*). The activity surveys indicated that hedgerows and woodland edges are being utilised by foraging and commuting bats within the Survey Area.
- 4.5.58 Survey work was also conducted in winter 2024/2025 which confirmed the presence of trees with potential to support roosting bats within the Section 5 Survey Area. Surveys continued into spring/summer 2025 and will continue throughout Autumn and Winter and into Spring/Summer 2026, to confirm assemblage of foraging and commuting bats, bat roosts and the status of bats. When planned surveys are complete, results will inform the design of appropriate mitigation and the assessment of impacts that will be presented within the ES. At this stage no buildings or structures are known to be within the Section 5 draft Order Limits.

#### Otter

- 4.5.59 Desk study records included two records of otter within the Section 5 Study Area. These included signs of otter activity but no details were given.
- 4.5.60 Surveys for otter were carried out between March 2024 and September 2025. Within the Section 5 Survey Area, three potential otter resting sites were recorded. Two of the potential resting sites were located along a ditch to north of the Survey Area and one adjacent to a pond, approximately centre of the survey area. No other field signs of otter were identified.
- 4.5.61 Given its recovering status and importance within the county, where otter is present, the species is assessed as being of County importance.
- 4.5.62 Survey work (including camera trapping surveys) will continue in winter 2025/spring 2026 to inform the full assessment of impacts and effects and the details of appropriate mitigation measures to be presented in the ES.

Fish

4.5.63 Desk study research has identified Environment Agency (EA) records of one notable fish species within Section 5 Study Area, which was European eel (*Anguilla anguilla*).

Table 4.4 Notable fish species identified within the Section 5 Study Area

| Common Name  | Scientific name          | Designation/Status                                                                                                                                                                                                                                                                                                                                | Importance                                                                                            |
|--------------|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| European eel | <i>Anguilla anguilla</i> | Global Red List Post 2001 – Critically Endangered, Annex II of the Habitats Directive, Appendix II of the Bonn Convention, UK Biodiversity Action Plan (BAP) 2007, Section 41 NERC Act 2006, Eels (England and Wales) Regulations 2009, Salmon and Freshwater Fishes Act (SAFFA) 1975, OSPAR, European Union and Trade in Wild Fauna and Flora-AB | County, due to the relative scarcity of this species and small population size likely to be affected. |

4.5.64 EA data will be used to confirm the status of fish within the Study Area and to inform the design of appropriate mitigation and the assessment of impacts which will be presented, with the full survey results, in the ES.

Aquatic Macroinvertebrates

4.5.65 No notable aquatic macroinvertebrate species have been recorded within the Section 5 Study Area based upon the completed desk study.

4.5.66 Supplementary survey work is ongoing in 2025 to confirm the status of aquatic macroinvertebrates within the Section 5 Survey Area, and to inform the full assessment of impacts and effects. The details of appropriate mitigation measures to be presented within the ES, along with the completed survey results.

Aquatic Macrophytes

4.5.67 No notable aquatic macrophyte species have been identified within the Section 5 Study Area based upon the completed desk study.

4.5.68 Survey work is ongoing in 2025 to confirm the status of aquatic macrophytes within the Section 5 Survey Area and to inform the full assessment of impacts and effects. The details of appropriate mitigation measures to be presented within the ES, along with the completed survey results.

Water Vole

4.5.69 Desk study records included over than 100 records of water vole within the Section 5 Study Area. These included sightings of individuals and signs of water vole activity including droppings and burrows throughout the area.

4.5.70 Surveys for water vole were carried out between March 2024 and September 2025.

4.5.71 Within the Section 5 Survey Area, three water vole latrines were identified within one watercourse within the draft Order Limits, a ditch located in the centre of the Survey Area approximately 1 km south-west of Western Barn House. Multiple latrines, feeding remains and burrows were identified within Lord’s Drain approximately 0.75

km south of the new Weston Marsh Substation B. Droppings, feeding remains and burrows were also identified on Lord's Drain approximately 1 km south east of the new Weston Marsh Substation B. However, the majority of ditches were found to be unsuitable for water vole due to being dry at the time of survey.

- 4.5.72 Given its declining status and importance within the county, where water vole is present, the species is assessed as being of County importance.
- 4.5.73 Survey work is continuing in 2025/spring 2026 to confirm the status of water vole to inform the full assessment of impacts and effects and the details of appropriate mitigation measures to be presented within the ES, along with the completed survey results.

#### Other Protected and Notable Species

- 4.5.74 The desk study returned records for brown hare (*Lepus europaeus*), hedgehog (*Erinaceus europaeus*), polecat (*Mustela putorius*) and common toad (*Bufo bufo*) within the Section 5 Study Area.
- 4.5.75 Habitats within the Section 5 Survey Area are suitable for these species, which are SPI and of Local importance. During the field surveys, incidental evidence of brown hare was also noted within a field in the north of the Section 5 Survey Area.
- 4.5.76 Survey work will continue in 2025/spring 2026 to inform the design of any appropriate mitigation and the assessment of impacts and effects presented within the ES.

#### Invasive Non-native Species

- 4.5.77 Desk study research has revealed the presence of two invasive non-native species: giant Hogweed (*Heracleum mantegazzianum*); and Chinese mitten crab (*Eriocheir sinensis*). These species are listed under both Schedule 2 of the Invasive Alien (Enforcement and Permitting) Order 2019 and Schedule 9 of the Wildlife Countryside Act 1981.
- 4.5.78 No specific INNS survey has been undertaken; however, field observations have been made during other ecological surveys undertaken within the Survey Area. Based upon the surveys completed to date, incidental evidence of American mink (*Mustela vison*) was noted along a ditch in the north of the Section 5 Survey Area. This species is listed on Schedule 9 of the Wildlife and Countryside Act.
- 4.5.79 Further planned habitat and species surveys, will include the recording of invasive non-native species. The results of these further surveys will be presented in the ES.

#### Future Baseline

- 4.5.80 The future baseline relates to known or foreseeable changes to the current baseline in the future against which the effects of Section 5 of the Project during construction and operation are assessed. Specifically, it accounts for anticipated changes including those caused by changing climatic conditions, policy, legislation, advances in technology and by other confirmed development projects which will be complete prior to construction of Section 5 of the Project.
- 4.5.81 At this preliminary stage, a full assessment of the implications of any confirmed development projects with regard to future baseline conditions has not been undertaken. A list of the currently known developments which are anticipated to be included within the future baseline scenario is provided within **Supplementary PEI**

**Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope Annex A Developments for Consideration Within the Future Baseline.** This will remain under review during development of the ES and further consideration of any appropriate changes to the assumed future baseline characterised within this Supplementary PEI Report.

- 4.5.82 Habitats within the Section 5 draft Order Limits and wider Study Area comprise mainly arable farmland currently under cultivation.
- 4.5.83 In addition to the main habitat coverage, field boundaries are in places defined by hedgerows, ditches and farm tracks, with the River Welland located in the north of the draft Order Limits.
- 4.5.84 Existing ecological features are unlikely to materially change in the future. Those areas of known change will be assessed, where necessary, as part of the surveys in 2025.
- 4.5.85 Relative to the current baseline, the value of priority ecological features present within or close to the draft Order Limits are not expected to change significantly by the end of the construction period. Management of the habitats is unlikely to change over this period, and consequently no significant degradation or improvement of habitat condition is expected.
- 4.5.86 Due to development pressure year on year within the wider landscape, protected and notable species and habitats are likely to remain priorities for conservation within future baseline scenarios.

## **4.6 Design, Control and Additional Mitigation Measures**

- 4.6.1 As set out in **Supplementary PEI Report Volume 2 Part A Chapter 4 Approach to Preliminary Environmental Information**, mitigation measures fall into one of three categories: embedded design measures; control and management measures; and additional mitigation measures. Those measures relevant to the assessment of effects on important ecological features are set out below.

### **Design Mitigation Measures**

- 4.6.2 The Project and draft Order Limits have been designed to avoid sensitive receptors as far as practicable. This is in accordance with the 'Holford Rules' (Ref 16) applicable to routing of new overhead lines and the 'Horlock Rules' (Ref 17) which apply to design and siting of substations. These approaches are explained in further detail within the Corridor Preliminary Routeing and Siting Study (CPRSS) (Ref 18) and **Supplementary PEI Volume 2 Part A Chapter 3 Main Alternatives Considered**. Principles include, but are not limited to, seeking to avoid areas of highest amenity, cultural or scientific value, taking advantage of natural screening provided by existing landform and features (e.g. woodland) and keeping visual, noise and other environmental effects to a minimum.
- 4.6.3 The draft Order Limits on which this assessment is based have been located to avoid designated sites, HPs and important receptors as far as practicable. This is in accordance with the Planning Inspectorate's Advice on Habitats Regulations Assessment relevant to nationally significant infrastructure projects, (September 2024) (Ref 19) and the Conservation of Habitats and Species Regulations 2017 (Ref 20).



- 4.6.4 Following selection of the preferred route corridor, as outlined in the CPRSS, environmental specialists have been integral to ongoing design refinement of works within Section 5. This has further contributed to the avoidance or reduction of the potential ecological impacts of the Project. Examples of such measures include the positioning of pylons and access routes to avoid or reduce direct and indirect impacts on notable species and habitats, including woodland, trees and floodplain grazing marsh.
- 4.6.5 At sensitive crossing locations (e.g. rivers), existing access routes would be used as far as practicable and the width of any required working area minimised. If access upgrades are required, large or sensitive watercourses, for example those designated as a Main River, and those with WFD status, will be crossed using clear span bridges. Where culverts are implemented, these will either be arch culverts, leaving the natural bed undisturbed, or as far as reasonably practicable, they would be installed with the invert set below the natural bed level for a semi-natural bed to establish within the culvert.
- 4.6.6 Wherever practicable, areas of temporary habitat loss will be reinstated back to the type of baseline habitat affected or improved/enhanced. The ES will also include proposals for enhancing existing habitats. Areas of permanent habitat loss will be considered during the siting and design of measures required to achieve a net gain in biodiversity value.

## Control Mitigation Measures

### Construction

- 4.6.7 A Preliminary CoCP is provided in **Supplementary PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice**. General control measures included within the Preliminary CoCP relevant to the Ecology and Biodiversity assessment include:
- i. GG01: The proposed Project will be compliant with all relevant legislation, consents and permits. (*i.e. The Conservation of Habitats and Species Regulations 2017 and The Wildlife and Countryside Act 1981. See **Supplementary PEI Report Volume 2 Part A Chapter 2 Legislative, Regulatory and Planning Policy** for more detail on relevant legislation, consents and permits*).
  - ii. GG03: Suitably experienced Environmental Advisers will be appointed for the duration of the construction phase. In addition, qualified and experienced Environmental Clerk of Works (EnvCoW) will be available during the construction phase to advise, supervise and report on the delivery of the mitigation methods and controls outlined in the Management Plans. The EnvCoW(s) will monitor that the works proceed in accordance with relevant environmental DCO requirements and adhere to the required good practice and mitigation measures. The EnvCoW(s) will be supported as necessary by appropriate specialists, including ecologists and arboriculturists, soils and land drainage experts.
  - iii. GG04: Construction workers will undergo training to increase their awareness of environmental issues as applicable to their role on the Project. Topics will include where appropriate:
    - pollution prevention and pollution incident response;

- dust management and control measures;
  - location and protection of sensitive environmental sites and features;
  - adherence to protected environmental areas around sensitive features;
  - working hours and noise and vibration reduction measures;
  - working with potentially contaminated materials;
  - waste management and storage;
  - flood risk response actions;
  - agreed traffic routes, access points, etc.;
  - soil management; and
  - drainage management.
- iv. GG05: A record of condition will be carried out (photographic and descriptive) of the working areas that may be affected by the construction activities, prior to works commencing. This record will be available for comparison following reinstatement after the works have been completed to ensure that the standard of reinstatement at least meets that recorded in the pre-condition survey.
  - v. GG06: A Construction Environmental Management Plan (CEMP), a Landscape and Ecological Management Plan (LEMP), a Materials and Waste Management Plan (MWMP) and a Construction Traffic Management Plan (CTMP), Emergency Action Plan, Public Rights of Way Management Plan (PRoWMP), Overarching Written Scheme of Investigation (OWSI), Biodiversity Management Plan, Noise and Vibration Management Plan, Pollution Prevention Plan, Foundation Works Risk Assessment, Carbon efficiency Plan, Dust Management Plan (DMP), Drainage Management Plan (DrMP) along with a Soil Management Plan (SMP) will be produced prior to construction. These are collectively referred to as 'the environmental control Plans'.
  - vi. GG07: The CEMP will set out site specific measures and construction methodologies to avoid or reduce potential effects of the Project on the environment during construction. The contractor(s) shall undertake regular site inspections to check conformance to the Management Plans
  - vii. GG08: Land used temporarily will be reinstated where practicable to its pre-construction condition (including Agricultural Land Classification ((ALC)) grade) and use. Hedgerows, fences, and walls (including associated earthworks and boundary features) will be reinstated to a similar style and quality to those that were removed, in consultation with the landowner.
  - viii. GG09: Where sensitive features such as ancient woodland and protected habitats are to be retained within or immediately adjacent to the Order Limits, an appropriate protective area will be established using appropriate fencing and signage and will be inspected, repaired, and replaced as necessary. The protective areas will be shown on the Retention and Reinstatement Plans contained within the LEMP.
  - ix. GG11: Any activity carried out or equipment located within a construction compound that may produce a noticeable nuisance, including but not limited to dust, noise, vibration and lighting, will be located away from sensitive receptors such as residential properties or ecological sites where practicable.



- x. GG15: Fuels, oils and chemicals will be stored responsibly, away from sensitive water receptors. Where practicable, they will be stored >15 m from watercourses, ponds and groundwater dependent terrestrial ecosystems. Where it is not practicable to maintain a >15 m distance, additional measures will be identified. All refuelling, oiling and greasing of construction plant and equipment will take place above drip trays and also away from drains as far as is reasonably practicable. Vehicles and plant will not be left unattended during refuelling. Appropriate spill kits will be made easily accessible for these activities. Potentially hazardous materials used during construction will be safely and securely stored including use of secondary containment where appropriate. Stored flammable liquids such as diesel will be protected either by double walled tanks or stored in a bunded area with a capacity of 110 per cent of the maximum stored volume. Spill kits will be located nearby.
- xi. GG16: Runoff across the site will be controlled through a variety of methods including header drains, buffer zones around watercourses, on-site ditches, silt traps and bunding. There will be no intentional discharge of site runoff to ditches, watercourses, drains or sewers without appropriate treatment and agreement of the appropriate authority (except in the case of an emergency).
- xii. GG17: Wash down of vehicles and equipment will take place in designated areas within construction compounds. Wash water will be prevented from passing untreated into watercourses and groundwater. Appropriate measures will include use of sediment traps, daily checks and ongoing monitoring.
- xiii. GG19: Earthworks and stockpiled soil will be managed as per the SMP.

4.6.8 The topic specific control and management measures included within the Preliminary CoCP which are relevant to the assessment of effects upon Ecology and Biodiversity receptors are:

- i. B01: The contractor(s) will comply with relevant protected species legislation. Appropriate licences will be obtained where necessary from Natural England for all works affecting protected species as identified by the ES and through pre-construction surveys. All applicable works will be undertaken in accordance with the relevant requirements and conditions set out in those licences.
- ii. B02: In the event that vegetation or any other feature with the potential to support breeding birds is required to be removed during the main breeding bird season (01 March to 31 August) or, in the case of Schedule 1 birds (e.g. barn owl), is likely to be disturbed, then works will be undertaken in the presence or supervised by an Ecological Clerk of Works (ECoWs). Appropriate protection measures will be put in place should active nests be found. These will include exclusion zones around active nests until chicks fledge or nests become inactive as determined by monitoring by the ECoWs. Active nests of wild birds are protected at all times and therefore the same measures will be put in place if an active nest is identified at any time of year.
- iii. B03: Where there will be a risk of animal entrapment, a means of escape will be installed into all excavations left open overnight.
- iv. B04: To control the spread of invasive weeds in accordance with the Wildlife and Countryside Act 1981, any plant or machinery that has been used in areas contaminated or infested with invasive species (both terrestrial and aquatic), such as Japanese knotweed and Himalayan balsam, will be thoroughly cleaned. Water used to clean vehicles will be discharged or emptied into the contaminated

area controlled to prevent the spread of the plant (through plant propagules, e.g. seeds, rhizomes, fragments, etc.). The area will be cordoned off to prevent any inadvertent spreading. Any plant material or soil contaminated with plant propagules if removed from a site is classified as controlled waste and should be disposed of in a suitably licensed landfill site, accompanied by appropriate Waste Transfer documentation, and must comply with Section 34 of the Environmental Protection Act 1990. Further detail will be set out in a Biosecurity Management Plan.

- v. B05: Subject to the location and scale of impact, suitable habitat for common reptiles will be subject to two-stage habitat manipulation that will take place between mid-March and mid-October. Firstly, vegetation will be cut to approximately 150 mm (with the arisings removed) under the supervision of an ECoW and the site left for a minimum of two days to allow reptiles to naturally disperse from the area. Secondly, vegetation will be cleared down to ground level under the supervision of an ECoW. Vegetation will be cleared using appropriate equipment based on the type of vegetation to be removed, the area affected, and the risk of mortality or injuring reptiles. Construction works could commence immediately after completion of the second stage. Reptile hibernacula will be retained and protected during construction where practicable. If unavoidable, the removal of vegetation and groundworks at hibernacula will be timed to avoid the hibernation season (late October to early March). Replacement hibernacula and refugia will be provided prior to clearance of any suitable habitat.
- vi. B06: Alternative roost structures (bat boxes) will be installed, prior to felling of trees with bat roost potential (with landowner consent), on retained trees within the Order Limits or areas outside of the Order Limits agreed with landowners. Unless specified otherwise by the provisions of any protected species licence for bats, two boxes will be provided for each tree to be felled where Potential Roost Features (PRF) on that tree are classified as PRF-I bat roost potential. Five boxes will be provided for each tree with PRF-M bat roost potential to be felled.
- vii. B07: Alternative barn owl breeding sites (barn owl boxes) will be installed, prior to removal of nesting sites, (with landowner consent) on retained trees or poles within the Order Limits or areas outside of the Order Limits agreed with landowners.
- viii. B08: Where the works require the crossing or removal of hedgerows, the gap will be reduced to a width required for safe working. Where hedge removals are necessary, 'dead hedging' should be used, where practicable, in the interim periods to retain connectivity during construction. Dead hedging can comprise vegetation arisings or artificial provision, such as willow screening panels or Heras fencing covered in camouflage netting. New hedgerow planting will contain native, woody species of local provenance.
- ix. B09: Habitat translocation or any species translocation (if required) that is not covered by protected species licences will be undertaken in accordance with a strict method statement. The method statement will be specific to the habitat type or species affected and will detail the appropriate construction methods, timing, management, receptor site preparation and post-construction habitat management and monitoring. The receptor site will be clearly identified and prepared in advance of translocation.

- x. B10: Where any in channel watercourse works are required, works will be completed outside of fish spawning season (16 March to 16 June inclusive) and fish migratory seasons (species specific, dependant on the waterbody) subject to likely fish presence confirmed through pre-construction fish surveys.
- xi. B11: Where works require dewatering of waterbodies known to contain fish, fish removal and relocation will be required (which will require appropriate permits such as an FR2 licence from the EA).
- xii. B12: A method statement to ensure works within watercourse crossings include suitable measures to allow the passage of otters, water vole and fish throughout construction (i.e., during fluctuating water levels).
- xiii. B13: In the first instance reasonable avoidance measures will be incorporated to avoid impacting known otter holts/couches, badger setts and/or trees identified as having bat roosting potential and suitable buffer zones implemented.
- xiv. LV01: The contractor(s) will retain vegetation where practicable. Where vegetation is lost and trees cannot be replaced in situ due to the restrictions associated with land rights required for operational safety, native shrub planting approved by National Grid will be used as a replacement, in accordance with the outline vegetation reinstatement plans included within the LEMP. Replacement vegetation will be planted as close by as practicable and will complement landscape character and be sympathetic to the local habitat type in order to provide a high biodiversity value.
- xv. LV02: The contractor(s) will apply the relevant protective principles set out in British Standard (BS) 5837:2012: Trees in relation to design, demolition, and construction. This will be applied to trees within the Order Limits which will be preserved through the construction phase, and to trees outside of the Order Limits where such measures do not hinder or prevent the use of the relevant working width for construction. An Arboricultural Clerk of Works (ACoW) will ensure the suitability of tree protection before and during the construction phase. All works to high grade trees, including trees under Tree Preservation Orders and veteran trees, will be undertaken, or supervised by a suitably qualified arboriculturist.
- xvi. LV03: A five-year aftercare period will be established for all reinstatement and mitigation planting, details of which will be set out in the LEMP.
- xvii. LV04: Construction lighting will be of the lowest luminosity necessary to safely perform tasks. Lighting will be directional and minimised where possible.
- xviii. W01: All works affecting watercourses or within the relevant permitting stand-off distance from the top of bank or landward toe of a flood defence on main rivers and IDB-maintained watercourses will be in accordance with a method approved under consents issued under the Environmental Permitting Regulations 2016, Land Drainage Act 1991, IDB Byelaws (where relevant) or the protective provisions of the DCO for the benefit of the Environment Agency, LLFAs and IDBs . Where possible, a stand-off distance from the top of bank of all watercourses/waterbodies will be established (with the exception of crossings and where existing field access roads are already located adjacent to watercourses are to be utilised). To align with Environment Agency and IDB consenting requirements, it is proposed that this will be: 16 m for tidal main rivers; 8 m for non-tidal main rivers; and 9m for IDB-maintained watercourses. No statutory stand-off distances are specified for ordinary watercourses, but any

works liable to cause an obstruction to flow would be subject to consent under the Land Drainage Act 1991. Appropriate stand-off distances should also be implemented where Project construction activities coincide with water supply and sewerage infrastructure. These are to be agreed on a case-by-case basis. For any instances where the stand-off distances stated above cannot be achieved between construction works and watercourses, these works would be subject to the appropriate consent by the relevant drainage authority (FRAP for main rivers, OWC for ordinary watercourses).

- xix. W02: For open cut watercourse crossings and installation of vehicle crossing points, good practice measures will include but not be limited to, where practicable:
- reducing the working width for open cut crossings of a main or ordinary watercourse whilst still providing safe working;
  - installation of a pollution boom downstream of open cut works;
  - the use and maintenance of temporary lagoons, tanks, bunds, silt fences or silt screens as required;
  - have spill kits and straw bales readily available at all crossing points for downstream emergency use in the event of a pollution incident;
  - the use of all static plant such as pumps in appropriately sized spill trays;
  - prevent refuelling of any plant or vehicle within 15 m of a watercourse;
  - prevent storing of soil stockpiles within 15 m of a main river;
  - inspect all plant prior to work adjacent to watercourses for leaks of fuel or hydraulic fluids; and
  - reinstating the riparian vegetation and natural bed of the watercourse, using the material removed when appropriate, on completion of the works and compacting as necessary. If additional material is required, appropriately sized material of similar composition will be used.
- xx. W03: Riverbank and in-channel vegetation will be retained where not directly affected by installation works. Natural substrate will be provided through temporary watercourse crossings culverts.
- xxi. W04: Where watercourses are to be crossed by construction traffic, measures to be applied include the use of temporary culverts or temporary spanned bridges. Once the temporary culvert is installed, the area above the temporary culvert will be backfilled and construction mats placed over the backfilled area to permit the passage of plant, equipment, materials, and people. Temporary culverts will be sized to reflect the span width and the estimated flow characteristics of the watercourse under peak flow conditions and kept free from debris. Where used, temporary bridges will be designed specifically to consider the span length and the weight and size of plant and equipment that will cross the bridge. Trenchless methods will be used where feasible, and if open-cut is unavoidable, working width will be minimised, flows isolated with flume pipes or over-pumping, silt controls installed, and works will be scheduled during low-flow periods to reduce sediment disturbance. Where flood defences are present, crossing design should ensure that their integrity and standard of protection are preserved. Watercourse bed, banks and any flood defences will be subject to full

reinstatement on removal of temporary watercourse crossings on completion of construction works. Specific detailed designs for each watercourse crossing, consistent with these design principles, will be prepared by the construction contractor. These will be subject to the appropriate consent by the relevant drainage authority (Flood Risk Activities Permit from the EA for main rivers, Ordinary Watercourse Consent from the Lead Local Flood Authority or Internal Drainage Board for ordinary watercourses).

- xxii. W05: The contractor(s) will comply with all relevant consent conditions or DCO provisions regarding de-watering and other discharge activities. This will particularly be with regard not only to volumes and discharge rates, but also to water quality (particularly suspended solids, pH and hydrocarbons) and will include discharges to land, water bodies or third-party drains/sewers. It is assumed that temporary discharges generated from dewatering activities, for example, around pylon bases and in underground cable sections, would be made to ground, rather than to watercourses. Where this is not practicable in localised areas, any discharge to surface water would be made in compliance with relevant consents.
- xxiii. W10: Severance of existing land drainage routes, including agricultural field drainage systems would be managed during construction through provision of temporary alternative drainage routes, and these drainage systems would be permanently reinstated to ensure their existing function is maintained.
- xxiv. W11: Appropriate control of runoff from working areas will be achieved through implementation of a DrMP for the construction phase. The DrMP will use sustainable urban drainage systems (SuDS) principles, promoting infiltration of runoff wherever possible and specifying appropriate treatment and attenuation storage to ensure any discharges to watercourses are uncontaminated and limited to greenfield rates. The DrMP will cover all aspects of construction works and temporary infrastructure. Drainage measures will be phased to be completed before the commencement of earthwork operations, in a specific area, and will be retained until the drainage system of the completed Project is fully operational, or site restoration works are completed. This will include the temporary diversion of existing agricultural drainage around working areas, if required, followed by reinstatement on completion of works. At this stage of the design process, preliminary work has already been done to identify runoff treatment and attenuation requirements for temporary access tracks and working areas associated with overhead line construction, including defining potential locations of water treatment areas and discharge outfalls. Further work is required to develop drainage strategies for substations, considering arrangements for both construction and operational phases of the Project, which will be reported as part of the ES chapter and FWRA in submission with the DCO application.

- 4.6.9 The CEMP will include other standard measures relating to ecology such as pre-construction surveys to validate and, where necessary, update the baseline survey findings. The purpose of these pre-construction surveys would be to ensure mitigation during the construction phase is based on the latest protected species information. This would also be required for any protected species licensing.
- 4.6.10 Given that the River Welland is tidally influenced across the reach located within the Section 5 draft Order Limits, further engagement will be undertaken with the Marine Management Organisation (MMO) to inform preparation of a Marine Licence



application, which will be required for the overhead line crossing of the river in this location.

## Operation and Maintenance

- 4.6.11 During the operation and maintenance of Section 5 of the Project, National Grid operatives would be required to adhere with National Grid best practice requirements during the completion of routine maintenance activities, such as the management of vegetation within and adjacent to assets (e.g. substations, pylons, access routes).
- 4.6.12 Key measures relevant to the control of potential impacts upon ecology and biodiversity during operation and maintenance include:
- i. Minimising pollution risks as far as practicable through the control of hazardous substances, including refuelling of plant and equipment away from drains or watercourses within dedicated areas and the use of secondary containment systems, such as bunds, drip trays and plant nappies;
  - ii. Consultation with the relevant regulatory body where works are required in, around, or that may impact watercourses, or there is a potential impact on local flora and fauna of works near controlled waters;
  - iii. Identifying and notifying the presence of invasive species within the operational areas of the site;
  - iv. Proactively seeking to avoid disturbance to birds during the breeding season, including the use of deterrent measures, acting as early as possible;
  - v. Reviewing the need for licenses, ensuring existing licenses adequately cover the operations and activities planned on sites and ensuring the correct use of and compliance with licenses; and
  - vi. Ensuring that tenancy and land use agreements include requirements to protect, preserve and enhance habitats, biodiversity and ecosystem services.
- 4.6.13 During the operation and maintenance of Section 5 of the Project, National Grid or their appointed Contractor will be required to appoint an ecologist during any maintenance or refurbishment works, to ensure that ecological constraints present at the time will be identified and mitigated accordingly.
- 4.6.14 Additionally, habitats created or enhanced in Section 5 of the Project and embedded within the design, will be managed in accordance with the LEMP.

## Additional Mitigation

- 4.6.15 Additional mitigation measures are those required to reduce likely significant adverse environmental effects which may still occur despite the inclusion of the embedded design and control measures described above.
- 4.6.16 Potential additional mitigation measures which may be required to reduce the effects of the Project upon Ecology and Biodiversity are in the early stages of development, based upon an iterative process informed by ongoing survey and assessment.
- 4.6.17 As set out within **Supplementary PEI Volume 2 Part B Chapter 1 Overview of the Section and Description of the Project** and illustrated on **Supplementary PEI Volume 2 Part B Figure 1.3 Permanent and Operational Features**, initial measures within Section 5 include:

- i. Potential skylark and other farmland bird mitigation areas (mitigation requirements to be confirmed following surveys); and
  - ii. Other breeding bird mitigation areas (mitigation requirements to be confirmed following surveys).
- 4.6.18 Any mitigation and compensation measures to be included within the Project will be informed by further design development and consultation with the relevant stakeholders, including engagement with the statutory consultees.
- 4.6.19 Finalised additional mitigation or compensation measures will be detailed within the ES.

## 4.7 Preliminary Assessment of Effects

- 4.7.1 The following section presents the findings of the preliminary assessment of effects upon the ecological receptors identified within the Section 5 Study Area, as a result of construction, maintenance and/or operational activities.
- 4.7.2 As discussed in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**, only features of local importance and above, where there is the potential for the project to impact them directly or indirectly, have been taken forward to impact assessment. In addition, consideration is given to INNS where in the absence of mitigation there is potential for a legal offence.
- 4.7.3 The conclusions of the preliminary assessment are based upon surveys completed to date and professional judgement of the ecological receptors likely to be present within the Study Area and influenced by the construction, maintenance and/or operation of Section 5 of the Project. The precautionary principle has been applied, such that where information about a particular receptor is incomplete or uncertain, then significant effects have not been excluded. Therefore, at this stage, most of the ecological receptors identified in the baseline of this Supplementary PEI Report have been retained in the assessment. The significance of effects reported may be greater than that reported at the ES stage, once all survey data has been collated, the status of these receptors confirmed and all mitigation measures identified. An updated assessment will be included within the ES submitted with the DCO application.
- 4.7.4 The preliminary assessment of effects reported below takes into account the Design and Control mitigation measures previously described. This assessment does not take into account the Additional Mitigation Measures at this stage as these are subject to further design refinement and will be informed by stakeholder engagement and the baseline survey findings.
- 4.7.5 For a summary of the likely significant effects please refer to **Supplementary PEI Report Volume 2 Part B Section 5 Chapter 13 Summary**. A supplementary summary of all non-significant effects is also included within this Section in **Table 4.5**, based upon the assessment scope detailed in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.
- 4.7.6 It is noted that this is an ongoing assessment and is subject to change due to the ongoing design development of Section 5 of the Project, statutory consultation feedback and further stakeholder engagement. A full assessment will be included within the ES submitted with the DCO application.



## Likely Significant Effects

### Construction

#### Designated Sites

- 4.7.7 The nearest internationally designated sites are The Wash SPA and Ramsar site, which are located 5.7 km north east of the draft Order Limits at its closed point. The Wash and North Norfolk Coast SAC is also located 5.7 km east of the draft Order Limits at their closest point.
- 4.7.8 In addition, the internationally designated Nene Washes SPA and Ramsar site, where bird species with large foraging ranges are noted as, or one of, the qualifying features, are located 24.2 km south of the draft Order Limits at its closest point.
- 4.7.9 Natural England guidance (Ref 21) on Impact Risk Zones (IRZ) has been used, in conjunction with a precautionary approach, based upon survey data and professional knowledge, to identify those survey records (including, but not limited to, main component species), which could be associated with internationally designated sites, and result in the potential definition of functionally linked land. 'Functionally linked land' (FLL) is a term often used to describe areas of land or sea occurring outside a designated site which is considered to be critical to, or necessary for, the ecological or behavioural functions in a relevant season of a qualifying feature for which a SAC/ SPA/ Ramsar site has been designated. Given the distances of the draft Order Limits from the identified sites, no direct habitat loss within the designated areas is considered likely. However, impacts through habitat loss, degradation and displacement may occur within FLL, as a result of construction of Section 5 of the Project.
- 4.7.10 The Wash SPA and Ramsar site include birds as qualifying features. The IRZ for the SPA and Ramsar site overlaps with the draft Order Limits, in relation to primarily wintering Bewick's swan, whooper swan, and pink-footed goose. Further assessment is required once bird surveys are completed and data assessed, to consider potential impacts upon the qualifying species and the waterbird assemblage of these internationally designated sites. The potential for likely significant effects (LSE) upon these sites will be assessed within the Report to inform HRA (to be submitted with the ES), and significant effects cannot be excluded at this stage of the assessment.
- 4.7.11 The Wash and North Norfolk Coast SAC is designated for its habitats such as seedbanks, mudflats and coastal lagoons and also includes otters as qualifying features. Potential pathways of effect include changes in water quantity, level and flow and works within or adjacent to watercourses which are hydrologically linked to the SAC have the potential to impact otter species. The potential for LSE upon this site will be assessed within the Report to inform HRA, and significant effects cannot be excluded at this stage in the assessment.
- 4.7.12 Species of the Nene Washes SPA and Ramsar site includes birds as qualifying features. The IRZ for the SPA and Ramsar site overlaps with the draft Order Limits, in relation to primarily wintering pink-footed goose. Further assessment is required once bird surveys are completed and data assessed, to consider potential impacts upon the qualifying species and the waterbird assemblage of these Internationally designated sites. The potential for LSE upon these sites will be assessed within the Report to Inform the HRA (to be submitted with the ES), and significant effects cannot be excluded at this stage in the assessment.

- 4.7.13 The Impact Risk Zones (IRZ's) for the nationally designated Surfleet Lows SSSI (designated for its wet alluvial meadow habitats) and The Wash SSSI (designated for its intertidal mudflats and saltmarshes, which represent one of Britain's most important winter-feeding areas for waders and wildfowl outside of the breeding season) partially overlap with the draft Order Limits.
- 4.7.14 Surfleet Lows SSSI is approximately 2.3 km west of the draft Order Limits. Given the distance between the SSSI and the Project, the separation distance will prevent any potential pollution impact. The bird assemblage of the SSSI may use habitats within the wider area for foraging and there is potential for some of the land within the draft Order Limits to be used by the SSSI bird assemblage. Potential impacts upon the bird assemblage will be assessed once all baseline surveys are complete and will be reported within the ES. Therefore, on a precautionary basis, significant effects cannot be excluded at this stage of the assessment.
- 4.7.15 The Wash SSSI is located 5.7 km north-east of the draft Order Limits. There are potential hydrological links between the project and this SSSI, however, given the separation distances and the pollution prevention measures secured by the CoCP, no effects upon habitats are predicted. The bird assemblage of the SSSI may use habitats within the wider area for foraging and there is potential for some of the land within the draft Order Limits used by the bird assemblage. Potential impacts upon the bird assemblage will be assessed once all baseline surveys are complete and will be reported within the ES. Therefore, on a precautionary basis, significant effects cannot be excluded at this stage of the assessment.
- 4.7.16 Taking into account the pollution prevention measures within the Preliminary CoCP (such as GG15, GG16, GG17), impacts upon the remaining nationally designated sites within 5 km of the draft Order Limits, or where the IRZ overlaps with the draft Order Limits, are not anticipated to result in significant effects and therefore these sites are included within **Table 4.5**.
- 4.7.17 There are 17 LWSs that are located within 2 km of the draft Order Limits. Pinchbeck Marsh LWS, Surfleet Bank LWS and Vernatts Drain LWS are located partially within or directly adjacent to the draft Order Limits. There is a risk of adverse effects on habitats (habitat loss and/or degradation) as well as potentially any fauna (e.g. bats, otter and water vole) associated with these LWS. It is however noted that indirect impacts associated with the release or mobilisation of pollutants are not likely to result in significant effects upon these sites, given the embedded control measures set out within the Preliminary CoCP.
- 4.7.18 Further survey work will establish the nature and importance of any receptors associated with these LWS that may be affected by the works. Therefore, on a precautionary basis, significant effects cannot be excluded at this stage of the assessment.
- 4.7.19 Due to their distance from the draft Order Limits and the embedded control measures set out within the Preliminary CoCP, no significant effects are anticipated for the remaining 14 LWSs located within 2 km of the draft Order Limits (as detailed in **Table 4.5** below).

## Habitats

### Terrestrial Habitats

- 4.7.20 Initial habitat survey results indicate that the majority of Section 5 is cultivated cropland with negligible biodiversity importance. Areas of this habitat will be lost during construction of the substations, pylons, stringing areas, installation of underground cables and to create haul roads and temporary works areas (e.g. compounds) for construction. The construction of the substations and pylon bases will however result in a permanent loss of habitat, whilst habitat lost for the remaining infrastructure will be reinstated post construction wherever possible (as per measure LV01 in the **Supplementary PEI Report Volume 3 Part A Preliminary CoCP**).
- 4.7.21 Coastal and Floodplain Grazing Marsh HPI within the draft Order Limits present along the River Welland will be affected by the proposals as well as broadleaved woodland considered to be potential HPI. Where practicable, pylons have been located outside of these habitats and suitable buffers implemented, in accordance with control measure GG09.
- 4.7.22 Grazing marsh is defined as periodically inundated pasture or meadow, typically with ditches or rills containing standing brackish or fresh water. The works could result in changes in hydrology which may alter the habitat. Indirect impacts upon habitats due to the release or mobilisation of contaminants causing water pollution are not likely to result in significant effects upon HPI, given the embedded control measures set out within the Preliminary CoCP. Further assessment of potential indirect impacts due to construction activities, including changes in air quality, will be undertaken and reported within the ES.
- 4.7.23 Hedgerows, scrub and small woodland parcels could be crossed by the proposed overhead line depending on the final alignment. Temporary severance of hedgerows may occur during construction, where the haul road route and access routes are proposed or during installation of underground cables. Wherever possible, habitats will be reinstated post construction (as per measure LV01 in the **Supplementary PEI Report Volume 3 Part A Preliminary CoCP**). Existing tracks and roads will be utilised where possible however these may require widening.
- 4.7.24 Survey work will continue through to 2025 to characterise the terrestrial habitat types, and their constituent flora and fauna, within and adjacent to the draft Order Limits. Survey findings will also confirm the condition of relevant habitats and inform the design of appropriate mitigation and the assessment of impacts and enhancement, which will be developed fully in the ES.
- 4.7.25 In the absence of supplementary survey findings and confirmed additional mitigation measures, significant effects on terrestrial habitats within the draft Order Limits cannot be excluded at this stage of the assessment.

### Aquatic Habitats

- 4.7.26 There are a number of watercourses, ditches and ponds located within or close to the draft Order Limits, including the River Welland in the north of the Study Area.
- 4.7.27 Direct impacts upon aquatic habitats within the Section 5 Study Area would include those associated with overhead line watercourse crossings and the installation of the underground cable (crossings techniques proposed at each watercourse will be confirmed and described in the ES once the design has evolved, and ground

conditions are better understood following ground investigation works). Impacts from overhead lines would be minimised through the setting back of pylons from the channel and marginal habitats. The stringing of the overhead lines and installation of the underground cable could potentially result in temporary loss or damage to watercourses and ditches at crossing points (total number to be confirmed when design finalised) within the draft Order Limits. The stringing methodology will seek to minimise any potential impacts to watercourses during construction and any impacts are likely to be temporary.

- 4.7.28 Within Section 5, there will also be a number of watercourse access crossings due to temporary haul roads, which could result in direct impacts upon watercourses. As detailed in **Supplementary PEI Report Volume 3 Part A Appendix 5C Indicative Bridge and Culvert Schedule**, it is currently anticipated that 22 temporary crossings will be required in Section 5 (14 closed culverts and 1 open span bridge). The design of these elements will seek to minimise impacts through reducing the footprint of these works as far as practicable. However, with the best practice construction methods and reinstatement of these habitats post-construction, the associated effects upon aquatic habitats are likely to be temporary (see measures W01 to W11 in **Supplementary PEI Report Volume 3 Appendix 5A Preliminary CoCP**).
- 4.7.29 Drainage installations for any SuDS features have the potential to adversely affect the river system, both directly and indirectly, if not designed appropriately. However, the design of drainage features within Section 5 will include SuDS basins to allow settlement before discharge into any river system. Further assessment of potential indirect impacts due to construction activities, including changes in water quality, will be undertaken and reported within the ES.
- 4.7.30 As previously noted, survey work will continue through the remainder of 2025 and Spring 2026 to characterise the terrestrial and aquatic habitat types, and their constituent flora and fauna, within and adjacent to the Section 5 draft Order Limits. Survey findings will also confirm the condition of relevant habitats and inform the design of appropriate mitigation or compensation measures and the assessment of impacts and enhancement, which will be developed fully in the ES.
- 4.7.31 In the absence of supplementary survey findings and confirmed additional mitigation measures, significant effects on aquatic habitats within the draft Order Limits cannot be excluded at this stage of the assessment.

### Protected and Notable Species

#### Great Crested Newt

- 4.7.32 No evidence of GCN has been found within the Section 5 draft Order Limits to date.
- 4.7.33 As the design is finalised, direct impacts upon ponds and waterbodies will be avoided where practicable. However, potentially suitable aquatic and terrestrial habitat for great crested newts also includes hedgerows and grassland up to 500 m away from ponds. The Project may therefore result in direct impacts upon GCN through habitat loss/severance during construction, due to the establishment of construction compounds and access routes and within the footprint of substations and pylons. Additionally, there is a risk of machinery and traffic killing or injuring GCN if they are present within the draft Order Limits for Section 5 during construction activities.
- 4.7.34 Where impacts upon GCN cannot be avoided, a licence from Natural England would be required to permit derogation (as outlined in management measure B01).

Indicative locations for mitigation are illustrated on **Supplementary PEI Report Volume 2 Part B Figure 1.3 Permanent and Operation Features**.

- 4.7.35 Additional relevant management measures within the Preliminary CoCP which would reduce potential impacts include pollution control measures (GG15, GG16, GG17 and W1 to W11), implementation of Management Plans (GG06), reinstatement of hedgerows (GG08), establishment of protective areas (GG09), maintenance of hedgerow connectivity (B08) and directional and minimised lighting (LV04).
- 4.7.36 Survey work will continue in 2026 to inform the assessment of impacts and effects and the design of appropriate mitigation to be presented in the ES. Further survey findings will also be used to confirm any licencing and enhancement requirements.
- 4.7.37 On a precautionary basis, significant effects on GCN cannot be excluded at this stage of the assessment.

#### Birds: Breeding and Wintering

- 4.7.38 Surveys for wintering birds carried out between November 2022 and March 2023, indicate that a range of species were found to be present in winter within the Section 5 Survey Area (noting limited survey extent) (see **Supplementary PEI Volume 3 Part B Appendix 4A Bird Survey Data 2022-24, Table 4A.3**).
- 4.7.39 In addition, surveys for breeding birds, carried out between March 2024 and July 2024, indicated low use is made by breeding birds within the Section 5 Survey Area (noting limitations of the survey extent) (see **Supplementary PEI Volume 3 Part B Appendix 4A Bird Survey Data 2023, Table 4A.2 and Table 4A.3**). Two barn owl, and one marsh harrier and peregrine falcon territory were recorded, as Schedule 1 birds.
- 4.7.40 Although measure B02 in the Preliminary CoCP would ensure the impacts of the construction upon active nests would be mitigated, the construction works within Section 5 are likely to result in a loss of breeding and wintering habitat and disturbance to birds through noise, construction traffic movements and increased human presence on-site.
- 4.7.41 Additional relevant measures within the Preliminary CoCP which would reduce potential impacts include the implementation of Management Plans (GG06), reinstatement of hedgerows (GG08), establishment of protective areas (GG09), maintenance of hedgerow connectivity (B08) and lighting restrictions to (LV04).
- 4.7.42 It should be noted that bird surveys are incomplete, and survey work has continued over the winter of 2024/2025 and is planned in the spring/summer of 2025 to confirm the status of wintering and breeding birds respectively, and to inform the assessment of impacts and the design of appropriate mitigation and enhancement, which will be further developed and presented within the ES.
- 4.7.43 On a precautionary basis, significant effects on wintering and breeding birds e.g. through habitat loss and disturbance, cannot be excluded at this stage of the assessment.

#### Bats

- 4.7.44 Surveys in 2024 confirmed that bats were foraging and commuting within the Section 5 Survey Area and indicated that bats were associated with hedgerows and woodland edges along the overhead line route.



- 4.7.45 There is potential for both permanent and temporary loss of roosting, foraging and commuting habitat for bats and severance of commuting routes, and there is likely to be impacts from disturbance such as noise, vibration and lighting during construction. Specifically, hedgerow and areas of woodland habitats may require clearance during construction during the establishment of haul roads and within the footprint of proposed pylons and substations.
- 4.7.46 As outlined in Preliminary CoCP measure B13, in the first instance, reasonable avoidance measures will be incorporated to avoid impacting known bat roosts. Where impacts upon bat roosts cannot be avoided, a licence from Natural England will be required to permit derogation (as outlined in Preliminary CoCP measure B01).
- 4.7.47 Additional relevant management measures within the Preliminary CoCP which would reduce potential impacts include the implementation of Management Plans (GG06), reinstatement of hedgerows (GG08), establishment of protective areas (GG09), maintenance of hedgerow connectivity (B08) and lighting restrictions to (LV04).
- 4.7.48 The survey work in 2024 and 2025 will be used to confirm presence of foraging and commuting bats and bat roosts, particularly the presence of any bat roosts within or close to the draft Order Limits. The outputs of these surveys will be used to confirm the status of bats and the assessment reported within the ES.
- 4.7.49 On a precautionary basis, significant effects on bats cannot be excluded at this stage of the assessment.

#### Otter

- 4.7.50 Initial surveys for otter carried out in 2024 recorded three potential otter resting sites, but did not find any other field signs of otter within the Section 5 Survey Area.
- 4.7.51 Where suitable habitat for otter is present, there is the potential for disturbance through noise, vibration, lighting and increased human presence on site. Habitat degradation could potentially occur through pollution of habitats and there is also a risk of machinery and traffic killing or injuring otters if they are present during construction activities.
- 4.7.52 As outlined by Preliminary CoCP measure B13, in the first instance, works would be located to avoid the loss of any otter holts or resting places. If it is not possible to avoid impacts on otter holts, a licence from Natural England would be sought to permit derogation from legislation (as outlined in Preliminary CoCP measure B01).
- 4.7.53 Additional relevant measures within the Preliminary CoCP which would reduce potential impacts include pollution control measures (GG15, GG16, GG17 and W01 to W11), implementation of Management Plans (GG06), establishment of protective areas (GG09), lighting restrictions (LV04) and closing of excavations overnight to avoid entrapment (B03). Preliminary CoCP measure B12 requires a method statement to be in place to ensure works within watercourse crossings include suitable measures to allow the passage of otters.
- 4.7.54 Survey work will continue in the remainder of 2025 and spring 2026, to confirm the status of otter. Findings will be used to inform the assessment of impacts and effects, and details of any appropriate mitigation and enhancement, which will be developed fully and presented within the ES.
- 4.7.55 On a precautionary basis, significant effects on otter cannot be excluded at this stage of the assessment.

## Fish

- 4.7.56 Notable fish species have been recorded within the Section 5 Study Area.
- 4.7.57 There is a risk that habitats supporting protected and notable fish species will potentially be impacted during construction and maintenance by transmission line infrastructure, supporting structures and associated haul road and maintenance routes. Short-term impact on habitat connectivity, fragmentation, degradation and disturbance cannot be discounted at this stage, as well as the risk of incidental mortality of protected fish species during construction works.
- 4.7.58 As outlined in Preliminary CoCP measure B10, where any in channel watercourse works are required, works will be completed outside of fish spawning season (March 16th-June 16th inclusive) and fish migratory seasons (species specific, dependant on the waterbody). Where impacts upon notable fish species cannot be avoided, appropriate permits may be required, such as an FR2 licence from the Environment Agency (B11).
- 4.7.59 Additional relevant management measures set out in the Preliminary CoCP to reduce potential impacts include pollution control measures (GG15, GG16, GG17 and W01 to W11), implementation of Management Plans (GG06), establishment of protective areas (GG09), lighting restrictions (LV04). In addition, as outlined in B12, a method statement will be required to ensure works within watercourse crossings include suitable measures to allow the passage of fish.
- 4.7.60 No survey work for fish will be undertaken in 2025 due to access restrictions on the River Welland. Environment Agency (EA) data will be used to confirm the status of species present and inform the assessment of impacts and any appropriate mitigation and enhancement, which will be developed fully and presented within the ES.
- 4.7.61 A precautionary approach has therefore been taken and significant effects on fish cannot be excluded at this stage of the assessment.

## Aquatic Macroinvertebrates

- 4.7.62 No notable aquatic macroinvertebrate species have recorded within the Section 5 Study Area.
- 4.7.63 There is a risk that habitats suitable for protected and notable aquatic macroinvertebrate species are impacted by proposed construction works e.g. habitat loss, fragmentation and disturbance and a risk of incidental mortality of aquatic macroinvertebrates.
- 4.7.64 Relevant management measures set out in the Preliminary CoCP to reduce potential impacts include pollution control measures (GG15, GG16, GG17 and W1 to W11), implementation of Management Plans (GG06), establishment of protective areas (GG09) and lighting restrictions (LV04).
- 4.7.65 Survey work is ongoing in 2025 to confirm the status of this taxon and inform assessment of construction related effects and design of appropriate mitigation plans if required. Survey site selection has been based on crossing point locations where culverts, bridges and/or outfalls have the potential to influence macroinvertebrate populations. Surveys will inform the assessment of impacts and any appropriate mitigation and enhancement, which will be developed fully and presented within the ES.



- 4.7.66 A precautionary approach has been taken and significant effects on aquatic macroinvertebrates cannot be excluded at this stage of the assessment.

#### Aquatic Macrophytes

- 4.7.67 There are no records of notable and/or protected aquatic macrophyte species within the Section 5 Study Area.
- 4.7.68 There is a risk of construction works impacting watercourses and associated aquatic macrophytes causing incidental mortality of protected species. Furthermore, there may be suitable habitats within and/or adjacent to the draft Order Limits that could be impacted by proposed works (e.g., through habitat loss, disturbance and fragmentation).
- 4.7.69 Relevant management measures set out in the Preliminary CoCP to reduce potential impacts include pollution control measures (GG15, GG16, GG17 and W1 to W11), implementation of Management Plans (GG06) and establishment of protective areas (GG09).
- 4.7.70 Survey work is ongoing in 2025 to confirm the status of aquatic macrophytes and inform the assessment of impacts and any appropriate mitigation and enhancement, which will be developed fully and presented within the ES.
- 4.7.71 On a precautionary basis, significant effects on aquatic macrophytes cannot be excluded at this stage of the assessment.

#### Water Vole

- 4.7.72 Initial surveys indicate that water vole are present within at least two watercourses within the Section 5 Study Area.
- 4.7.73 Where suitable water vole habitat exists, there is a risk of construction works impacting watercourses and associated riparian habitat causing incidental mortality of protected species. Furthermore, there may be suitable habitats within and/or adjacent to the draft Order Limits that could be impacted by proposed works (e.g. through habitat loss, disturbance and fragmentation).
- 4.7.74 If impacts to water vole burrows cannot be avoided, a licence from Natural England will be sought to permit derogation (as outlined in Preliminary CoCP measure B01).
- 4.7.75 Additional relevant measures within the Preliminary CoCP which would reduce potential impacts include pollution control measures (GG15, GG16, GG17), implementation of Management Plans (GG06), establishment of protective areas (GG09) and lighting restrictions (LV04). Preliminary CoCP measure B12 requires a method statement to be in place to ensure works within watercourse crossings include suitable measures to allow the passage of water vole.
- 4.7.76 Survey work will continue in 2025/spring 2026 to confirm the status of water vole and will be used to inform the assessment of impacts and effects, and details of any appropriate mitigation and enhancement, which will be developed fully and presented within the ES.
- 4.7.77 On a precautionary basis, significant effects on water vole cannot be excluded at this stage of the assessment.

## Operation and Maintenance

### Designated Sites

- 4.7.78 The Wash SPA, Ramsar site and SSSI and Nene Washes SPA and Ramsar site are designated for their bird interest. There is potential for collision mortality to occur during the operational phase of the Project. This will be assessed once baseline surveys are complete and the results presented within the ES and the Report to Inform HRA.
- 4.7.79 Therefore, on a precautionary basis, significant effects upon these designated sites, associated with collision risk and subsequent killing/injury of bird species which are qualifying features, cannot be excluded at this stage.
- 4.7.80 European designated sites within the Section 5 Study Area can be sensitive to changes in flow regimes, including the volume of water supplied, water depth and water flow rates. In SACs, the potential impact of altered flow regimes can directly affect the qualifying habitats and hydrological changes may impact SAC/SPA species indirectly. The potential for likely significant effects (LSE) upon these sites will be assessed within the Report to Inform HRA, and significant effects cannot be excluded at this stage in the assessment.

### Protected and Notable Species

#### Birds: Breeding and Wintering

- 4.7.81 As noted above in relation to designated sites, the collision risk with the overhead lines within the Section 5 Study Area will need to be fully assessed once further winter and breeding bird data have been collected.
- 4.7.82 Therefore, on a precautionary basis, significant effects upon breeding and wintering birds associated with collision risk cannot be excluded at this stage of the assessment.

### Likely Non-Significant Effects

- 4.7.83 For completeness, **Table 4.5** summarises the findings of the preliminary assessment with respect to those impacts that are not predicted to result in significant Ecology and Biodiversity effects.

Table 4.5 Preliminary summary of non-significant Ecology and Biodiversity effects - Section 5

| Receptor                                                                                                                                                                                                                                                                                                                                                                                                                | Impact                                                                                                                       | Receptor Importance | Duration               | Embedded Mitigation / Rationale                                                                                                                                                                                              | Likely Significance of Effect |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|---------------------|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| <b>Construction</b>                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                              |                     |                        |                                                                                                                                                                                                                              |                               |
| Surfleet Lows SSSI and Vernatts LNR                                                                                                                                                                                                                                                                                                                                                                                     | Habitat loss                                                                                                                 | National            | Permanent or Temporary | Due to the distance of these sites from the draft Order Limits there will be no habitat loss within these nationally designated sites.                                                                                       | Not significant               |
|                                                                                                                                                                                                                                                                                                                                                                                                                         | Habitat degradation as a result of contamination during construction, changes in air quality, dust, changes in water quality | National            | Temporary              | The likelihood of contamination is considered to be minimal assuming appropriate management (such as Preliminary CoCP pollution prevention measures GG15, GG16, GG17).                                                       | Not significant               |
| A16 East Verge North of the River Glen LWS, A16 East Verge South of the River Glen LWS, Blue Gowt Drain, North LWS, Blue Gowt Drain LWS, Coronation Channel LWS, West Marsh Road LWS, Risegate Eau LWS, River Welland in Spalding LWS, Moulton Park and River LWS, Moulton River LWS, South Bank Fosdyke LWS, Spalding Cemetery LWS, Surfleet Seas End Saltmarsh LWS, River Glen Corridor LWS, Vernatt's Nature Reserve | No Impact                                                                                                                    | County              | Temporary or Permanent | No mitigation required due to the distances from the draft Order Limits, and also the lack of ecological or hydrological connectivity, there is not considered to be a pathway to effects. Therefore no mitigation required. | Not significant               |

| Receptor                  | Impact                                                            | Receptor Importance | Duration               | Embedded Mitigation / Rationale                                                                                                                                                                                                                                                                                                                                             | Likely Significance of Effect |
|---------------------------|-------------------------------------------------------------------|---------------------|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| Terrestrial invertebrates | Habitat loss, habitat fragmentation, incidental harm or mortality | Local               | Permanent or Temporary | <p>The majority of habitat will be agricultural land which is of low value to invertebrates. The following control measures detailed within the Preliminary CoCP would prevent harm to terrestrial invertebrates during construction:</p> <p>B08, GG06 and GG09.</p> <p>Habitats impacted temporarily during construction would be reinstated post construction (GG08).</p> | Not significant               |
| Reptiles                  | Habitat loss, habitat fragmentation, incidental harm or mortality | Local               | Permanent or Temporary | <p>The majority of habitat will be agricultural land which is of low value to reptiles. The following control measures detailed within the Preliminary CoCP would prevent harm to reptiles during construction: B05, B08, B09, GG06.</p> <p>Habitats impacted temporarily during construction would be reinstated post construction (GG08).</p>                             | Not significant               |

| Receptor                                   | Impact                                                                                                                                                                                                         | Receptor Importance | Duration               | Embedded Mitigation / Rationale                                                                                                                                                                                                                              | Likely Significance of Effect |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| Badgers                                    | Habitat loss, habitat fragmentation, death or injury and disturbance (e.g. through noise and vibration, temporary site lighting, human presence and potentially an increased risk of vehicle-animal collision) | Local               | Permanent or Temporary | The following control measures detailed within the Preliminary CoCP would prevent harm to badgers during construction: B01, B03, B13, GG06, GG09, B08, LV04. Habitats impacted temporarily during construction would be reinstated post construction (GG08). | Not significant               |
| Hedgehog, brown hare, common toad, polecat | Habitat loss, incidental harm or mortality                                                                                                                                                                     | Local               | Permanent or Temporary | The following control measures detailed within the Preliminary CoCP would prevent harm to hedgehog and brown hare during construction: GG06, B01, B03. Habitats impacted temporarily during construction would be reinstated post construction (GG08).       | Not significant               |
| Invasive Non-Native Species (INNS)         | Spread of INNS during maintenance activities                                                                                                                                                                   | N/A                 | Permanent              | Preliminary CoCP measure B04 would ensure that the construction works do not result on the spreading or mishandling of any invasive non-native species.                                                                                                      | Not significant               |

## Operation / Maintenance

| Receptor                                                                                                                                                                                                                                                                                                                                                         | Impact                                 | Receptor Importance | Duration               | Embedded Mitigation / Rationale                                                                                                                                                                                                                                                                                                | Likely Significance of Effect |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|---------------------|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| Vernatts LNR                                                                                                                                                                                                                                                                                                                                                     | No Impact                              | National            | Permanent or Temporary | No mitigation required due to the distances from the Refined Siting Zone, and also the lack of ecological or hydrological pathways to effect.                                                                                                                                                                                  | Not significant               |
| Pinchbeck Marsh LWS, Surfleet Bank LWS, Vernatts Drain LWS                                                                                                                                                                                                                                                                                                       | Contamination during maintenance works | County              | Temporary              | During the operation and maintenance of the Project, National Grid operatives would be required to adhere with National Grid best practice requirements during the completion of routine maintenance activities, such as the management of vegetation within and adjacent to assets (e.g. substations, pylons, access routes). | Not significant               |
| A16 East Verge North of the River Glen LWS, A16 East Verge South of the River Glen LWS, Blue Gowt Drain, North LWS, Blue Gowt Drain LWS, Coronation Channel LWS, West Marsh Road LWS, Risegate Eau LWS, River Welland in Spalding LWS, Moulton Park and River LWS, Moulton River LWS, Spalding Cemetery LWS, South Bank Fosdyke LWS, Surfleet Seas End Saltmarsh | No impact                              | County              | Permanent or Temporary | No mitigation required                                                                                                                                                                                                                                                                                                         | Not significant               |



| Receptor                                                                               | Impact                                 | Receptor Importance | Duration  | Embedded Mitigation / Rationale                                                                                                                                                                                                                                                                                                                                                                                             | Likely Significance of Effect |
|----------------------------------------------------------------------------------------|----------------------------------------|---------------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| LWS, River Glen Corridor LWS, Vernatt's Nature Reserve LWS                             |                                        |                     |           |                                                                                                                                                                                                                                                                                                                                                                                                                             |                               |
| Coastal and Floodplain Grazing Marsh HPI, Woodland, River Welland                      | Contamination during maintenance works | County              | Temporary | The likelihood of contamination is considered to be minimal assuming appropriate management. During the operation and maintenance of the Project, National Grid operatives would be required to adhere with National Grid best practice requirements during the completion of routine maintenance activities, such as the management of vegetation within and adjacent to assets (e.g. substations, pylons, access routes). | Not significant               |
| Arable field margins, hedgerows, patches of low diversity scrub, ditches/drains, ponds | Contamination during maintenance works | Local               | Temporary | The likelihood of contamination is considered to be minimal assuming appropriate management. During the operation and maintenance of the Project, National Grid operatives would be required to adhere with National Grid best practice requirements during the completion of routine maintenance activities, such                                                                                                          | Not significant               |

| Receptor                  | Impact                                             | Receptor Importance                  | Duration  | Embedded Mitigation / Rationale                                                                                                                                                                                                                                                                                                                                                        | Likely Significance of Effect |
|---------------------------|----------------------------------------------------|--------------------------------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
|                           |                                                    |                                      |           | as the management of vegetation within and adjacent to assets (e.g. substations, pylons, access routes).                                                                                                                                                                                                                                                                               |                               |
| Terrestrial invertebrates | Habitat loss or fragmentation                      | TBC following surveys (if necessary) | Permanent | National Grid or their appointed Contractor would be required to appoint an ecologist during any maintenance or refurbishment works to ensure that ecological constraints present at the time would be identified and mitigated accordingly.                                                                                                                                           | Not significant               |
|                           | Contamination of habitats during maintenance works | TBC following surveys (if necessary) | Temporary | The likelihood of contamination is considered to be minimal assuming appropriate management. During the operation and maintenance of the Project, National Grid operatives would be required to adhere with National Grid best practice requirements during the completion of routine maintenance activities, such as the management of vegetation within and adjacent to assets (e.g. | Not significant               |

| Receptor           | Impact                                             | Receptor Importance | Duration  | Embedded Mitigation / Rationale                                                                                                                                                                                                                                                                                                                                                                                             | Likely Significance of Effect |
|--------------------|----------------------------------------------------|---------------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| Great crested newt | Habitat loss, killing or injury                    | County              | Permanent | substations, pylons, access routes).<br>National Grid or their appointed Contractor would be required to appoint an ecologist during any maintenance or refurbishment works to ensure that ecological constraints present at the time would be identified and mitigated accordingly.                                                                                                                                        | Not significant               |
|                    | Contamination of habitats during maintenance works | County              | Temporary | The likelihood of contamination is considered to be minimal assuming appropriate management. During the operation and maintenance of the Project, National Grid operatives would be required to adhere with National Grid best practice requirements during the completion of routine maintenance activities, such as the management of vegetation within and adjacent to assets (e.g. substations, pylons, access routes). | Not significant               |

| Receptor        | Impact                                                            | Receptor Importance                                               | Duration  | Embedded Mitigation / Rationale                                                                                                                                                                                                                                | Likely Significance of Effect |
|-----------------|-------------------------------------------------------------------|-------------------------------------------------------------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| Reptiles        | Killing or injury during maintenance                              | Local                                                             | Permanent | National Grid or their appointed Contractor would be required to appoint an ecologist during any maintenance or refurbishment works to ensure that ecological constraints present at the time would be identified and potential impacts mitigated accordingly. | Not significant               |
| Wintering birds | Disturbance (e.g. noise, vibration) during maintenance activities | TBC following baseline surveys – species recorded to date - Local | Temporary | The nature of maintenance works (involving inspections and maintenance of overhead line infrastructure) are anticipated to be small in scale and of an intermittent nature and therefore broadly comparable to current agricultural operations or less.        | Not significant               |
| Breeding birds  | Loss of nests                                                     | TBC following baseline surveys – species recorded to date - Local | Permanent | National Grid or their appointed Contractor would be required to appoint an ecologist during any maintenance or refurbishment works to ensure that ecological constraints present at the time would be identified and mitigated accordingly.                   | Not significant               |

| Receptor | Impact                                                            | Receptor Importance                                               | Duration  | Embedded Mitigation / Rationale                                                                                                                                                                                                                                | Likely Significance of Effect |
|----------|-------------------------------------------------------------------|-------------------------------------------------------------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
|          | Disturbance (e.g. noise, vibration) during maintenance activities | TBC following baseline surveys – species recorded to date - Local | Temporary | The nature of maintenance works are anticipated to be small in scale and of an intermittent nature and therefore broadly comparable to current agricultural operations or less                                                                                 | Not significant               |
| Badger   | Loss/damage of setts, killing or injury                           | County                                                            | Permanent | National Grid or their appointed Contractor would be required to appoint an ecologist during any maintenance or refurbishment works to ensure that ecological constraints present at the time would be identified and potential impacts mitigated accordingly. | Not significant               |
|          | Disturbance (e.g. noise, vibration) during maintenance works      | County                                                            | Temporary | The nature of maintenance works (involving inspections and maintenance of overhead line infrastructure) are anticipated to be small in scale and of an intermittent nature and therefore broadly comparable to current agricultural operations or less.        | Not significant               |

| Receptor | Impact                                                                 | Receptor Importance            | Duration  | Embedded Mitigation / Rationale                                                                                                                                                                                                                                | Likely Significance of Effect |
|----------|------------------------------------------------------------------------|--------------------------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| Bats     | Habitat loss (including loss of roosts if tree felling is required)    | TBC following baseline surveys | Permanent | National Grid or their appointed Contractor would be required to appoint an ecologist during any maintenance or refurbishment works to ensure that ecological constraints present at the time would be identified and potential impacts mitigated accordingly. | Not significant               |
|          | Disturbance of roosts (e.g. noise, vibration) during maintenance works | TBC following baseline surveys | Temporary | The nature of maintenance works are anticipated to be small in scale and of an intermittent nature and therefore broadly comparable to current agricultural operations or less.                                                                                | Not significant               |
| Otter    | Loss/damage of holts, killing or injury                                | County                         | Permanent | National Grid or their appointed Contractor would be required to appoint an ecologist during any maintenance or refurbishment works to ensure that ecological constraints present at the time would be identified and potential impacts mitigated accordingly. | Not significant               |



| Receptor | Impact                                                       | Receptor Importance | Duration  | Embedded Mitigation / Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Likely Significance of Effect |
|----------|--------------------------------------------------------------|---------------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
|          | Disturbance (e.g. noise, vibration) during maintenance works | County              | Temporary | The nature of maintenance works are anticipated to be small in scale and of an intermittent nature and therefore broadly comparable to current agricultural operations or less.                                                                                                                                                                                                                                                                                                                                                                                                                                 | Not significant               |
|          | Contamination of habitats during maintenance works           | County              | Temporary | <p>The likelihood of contamination is considered to be minimal assuming appropriate management. During the operation and maintenance of the Project, National Grid operatives would be required to adhere with National Grid best practice requirements during the completion of routine maintenance activities, such as the management of vegetation within and adjacent to assets (e.g. substations, pylons, access routes).</p> <p>National Grid would consult with the relevant regulatory body where works are required in, around, or that may impact watercourses, or there is a potential impact on</p> | Not significant               |

| Receptor | Impact                                                       | Receptor Importance | Duration  | Embedded Mitigation / Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Likely Significance of Effect |
|----------|--------------------------------------------------------------|---------------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
|          |                                                              |                     |           | local flora and fauna of works near controlled waters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                               |
| Fish     | Disturbance (e.g. noise, vibration) during maintenance works | County              | Temporary | The nature of maintenance works are anticipated to be small in scale and of an intermittent nature and therefore broadly comparable to current agricultural operations or less.                                                                                                                                                                                                                                                                                                                                                                                                  | Not significant               |
|          | Contamination of habitats during maintenance works           | County              | Temporary | <p>The likelihood of contamination is considered to be minimal assuming appropriate management. During the operation and maintenance of the Project, National Grid operatives would be required to adhere with National Grid best practice requirements during the completion of routine maintenance activities, such as the management of vegetation within and adjacent to assets (e.g. substations, pylons, access routes).</p> <p>National Grid would consult with the relevant regulatory body where works are required in, around, or that may impact watercourses, or</p> | Not significant               |

| Receptor                   | Impact                                                       | Receptor Importance            | Duration  | Embedded Mitigation / Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Likely Significance of Effect |
|----------------------------|--------------------------------------------------------------|--------------------------------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
|                            |                                                              |                                |           | there is a potential impact on local flora and fauna of works near controlled waters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                               |
| Aquatic macroinvertebrates | Disturbance (e.g. noise, vibration) during maintenance works | TBC following baseline surveys | Temporary | The nature of maintenance works are anticipated to be small in scale and of an intermittent nature and therefore broadly comparable to current agricultural operations or less.                                                                                                                                                                                                                                                                                                                                                                      | Not significant               |
|                            | Contamination of habitats during maintenance works           | TBC following baseline surveys | Temporary | <p>The likelihood of contamination is considered to be minimal assuming appropriate management. During the operation and maintenance of the Project, National Grid operatives would be required to adhere with National Grid best practice requirements during the completion of routine maintenance activities, such as the management of vegetation within and adjacent to assets (e.g. substations, pylons, access routes).</p> <p>National Grid would consult with the relevant regulatory body where works are required in, around, or that</p> | Not significant               |

| Receptor            | Impact                                             | Receptor Importance            | Duration  | Embedded Mitigation / Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Likely Significance of Effect |
|---------------------|----------------------------------------------------|--------------------------------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
|                     |                                                    |                                |           | may impact watercourses, or there is a potential impact on local flora and fauna of works near controlled waters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                               |
| Aquatic macrophytes | Contamination of habitats during maintenance works | TBC following baseline surveys | Temporary | <p>The likelihood of contamination is considered to be minimal assuming appropriate management. During the operation and maintenance of the Project, National Grid operatives would be required to adhere with National Grid best practice requirements during the completion of routine maintenance activities, such as the management of vegetation within and adjacent to assets (e.g. substations, pylons, access routes).</p> <p>National Grid would consult with the relevant regulatory body where works are required in, around, or that may impact watercourses, or there is a potential impact on local flora and fauna of works near controlled waters.</p> | Not significant               |

| Receptor   | Impact                                                       | Receptor Importance | Duration               | Embedded Mitigation / Rationale                                                                                                                                                                                                                                                                                                         | Likely Significance of Effect |
|------------|--------------------------------------------------------------|---------------------|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| Water vole | Habitat Loss, killing or injury                              | County              | Permanent or temporary | National Grid or their appointed Contractor would be required to appoint an ecologist during any maintenance or refurbishment works to ensure that ecological constraints present at the time would be identified and potential impacts mitigated accordingly.                                                                          | Not significant               |
|            | Disturbance (e.g. noise, vibration) during maintenance works | County              | Temporary              | The nature of maintenance works are anticipated to be small in scale and of an intermittent nature and therefore broadly comparable to current agricultural operations or less.                                                                                                                                                         | Not significant               |
|            | Contamination of habitats during maintenance works           | County              | Temporary              | The likelihood of contamination is considered to be minimal assuming appropriate management. During the operation and maintenance of the Project, National Grid operatives would be required to adhere with National Grid best practice requirements during the completion of routine maintenance activities, such as the management of | Not significant               |

| Receptor                                  | Impact                                                       | Receptor Importance | Duration  | Embedded Mitigation / Rationale                                                                                                                                                                                                                                                                                                | Likely Significance of Effect |
|-------------------------------------------|--------------------------------------------------------------|---------------------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
|                                           |                                                              |                     |           | <p>vegetation within and adjacent to assets (e.g. substations, pylons, access routes).</p> <p>National Grid would consult with the relevant regulatory body where works are required in, around, or that may impact watercourses, or there is a potential impact on local flora and fauna of works near controlled waters.</p> |                               |
| Brown hare, hedgehog common toad, polecat | Disturbance (e.g. noise, vibration) during maintenance works | Local               | Temporary | The nature of maintenance works are anticipated to be small in scale and of an intermittent nature and therefore broadly comparable to current agricultural operations or less.                                                                                                                                                | Not significant               |
| Invasive Non-Native Species (INNS)        | Spread of INNS during maintenance activities                 | N/A                 | Permanent | National Grid would identify and notify the presence of invasive species within the operational areas of the site. National Grid or their appointed Contractor would be required to appoint an ecologist during any maintenance or refurbishment works to ensure that ecological constraints present at the                    | Not significant               |

| Receptor | Impact | Receptor Importance | Duration | Embedded Mitigation / Rationale                     | Likely Significance of Effect |
|----------|--------|---------------------|----------|-----------------------------------------------------|-------------------------------|
|          |        |                     |          | time would be identified and mitigated accordingly. |                               |



## 4.8 Monitoring

- 4.8.1 Monitoring requirements, that may be required for Section 5 of the Project following the implementation of mitigation to ensure mitigation is successful and meets the requirements or permits/licences, will be described in detail and presented in the ES once the on-going surveys are complete (and a detailed data set obtained), and mitigation and enhancement measures have been developed.

# References

- Ref 1 National Grid Electricity Transmission (2025). Grimsby to Walpole Preliminary Environmental Information Report [online]. Available at: <https://www.nationalgrid.com/the-great-grid-upgrade/grimsby-to-walpole/document-library#4257225834-3023854277> [Accessed 12 September 2025].
- Ref 2 South East Lincolnshire Council (2019). South East Lincolnshire Local Plan 2011-2036 [online]. Available at: [https://www.bing.com/search?pglt=2083&q=south+east+lincolnshire+local+plan+2011-2036&cvid=805a0c5496f049a099916a82c7a78152&gs\\_lcrp=EgRIZGdlKgYIABBFgDkyBggAEEUYOTIGCAEQABhAMgYIAhAAGEAyBggDEAAYQDIGCAQQABhAMgYIBRAAGEAyBggGEAAYQDIGCAcQABhAMgYICBAAGEAyCAgJEOkHGPxV0gEIODkzOWowajGoAgCwAgA&FORM=ANNAB1&PC=U531](https://www.bing.com/search?pglt=2083&q=south+east+lincolnshire+local+plan+2011-2036&cvid=805a0c5496f049a099916a82c7a78152&gs_lcrp=EgRIZGdlKgYIABBFgDkyBggAEEUYOTIGCAEQABhAMgYIAhAAGEAyBggDEAAYQDIGCAQQABhAMgYIBRAAGEAyBggGEAAYQDIGCAcQABhAMgYICBAAGEAyCAgJEOkHGPxV0gEIODkzOWowajGoAgCwAgA&FORM=ANNAB1&PC=U531).
- Ref 3 The Planning Inspectorate (2024). Scoping Opinion: Proposed Grimsby to Walpole Project [online]. Available at: <https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN020036-000109-Scoping%20Opinion%202017%20EIA%20Regs.pdf> [Accessed 18 October 2024].
- Ref 4 The Planning Inspectorate (2024). Scoping Report: Proposed Grimsby to Walpole Project [online]. Available at: <https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN020036-000004-EN020036%20-%20Scoping%20Report%20Volume%201%20Main%20Report.pdf>
- Ref 5 National Grid Electricity Transmission (2025). Grimsby to Walpole Stage 1 Consultation Feedback Report [online]. Available at: <https://www.nationalgrid.com/document/560496/download> [Accessed 12 September 2025].
- Ref 6 Chartered Institute of Ecology and Environmental Management (CIEEM) (2018, updated 2019). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal. Second Edition v1.1. CIEEM, Winchester.
- Ref 7 Multi-Agency Geographic Information for the Countryside (MAGIC) website [online]. Available at: <https://magic.defra.gov.uk/> [Accessed 30 April 2025].
- Ref 8 H.M. Government (2006). Natural Environment and Rural Communities Act 2006. HMSO, London [online]. Available at: <https://www.legislation.gov.uk/ukpga/2006/16/contents> [Accessed 3 June 2024].
- Ref 9 Natural England Designated Sites View [online]. Available at: <https://designatedsites.naturalengland.org.uk/> [Accessed 30 April 2025].
- Ref 10 Joint Nature Conservation Committee (JNCC) website [online]. Available at: <https://jncc.gov.uk/> [Accessed 30 April 2025].
- Ref 11 Environment Agency Ecology & Fish Data Explorer [online]. Available at: <https://environment.data.gov.uk/ecology/explorer/> [Accessed 30 April 2025].
- Ref 12 Environment Agency Catchment Data Explorer [online]. Available at: <https://environment.data.gov.uk/catchment-planning/> [Accessed 30 April 2025].

- Ref 13 UKHab (2018.2022). The UK Habitat Classification System [online]. Available at: <https://ukhab.org/> [Accessed 30 April 2025].
- Ref 14 Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. (2021). The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *British Birds* 114: 723-747
- Ref 15 IUCN. (2022). The IUCN Red List of Threatened Species. Version 2022-2 [online]. Available at: <https://www.iucnredlist.org> [Accessed 3 June 2024].
- Ref 16 National Grid. The Holford Rules [online] Available at: <https://www.nationalgrid.com/sites/default/files/documents/13795-The%20Holford%20Rules.pdf> [Accessed 29 April 2025].
- Ref 17 National Grid. NGC Substations and the Environment: Guidelines on Siting and Design [online] Available at: <https://www.nationalgrid.com/sites/default/files/documents/13796-The%20Horlock%20Rules.pdf> [Accessed 29 April 2025].
- Ref 18 National Grid Electricity Transmission (2024). Grimsby to Walpole Corridor Preliminary Routeing and Siting Study [online]. Available at: <https://www.nationalgrid.com/document/352621/download> [Accessed 3 March 2025].
- Ref 19 Nationally Significant Infrastructure Projects: Advice on Habitats Regulations Assessments (September, 2024) [online]. Available at: <https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-habitats-regulations-assessments> [Accessed 15 October 2024].
- Ref 20 H.M. Government (2018). The Conservation of Habitats and Species Regulations 2017 (as amended). HMSO, London [online]. Available at: <https://www.legislation.gov.uk/uksi/2017/1012/contents/made> [Accessed 3 October 2024].
- Ref 21 Natural England (2019) Impact Risk Zones Guidance Summary: Sites of Special Scientific Interest Notified for Birds. Version 1.1

# 5. Historic Environment

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# 5. Historic Environment

## 5.1 Introduction

- 5.1.1 This chapter presents the Supplementary Preliminary Environmental Information (PEI) in relation to the Historic Environment assessment for the New Weston Marsh Substations A and B Section (Section 5) of the Grimsby to Walpole Project (the Project).
- 5.1.2 The preliminary assessment for Section 5 reported within this chapter presents an update to the previously published June 2025 PEI Report (Ref 1), which formed part of the Stage 2 Consultation completed between 11 June and 06 August 2025. This update reflects the fact that since the launch of the Stage 2 consultation, further design development has been completed to confirm the requirement for two substations within Section 5, the preferred location of the new Weston Marsh Substation A and new Weston Marsh Substation B and the associated overhead line and underground cable connections. The draft Order Limits for Section 5 have also now been defined, whereas the June 2025 PEI Report was based upon a wider 'Refined Weston Marsh Substation Siting Zone' which covered a greater total area than the Section 5 draft Order Limits.
- 5.1.3 Updates to the assessment are primarily limited to the Preliminary Assessment of Effects (section 5.7).
- 5.1.4 Specifically, the chapter includes the following sections:
- i. An introduction to the topic (section 5.1);
  - ii. Identification of key local and regional policy relevant to the assessment (section 5.2). A full overview of the legislation and national, regional onshore and marine planning policy context that applies to the Project is presented within **Supplementary PEI Report Volume 2 Part A Chapter 2 Legislative, Regulatory and Planning Policy Context** and supporting appendices;
  - iii. A summary of the assessment scoping process and subsequent scope of the Historic Environment assessment (section 5.3). Further detail is provided within **Supplementary PEI Report Volume 3 Part A Appendix 4A Planning Inspectorate Scoping Opinion Responses**;
  - iv. A high-level summary of the methodology of the Historic Environment assessment within Section 5 (section 5.4). A detailed description of the assessment methods and scope, applicable to the whole Project, is contained in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**;
  - v. A description of the environmental baseline within the Section 5 Study Area relevant to the Historic Environment assessment, updated since publication of the June 2025 PEI Report based upon the Section 5 draft Order Limits (section 5.5);

- vi. A description of mitigation measures included for the purposes of the Historic Environment assessment reported within the Supplementary PEI Report (section 5.6). Further information regarding design development can be found in **Supplementary PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered** and the **Supplementary Design Development Report for Section 5**;
- vii. The likely significant and non-significant Historic Environment effects arising during construction and operation of the Project within Section 5 (section 5.7), based upon the assessment completed to date; and
- viii. An outline of the proposed monitoring requirements in relation to Historic Environment (section 5.8).

5.1.5 Further supporting information is set out in **Table 5.1** below, including supporting figures and technical appendices.

Table 5.1 Supporting documentation

| Supporting Information                                                                                               | Description                                                                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Topic Specific Supporting Documentation</b>                                                                       |                                                                                                                                                                                                                                             |
| Supplementary PEI Report Volume 2 Part B Section 5 Figures                                                           | <b>Figure 5.1 Designated Heritage Assets</b><br><b>Figure 5.2 Non-designated Heritage Assets</b>                                                                                                                                            |
| Supplementary PEI Report Volume 3 Part B Section 5 Appendix 5A Known Heritage Assets                                 | A list of all identified heritage assets within the assessment Study Area. This will be updated and amended as required to inform the Environmental Statement (ES).                                                                         |
| Supplementary PEI Report Volume 3 Part B Section 5 Appendix 5B Preliminary Summary of Likely Non-Significant Effects | A table summarising the preliminary assessment of likely non-significant effects on heritage assets within the assessment Study Areas. The assessment of likely non-significant effects will be updated and amended as required for the ES. |
| <b>Project Specific Supporting Documentation</b>                                                                     |                                                                                                                                                                                                                                             |
| Supplementary PEI Report Volume 2 Part B Chapter 1 Overview of the Section and Description of the Project            | A summary of the works within Section 5, including the permanent infrastructure, temporary construction works, and operational activities.                                                                                                  |
| Supplementary PEI Report Volume 3 Part A Appendix 2A Key Legislation                                                 | A list of identified environmental legislation considered relevant to the Project, which will be updated and amended as required to inform the Environmental Statement (ES).                                                                |
| Supplementary PEI Report Volume 3 Part A Appendix 2B National and Regional Planning Policy                           | A list of national and regional policies generally applicable to the assessment principles which underpin the June 2025 PEI Report, Supplementary PEI Report and ES.                                                                        |
| Supplementary PEI Report Volume 3 Part A Appendix 2C Local Plan Policy                                               | An outline of the potentially relevant local planning policy allocations affecting Section 5 of the Project.                                                                                                                                |



| Supporting Information                                                                                              | Description                                                                                                                                                                                                                                             |
|---------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Supplementary PEI Report Volume 2<br/>Part A Chapter 3 Main Alternatives<br/>Considered</b>                      | A summary of the main alternatives considered during the design development process which are relevant to Section 5 of the Project, including the main reasons for selecting the chosen option.                                                         |
| <b>Supplementary PEI Report Volume 2<br/>Part A Chapter 4 Approach to<br/>Preliminary Environmental Information</b> | Sets out the Environmental Impact Assessment (EIA) approach and general methodology that has been used in developing the Supplementary PEI Report for Section 5 of the Project.                                                                         |
| <b>Supplementary PEI Report Volume 2<br/>Part A Chapter 5 Project Description</b>                                   | An overarching description of the Project and its key components, including updated design and construction information relating to Section 5.                                                                                                          |
| <b>Supplementary PEI Report Volume 3<br/>Part A Appendix 5A Preliminary Code<br/>of Construction Practice</b>       | Sets out control and management measures that will be undertaken during construction of the Project if granted consent. The final Code of Construction Practice (CoCP) will be submitted in support of the Development Consent Order (DCO) application. |

- 5.1.6 There are also interrelationships between the potential effects on the Historic Environment and other environmental topics. Therefore, please also refer to the following chapters within **Supplementary PEI Report Volume 2 Part B** and **Part C**:
- i. **Supplementary PEI Report Volume 2 Part B Chapter 2 Landscape** to assist in the identification and assessment of the impact of the Project within the historic landscape and potential impacts to individual historic landscape features and assets such as Registered Parks and Gardens.
  - ii. **Supplementary PEI Report Volume 2 Part B Chapter 3 Visual** to inform the understanding of the extent to which the Project is visible in the landscape which may result in visual changes to the settings of heritage assets and their values.
  - iii. **Supplementary PEI Report Volume 2 Part B Chapter 10 Noise and Vibration** to inform the understanding of the extent to which noise and vibration impacts arising from the Project may extend, which could result in changes to the settings of heritage assets and their values.
  - iv. **Supplementary PEI Report Volume 2 Part B Chapter 13 Summary** provides a concise, consolidated summary of the likely significant effects reported for all topics, based upon the preliminary assessment.
  - v. **Supplementary PEI Report Volume 2 Part C Route-wide Chapter 9 Cumulative Effects** reports those intra-project effects which could potentially act in combination to result in cumulative environmental effects. It also identifies a shortlist of other Committed Developments with which there may be potential for cumulative effects, and the relevant environmental topics for such effects (inter-project). The full cumulative effects assessment will be reported within the ES.

## 5.2 Legislation and Policy Framework

- 5.2.1 Legislation and national policy relevant to the Project and this chapter are described in **Supplementary PEI Report Volume 2 Part A Chapter 2 Legislative, Regulatory and Planning Policy** and supporting appendices, detail of which is set out in **Table 5.1**.

### Regional and Local Policy

- 5.2.2 Regional and local plans or policies relevant to this assessment are as follows.
- i. The South East Lincolnshire Local Plan 2011-2036 Adopted 8th March 2019 (Ref 2):
    - Policy 29: The Historic Environment - distinctive elements of the South East Lincolnshire historic environment will be conserved and, where appropriate, enhanced.

## 5.3 Scope of Assessment

- 5.3.1 The scope of the assessment has been informed by the Scoping Opinion (Ref 3) provided by the Planning Inspectorate in September 2024 on behalf of the Secretary of State, following the submission of the EIA Scoping Report (Ref 4). The scope has also been informed through consultation and engagement with relevant consultees. A summary of the Scoping Opinion together with a response against each point of relevance to the Historic Environment chapter is provided in **Supplementary PEI Report Volume 3 Part A Appendix 4A Planning Inspectorate Scoping Opinion Responses**. A summary of the stakeholder engagement undertaken to date is provided in **Supplementary PEI Report Volume 3 Part A Appendix 4D Summary of Stakeholder Engagement**.
- 5.3.2 Non-statutory consultation feedback was discussed within the Grimsby to Walpole Stage 1 Consultation Feedback Report (Ref 5). Stage 2 Consultation Feedback relevant to Section 5 is discussed within the **Grimsby to Walpole Section 5 Consultation Feedback Report**.
- 5.3.3 The scope of the construction assessment covers the following heritage assets:
- i. Designated heritage assets (scheduled monuments, listed buildings, conservation areas and registered parks and gardens, noting that no World Heritage Sites or registered battlefields are located within the Section 5 Study Area); and
  - ii. Non-designated heritage assets (e.g. buried archaeological remains, earthwork remains, non-designated historic buildings and structures, non-designated historic parks and gardens, tracks/routeways and artefact scatters).
- 5.3.4 The scope of the operation assessment covers the following heritage assets:
- i. Designated heritage assets (scheduled monuments, listed buildings, conservation areas and registered parks and gardens, noting that no World Heritage Sites or registered battlefields are located within the Section 5 Study Area); and

- ii. Non-designated heritage assets (e.g. earthwork remains, non-designated historic buildings and structures, non-designated historic parks and gardens and tracks/routeways).

## 5.4 Assessment Methodology

- 5.4.1 The assessment scope, methodology, relevant guidance, key assumptions and limitations for the Historic Environment assessment are set out in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**. It includes a description of how heritage value, magnitude of impact and significance of effects are all defined and assigned to the assessment. A summary of the key components are outlined below.
- 5.4.2 Designated and non-designated heritage assets identified from the baseline data as having the potential to be impacted by the Project have been selected for inclusion in the preliminary assessment. The preliminary assessment follows four key stages:
  - i. The assessment of a heritage asset's value (heritage significance) using the criteria set out in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope** and taking into account the asset's designated status, heritage interest (e.g. archaeological, architectural, artistic) as defined by paragraph 5.9.3 of EN-1 (Ref 6) with reference to the NPPF Annex 2 Glossary (Ref 7), consultation, regional variation and individual qualities;
  - ii. Identification of the magnitude of impacts arising from the construction of the New Weston Marsh Substations A and B and connecting overhead line and underground cables and operation of the Project. Impacts can affect the physical fabric of a heritage asset or affect its setting and can be temporary or permanent. The degree of impact is expressed in terms of a four-point scale set out in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope** and takes into account any Project design mitigation (embedded mitigation);
  - iii. The classification of the significance of the effects arising from the Project on each heritage asset. The significance of effect is determined using the matrix provided in **Supplementary PEI Report Volume 3 Part A Appendix 4A Environmental Impact Assessment Methodologies and Scope**. Effects can be neutral, adverse, or beneficial; and
  - iv. Finally, the application of additional mitigation measures identified at this preliminary stage, to reduce likely significant adverse effects on heritage assets is used to determine the residual effects arising from the Project.
- 5.4.3 The preliminary assessment reports on the significance of effect in accordance with EIA methodology. Major and moderate effects are considered to be significant, whilst minor and negligible effects are considered to be not significant. Professional judgement has been applied in reaching conclusions as to the significance of effects.

## Assessment Assumptions and Limitations

- 5.4.4 All general assumptions and limitations for the topic are listed within **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment**

**Methodologies and Scope.** There are no additional limitations and assumptions that have been identified which are specific to the assessment of Section 5.

- 5.4.5 These key parameters and assumptions will be reviewed based on the design presented in the DCO application and, where required, updated, or refined, for the ES. The ES will present the final key limitations and assumptions used within that assessment, particularly drawing attention to any areas that may have changed from those presented in this preliminary assessment.

## 5.5 Baseline Conditions

### Study Area

- 5.5.1 The preliminary assessment for the Historic Environment assessment of Section 5 utilises the following Study Areas, comprising the area directly affected by the Project and a buffer around the draft Order Limits, as detailed further in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**:

- i. 1 km from the draft Order Limits for non-designated heritage assets;
- ii. 3 km from the draft Order Limits for all designated heritage assets; and
- iii. 3-5 km from the draft Order Limits for designated heritage assets of high value (World Heritage Sites, scheduled monuments, grade I and II\* listed buildings and grade I and II\* registered parks and gardens) where setting is a key factor in their significance and where this setting extends over a large area.

- 5.5.2 In addition, designated heritage assets of high value located beyond the 5 km Study Area will be assessed where their setting has the potential to be impacted by the Project. The selection of designated heritage assets beyond the 5 km Study Area has been undertaken using professional judgement and in consideration of heritage assets highlighted by stakeholders.

### Data Collection

- 5.5.3 The following data has been used to inform the baseline conditions:
- i. The National Heritage List for England (NHLE), held by Historic England, for designated assets;
  - ii. Lincolnshire Historic Environment Records (HER) for non-designated heritage assets;
  - iii. Historic landscape characterisation (HLC) mapping undertaken by local planning authorities;
  - iv. Geological mapping held by the British Geological Survey (BGS); and
  - v. Various online sources including:
    - Historic Ordnance Survey (OS) maps held by the National Library of Scotland;
    - Historic England's Aerial Archaeology Mapping Explorer; and
    - local authority conservation area appraisal and management documents and their mapping.

## Existing Baseline

- 5.5.4 The following section outlines the Historic Environment baseline. The baseline section should be read in conjunction with the following supporting Figures and Appendices as found within **Supplementary PEI Report Volume 2** and **Volume 3** respectively:
- i. **Supplementary PEI Report Volume 2 Part B Section 5 Figure 5.1 Designated Heritage Assets;**
  - ii. **Supplementary PEI Report Volume 2 Part B Section 5 Figure 5.2 Non-designated Heritage Assets;** and
  - iii. **Supplementary PEI Report Volume 3 Appendix 5A Known Heritage Assets.**
- 5.5.5 Designated heritage assets are referenced with their National Heritage List for England (NHLE) reference number (e.g. NHLE 1010947).
- 5.5.6 Non-designated assets are referenced using the relevant HER unique identifier number (e.g. MLI240 for Lincolnshire)).
- 5.5.7 Non-designated heritage assets identified by the preliminary assessment that are not yet recorded on the county HERs (e.g. possible archaeological remains identified by geophysical survey), have been assigned a unique identifier using an AEC prefix (e.g. AEC500).

## Geology and Topography

- 5.5.8 Section 5 is located in National Character Area 46 - The Fens, which extends across southern Lincolnshire, Cambridgeshire and Norfolk. The Fens are characterised by low-lying, flat and expansive landscape, with wide views to the horizon (Ref 8).
- 5.5.9 Human interaction across the Fenlands has led to some changes to the topography; historically, the Fenlands would seasonally flood. Since the 17th century, however, systematic drainage of the area has occurred and subsequently, the peat has dried significantly and caused widespread subsidence. Due to the shrinkage of the peat deposits, roddons (alluvial palaeochannel deposits) are now much more prominent within the landscape forming a focus of past settlement activity.
- 5.5.10 Superficial deposits comprise clay and silt Tidal Flat deposits formed between 11.8 thousand years ago and the present are recorded across the entirety of Section 5 (Ref 9).
- 5.5.11 Tidal Flat Deposits are recorded by the BGS across the Fenlands as a mixture of tidal flat muds, peat and intertidal sands. The intertidal muds are characterised as blueish grey to greyish brown sandy clay which are associated with a low energy shallow marine and saltmarsh environment. The intertidal sands are generally comprised of quartz with uncommon feldspar and are associated with sandflats, tidal channel, estuarine and subtidal settings.
- 5.5.12 The bedrock geology underlying Section 5 is recorded as Jurassic mudstone of the Oxford Clay Formation, formed between 166.1 and 157.3 million years ago (Ref 9).

## Designated Heritage Assets

- 5.5.13 There are no World Heritage Sites, Registered Parks and Gardens or Registered Battlefields within the 3 km or 3-5 km Section 5 Study Areas.

- 5.5.14 Located within the 3 km Section 5 Study Area, there are 36 designated heritage assets, summarised in **Table 5.2**, with none located within the draft Order Limits. Three scheduled monuments are located within the 3 km Section 5 Study Area and comprise a moated monastic grange, a drainage pump and a church yard cross. Of the 32 listed buildings in this Study Area, one grade I and seven grade II listed buildings are located within Pinchbeck Conservation Area. Other settlements with concentrations of listed buildings include Surfleet, Moulton Seas End and Weston. The remaining listed buildings are scattered throughout the rural landscape, generally comprising isolated farmsteads.

**Table 5.2** Designated heritage assets within the 3 km Section 5 Study Area

| Designation               | Number of assets within Study Area | Number of assets within the draft Order Limits |
|---------------------------|------------------------------------|------------------------------------------------|
| Scheduled monument        | 3                                  | 0                                              |
| Conservation area         | 1                                  | 0                                              |
| Grade I listed building   | 4                                  | 0                                              |
| Grade II* listed building | 0                                  | 0                                              |
| Grade II listed building  | 28                                 | 0                                              |

- 5.5.15 No designated heritage assets of high value have been identified within the 3-5 km Section 5 Study Area.
- 5.5.16 No designated heritage assets of high value located beyond the 5 km Section 5 Study Area have been identified by the preliminary assessment as potentially being impacted by the Project. Potential impacts to designated heritage assets of high value located beyond the 5 km Section 5 Study Area will be considered further in the assessment presented in the ES.

### Non-designated Heritage Assets

- 5.5.17 A total of 59 non-designated heritage assets have been identified within the 1 km Section 5 Study Area, of which seven assets are located within, or overlap with, the draft Order Limits. A total of 17 non-designated extant historic buildings have been identified within the 1 km Section 5 Study Area. The Lincolnshire HER records a further nine historic buildings that have been demolished, one of which is within the draft Order Limits. A summary of the types of non-designated heritage assets identified is provided in and discussed, where appropriate, in the archaeological and historical background below.

**Table 5.3** Non-designated heritage assets within the 1 km Section 5 Study Area

| Asset Type | Number of assets within 1 km Section 5 Study Area | Number of assets within the draft Order Limits |
|------------|---------------------------------------------------|------------------------------------------------|
| Cropmarks  | 2                                                 | 0                                              |



| Asset Type                                      | Number of assets within 1 km Section 5 Study Area | Number of assets within the draft Order Limits |
|-------------------------------------------------|---------------------------------------------------|------------------------------------------------|
| Earthworks (including roddons and sea defences) | 1                                                 | 2                                              |
| Saltern Site                                    | 6                                                 | 0                                              |
| Settlement/Occupation features                  | 10                                                | 0                                              |
| Deserted medieval village                       | 0                                                 | 0                                              |
| Moated Site                                     | 1                                                 | 0                                              |
| Ridge and Furrow                                | 0                                                 | 0                                              |
| Parkland                                        | 0                                                 | 0                                              |
| Farmstead or buildings extant                   | 15                                                | 0                                              |
| Farmstead or buildings demolished               | 9                                                 | 1                                              |
| Military Remains                                | 1                                                 | 0                                              |
| Roads/trackways/railways/canals                 | 1                                                 | 1                                              |
| Woodland/Covert                                 | 0                                                 | 0                                              |
| Former Watercourses                             | 0                                                 | 1                                              |
| Ecclesiastical                                  | 1                                                 | 0                                              |
| Industrial                                      | 0                                                 | 0                                              |
| Educational                                     | 1                                                 | 0                                              |
| Public House                                    | 1                                                 | 0                                              |
| Find spot                                       | 3                                                 | 1                                              |
| Palaeoenvironmental Remains                     | 0                                                 | 1                                              |

- 5.5.18 It should be noted that find spots are locations where artefacts have generally been removed from their primary archaeological context and often represent residual material found in archaeological deposits of a chronologically later date. As such, their presence can be indicative of an area's past uses and can contribute to an understanding of the area's archaeological potential. They are not heritage assets as defined by the NPPF and, as the archaeological finds have been removed from their location, they would not be impacted by the Project, resulting in no effect to their value.

### Archaeological and Historic background

- 5.5.19 Prehistoric activity in the Fens is likely to be largely masked by thick deposits of alluvial and peat deposits. Whilst much of the northern areas of the Fenlands were dominated by marshlands, areas of southern Lincolnshire underwent a period of



marine transgressions and regressions which led to the deposition of thick silt deposits in this area of the Fens, known as the Upper Barroway Drove Beds (3000-2000 BP). This area of the Fens is known as the 'Silt Fens'.

- 5.5.20 An example of deeply deposited early prehistoric remains has been recorded at Cowbit, located approximately 7.2 km south west of the draft Order Limits. Archaeological investigations at Cowbit identified Mesolithic working platforms buried approximately 10 m below ground level, indicating that early prehistoric remains likely survive across the Silt Fens but are largely hidden by thick silt deposits. Evidence of Late Neolithic finds close to Pinchbeck, approximately 4 km west of the draft Order Limits, have also been recorded. These have been suggested to have been disturbed finds from a much deeper Neolithic flint working platform.
- 5.5.21 Much of the Bronze Age landscape within the Study Area has either been sealed by the alluvial deposits or destroyed by ancient watercourse scouring. The latter has removed Bronze Age remains and truncated deeper surviving deposits dating to the Mesolithic and Neolithic periods.
- 5.5.22 The Roman settlement of the Silt Fens began in the first century AD, with many small farmsteads and small settlements linked by a series of droveways, which allowed quicker and easier access across the marshlands. Many of these settlements were established on much higher raised areas of silt, known as roddons.
- 5.5.23 Between the 3<sup>rd</sup> and 4<sup>th</sup> centuries, marine inundations occurred across the landscape close to Pinchbeck and Surfleet, leading to a number of Late Roman settlements being deeply buried under alluvial deposits. Evidence of abandoned Roman settlements on the edge of the Silt Fens has been located and recorded close to Pinchbeck, approximately 2 km west of the draft Order Limits.
- 5.5.24 Due to the deep accumulation of alluvial and peat deposits and the further marine inundations between the 3<sup>rd</sup> and 4<sup>th</sup> centuries, no heritage assets dating to the prehistoric and Roman periods have been recorded within the draft Order Limits or the 1 km Section 5 Study Area.
- 5.5.25 Middle Saxon settlement sites have been recorded close to both Pinchbeck and at Gosberton. These settlements were built upon low mounds which are not naturally formed, rather they have been built up on accumulated settlement waste or 'dark earth'. Archaeological excavations at Gosberton indicated three phases of occupation, with settlement features such as sunken-floored buildings, rectangular structures, pits, and ditches.
- 5.5.26 A single early medieval occupation site, the settlement of Weston (MLI20331), has been identified approximately 620 m south east of the draft Order Limits, with late Saxon settlement activity (MLI92282 and MLI92283) identified just east and north of the current village. This settlement remained active into the medieval period, with the village of Weston expanding around the time of the construction of St Mary's Church in the 12<sup>th</sup> century (MLI92284 and MLI92285).
- 5.5.27 Due to the high salt content of the Fenland marshes, salt extraction began in the prehistoric period and continued throughout the Roman, early medieval and medieval periods. Saltern sites have been identified through the discovery of dense concentrations of briquetage often associated with dark soil marks that surround the salterns. Their location is often close to a roddon and they survive as low earthwork mounds.

- 5.5.28 A group of six medieval saltern sites have been recorded close to Pinchbeck, within the 1 km Section 5 Study Area on the western side of the River Welland all of which lie between 250 m and 700 m from the draft Order Limits (MLI89837, MLI23633, MLI89833, MLI89834, MLI89835 and MLI89836).
- 5.5.29 Throughout the medieval period, water management of the Fens was undertaken within the tidal areas and earthwork banks were constructed to protect low lying grazing and arable land from flooding. A sea bank earthwork begins to the east of Moulton Seas End (MLI98446) extending west from the settlement to the River Welland and crossing the centre of the draft Order Limits.
- 5.5.30 Much of the medieval economy was reliant on major monastic and religious centres, with two of the large and regionally important monasteries located at Ely and Peterborough, with a third important religious centre located at Lincoln. The monasteries held large tracts of land, which were farmed by monastic communities known as Granges, distinct from the secular manorial system. The Wykeham Chapel scheduled monument (NHLE 1019096) is located approximately 107 m north west of the draft Order Limits. It is a rare example of a moated monastic grange, retreat house and chapel of the Benedictine order. The monument comprises well surviving standing buildings, earthworks and buried archaeological remains. The standing remains of the Chapel of St Nicholas are designated a grade I listed building (NHLE 1064471) and are included in the scheduled monument designation. The adjoining graveyard lies at the centre of the moated grange and is part of the scheduling. The extant late 17th century Chapel Farmhouse is a grade II listed building (NHLE 1147513) and excluded from the scheduling.
- 5.5.31 Many of the moated manorial sites on the Silt Fens belonged to the Priory of Spalding, with several of the moated manor sites recorded close to the settlement of Pinchbeck, approximately 1.7 km west of the draft Order Limits. A single moated site (MLI20329) has been identified approximately 510 m east of the draft Order Limits.
- 5.5.32 The site of Wimberely Hall (MLI20330) has also been recorded within the 1 km Section 5 Study Area, approximately 150 m south east of the draft Order Limits. The hall was constructed in the late 16<sup>th</sup> century and was occupied by the Wimberley family. The hall was demolished in 1962, with a modern farm now located on the site of the hall.
- 5.5.33 Large portions of the Fenlands were reclaimed in the 17<sup>th</sup> century, under the Fenlands drainage scheme which was established shortly after the accession of James I in 1603, the work continuing over the next 300 years. The drainage scheme comprised large-scale dewatering and drainage through the excavation of new drainage ditches, sluices, the importing of new soil material and water management through new earthwork banks.
- 5.5.34 Following the reclamation and drainage of the Fenlands, the smaller field systems were amalgamated, with some of the larger fields sub-divided following the Parliamentary Enclosure Acts of the late 18<sup>th</sup> and 19<sup>th</sup> centuries. Evidence of this agricultural activity has been recorded at Weston, with a ditch containing post-medieval pottery recorded within the 1 km Section 5 Study Area (MLI86089).
- 5.5.35 Following the land reclamation of the Fenlands and the alteration of the agricultural landscape, farmsteads were established during the 18<sup>th</sup> and 19<sup>th</sup> centuries to serve the newly divided and enlarged fields. A number of surviving grade II listed post-medieval farmhouses are recorded within the 3 km Section 5 Study Area, including Seasend Hall (NHLE 1064468), The Farmhouse (At RH Scrimshaw and Sons)

(NHLE 1064503), Wraggmarsh House Farmhouse (NHLE 1147603), and Chapel Farmhouse (NHLE 1147513).

- 5.5.36 A grade II listed Methodist Chapel (NHLE 1147449) dating to 1835 has also been identified within the village of Moulton Seas End, located approximately 1.6 km to the east of the draft Order Limits.
- 5.5.37 Three artefact scatters containing post-medieval pottery were recorded at Spalding, with two scatters located within the 1 km Section 5 Study Area (MLI85275 and MLI85278), and a further scatter located within the draft Order Limits (MLI85279).
- 5.5.38 The industrial development of Weston took place throughout the 19<sup>th</sup> century, with the village becoming larger and more urbanised. Part of this urbanisation included the establishment of a tramway (MLI22401) through Weston. The tramway extended through the northern part of the draft Order Limits between Wragg Marsh Farm and Western Barn House.
- 5.5.39 Two grade II listed First World War memorials have been identified within the 3 km Section 5 Study Area, namely, Moulton Seas End War Memorial (NHLE 1454594) located within the settlement of Moulton Seas End and Surfleet War Memorial (NHLE 1482125) located within the settlement of Surfleet.
- 5.5.40 Aerial photography has identified a number of undated cropmarks, some of which have been excavated, across the 1 km Section 5 Study Area, including ditches close to Pinchbeck (MLI85111), a trackway (MLI85256), ditches (MLI86088 and MLI116098), pits (MLI124932) and a watercourse (MLI86087) close to Weston.
- 5.5.41 Three undated ditches have been identified at Wykeham Farm (MLI87291, MLI87292 and MLI89824), one of which has been recorded within the draft Order Limits (MLI87292), whilst the other are located 5 m and 80 m beyond respectively (MLI87291 and MLI89824).

### **Historic Landscape Character**

- 5.5.42 Section 5 is located within a single Lincolnshire regional character area (WSH10: The Wash) defined by the Lincolnshire Historic Landscape Characterisation project (Ref 10). Within each of the RCAs are a number of subsidiary historic landscape character zones (HLCZ).
- 5.5.43 The Wash: Reclaimed Coastal Fringe (WSH4) HLCZ is located across the northern area of Section 5. The western edge of the Reclaimed Coastal Fringe landscape is formed by the canalised river channel of the Welland. Whilst settlement is predominantly dispersed there are some nucleated settlements such as Holbeach Hurn and Moulton Seas End located mainly towards the south of the Zone close to the medieval sea bank (Ref 11).
- 5.5.44 The Wash: Townlands (WSH6) HLCZ extends across the southern area of Section 5. The landscape within the character zone comprised of a mixture of predominantly arable fields, and small nucleated settlements, with the two largest settlements in the area Boston and Spalding, surrounded by much smaller settlements. Field patterns within the Washlands are a mixture of irregular enclosures which have their origin in the medieval period, and blocks of post-medieval enclosed strip fields with straight boundaries, often amalgamated into larger fields through modern boundary loss (Ref 11).

- 5.5.45 The population increase of the 12<sup>th</sup> and 13<sup>th</sup> centuries occurred during a period of medieval reclamation of the Fenlands, and an increase in the settlement of the Washlands. Remnants of land reclamation and protection are still evident within the landscape, with the Roman Sea Bank and its associated earthworks, and Hurdletree Bank still visible today.
- 5.5.46 The HLCZ is characterised by large straight and embanked river channels, such as the River Wellend, and much smaller rivers and canals interspersed throughout the landscape. During the later medieval period, the enclosure of small areas of meadows and grazing land occurred, leading to the ploughing and the laying out of large-scale land drainage.
- 5.5.47 Both zones underwent reclamation in the 17<sup>th</sup> and 18<sup>th</sup> centuries, with drainage of the land leading to the development of post-medieval villages and hamlets on the seaward side of the 'Roman Bank', and inland of the sea bank. New roads, and isolated farmsteads, were established shortly after the reclamation, serving the newly enclosed fields.

## Future Baseline

- 5.5.48 The future baseline relates to known or foreseeable changes to the current baseline in the future, against which the effects of the Project during construction and operation are assessed. Specifically, it accounts for anticipated changes including those caused by changing climatic conditions, policy, legislation, advances in technology and by other confirmed development projects which will be complete prior to construction of the Project.
- 5.5.49 At this preliminary stage, a full assessment of the implications of any confirmed development projects with regard to future baseline conditions has not been undertaken. A list of the currently known developments which are anticipated to be included within the future baseline scenario is provided within **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope Annex A Developments for Consideration Within the Future Baseline**. This will be reviewed and updated as appropriate during development of the ES, as with other information which informs assessment of the future baseline.
- 5.5.50 The baseline details as presented above (including changes to the setting of the assets) are not anticipated to change in the absence of the Project. Any change to archaeological remains, historic buildings and structures and historic landscape features would be limited to the existing and ongoing degradation of their fabric over time through processes such as erosion, desiccation, corrosion or decay.

## 5.6 Design, Control and Additional Mitigation Measures

### Design Mitigation Measures

- 5.6.1 The Project is being designed to avoid sensitive receptors as far as practicable. This is in accordance with the 'Holford Rules' (Ref 12) applicable to routing of new overhead lines and the 'Horlock Rules' (Ref 13) which apply to the design and siting of substations. These approaches are explained in further detail within the Corridor Preliminary Routeing and Siting Study (CPRSS) (Ref 14) and **Supplementary PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered**. Principles

include, but are not limited to, seeking to avoid areas of highest amenity, cultural or scientific value, taking advantage of natural screening provided by existing landform and features (e.g. woodland) and keeping visual, noise and other environmental effects to a minimum.

- 5.6.2 Following selection of the preferred route corridor, environmental specialists have been integral to ongoing design refinement of works within Section 5. This has further contributed to the avoidance or reduction of the potential environmental impacts of the Project. Specific examples relevant to the assessment include:
- i. Locating the construction access haul route for the proposed Weston Marsh Substation B along an existing farm access and breach in the medieval Sea Bank in Weston (MLI98445) to avoid/minimise possible disturbance of this heritage asset;
  - ii. Positioning proposed pylons 2WS010-N, 2WS009-N and 2WS008-N on the proposed Weston Marsh Substation B line entry at locations to make best use of existing screening vegetation to reduce possible changes to the setting of the Wykeham Chapel moated monastic grange and retreat house scheduled monument (NHLE 1019096), the grade I listed Wykeham Chapel of St Nicholas (NHLE 1064471) and grade II listed Chapel Farmhouse (NHLE 1147513) (as demonstrated on **Supplementary PEI Report Volume 2 Part A Figure 5.1 Proposed Project Design**) and illustrated on **Supplementary PEI Report Volume 2 Part B Figure 1.3 Permanent and Operation Features**; and
  - iii. Potentially significant impacts on the setting of heritage assets, brought about by the construction of the Project, may be lessened or avoided through consideration of the detailed design and micro-siting of individual pylons, access roads, construction compounds and temporary structures. This will be assessed fully within the Historic Environment chapter of the ES submitted with the DCO application.

## Control Mitigation Measures

### Construction

- 5.6.3 A Preliminary Code of Construction Practice (CoCP) is provided in **Supplementary PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice**. The control measures included within the Preliminary CoCP relevant to the Historic Environment assessment of Section 5 are the same as those presented in June 2025 PEI Report Volume 2 Part B Section 5 Chapter 5 Historic Environment (Ref 15) and include:
- i. GG03: Suitably experienced Environmental Advisers will be appointed for the duration of the construction phase. In addition, qualified and experienced Environmental Clerk of Works (EnvCoW) will be available during the construction phase to advise, supervise and report on the delivery of the mitigation methods and controls outlined in the Management Plans. The EnvCoW(s) will monitor that the works proceed in accordance with relevant environmental DCO requirements and adhere to the required good practice and mitigation measures. The EnvCoW(s) will be supported as necessary by appropriate specialists, including ecologists and arboriculturists, soils and land drainage experts.



- ii. GG06: A Construction Environmental Management Plan (CEMP), a Landscape Environmental Management Plan (LEMP), a Material Waste Management Plan (MWMP), a Construction Traffic Management Plan (CTMP), Emergency Action Plan, Public Right of Way Management Plan (PRoWMP), Overarching Written Scheme of Investigation (OWSI), Biodiversity Management Plan, Noise and Vibration Management Plan, Pollution Prevention Plan, Foundation Works Risk Assessment, Carbon efficiency Plan, Dust Management Plan (DMP), Drainage Management Plan (DrMP) along with a Soil Management Plan (SMP) will be produced prior to construction. These are collectively referred to as 'the environmental control Plans'.
- iii. GG09: Where sensitive features such as ancient woodland and protected habitats are to be retained within or immediately adjacent to the Order Limits, an appropriate protective area will be established using appropriate fencing and signage and will be inspected, repaired, and replaced as necessary. The protective areas will be shown on the Retention and Reinstatement Plans contained within the LEMP.

5.6.4 In addition, measures that relate to the historic environment either directly or through measures applied for landscape and visual, and noise and vibration include:

- i. H01: Known heritage assets and locations of known archaeological interest will have been identified by a programme of desk-based assessment and field evaluation prior to construction. Wherever possible identified heritage assets and archaeological remains will be avoided by the Project design. Where avoidance has not been possible, archaeological mitigation measures comprising the preservation of archaeological remains, or a programme of archaeological investigation will be implemented. Areas of archaeological preservation, or where archaeological work is planned, will be demarcated using appropriate fencing and signage to prevent unintentional damage. The fencing and condition of the areas will be inspected, repaired, and replaced as necessary. The areas of archaeological preservation or investigation will be identified on plans within the OWSI and CEMP.
- ii. H02: Where a previously unknown heritage asset is discovered, or a known heritage asset proves to be more significant than foreseen at the time of application, the Project will inform the relevant authorities and will agree a solution that protects the significance of the new discovery, so far as is practicable, within the Project parameters.
- iii. H03: An outline process for dealing with the unexpected discovery of archaeological remains including human remains and Treasure during construction will be set out in the OWSI and detailed CEMP.
- iv. H04: Where practicable, the Project will maintain elements within the historic landscape such as vegetation and hedgerows (including re-instating hedgerows and fences).
- v. LV01: The contractor(s) will retain vegetation where practicable. Where vegetation is lost and trees cannot be replaced in situ due to the restrictions associated with land rights required for operational safety, native shrub planting approved by National Grid will be used as a replacement, in accordance with the outline vegetation reinstatement plans included within the LEMP. Replacement vegetation will be planted as close by as practicable and will complement

landscape character and be sympathetic to the local habitat type in order to provide a high biodiversity value.

- vi. LV04: Construction lighting will be of the lowest luminosity necessary to safely perform tasks. Lighting will be directional and minimised where possible.
- vii. NV01: Construction working will be undertaken within the agreed working hours set out within the DCO unless the works are under an exception to the set working hours in which case they will be carried out in a manner that minimises noise and vibration at all times. Best practicable means to reduce construction noise will be set out within the CEMP.

5.6.5 The requirements for, and scope of, archaeological control measures and additional mitigation will be set out in the OWSI and the CEMP submitted as part of the DCO application setting out how the requirements for archaeological control measures at each stage of construction will be implemented.

5.6.6 The archaeological and historic environment control measures required for the Project will be informed by the results of the forthcoming desk-based assessment, aerial photographic and LiDAR assessment, geoarchaeological desk study and the programme of pre-application archaeological evaluation comprising geophysical survey, archaeological trial trenching and geoarchaeological borehole survey. The results of the programme of archaeological evaluation will identify the presence/absence of buried archaeological assets within Section 5 and characterise their extent, depth, date, state of preservation and significance. As such, specific control measures for individual archaeological assets will be included in the ES and OWSI submitted as part of the DCO application.

5.6.7 The strategy and approach for appropriate archaeological and historic environment control measures to reduce or offset the identified impacts from construction and operation of the Project upon heritage assets, will be determined (where possible) in consultation with the heritage stakeholders from the respective local planning authorities and, where required, Historic England.

## Additional Mitigation Measures

5.6.8 Additional mitigation measures are those required to reduce likely significant adverse environmental effects which may still occur despite the inclusion of the embedded design and control measures described above.

5.6.9 Potential additional mitigation measures which may be required to reduce the effects of the Project upon Historic Environment are in the early stages of development, based upon an iterative process informed by ongoing survey and assessment. These typically include additional measures which specifically serve a mitigation function, to reduce the scale of potential impacts.

5.6.10 As set out within **Supplementary PEI Report Volume 2 Part B Chapter 1 Overview of the Section and Description of the Project** and illustrated on **Supplementary PEI Report Volume 2 Part B Figure 1.3 Permanent and Operation Features** the preliminary mitigation measures embedded into the design of Section 5 for Historic Environment includes use of an existing farm access for the proposed Weston Marsh Substation B access to avoid/reduce potential impacts to the medieval Sea Bank in Weston (MLI98445) and the siting of proposed pylons 2WS010-N, 2WS009-N and 2WS008-N to minimise potential changes to the setting of the Wykeham Chapel moated monastic grange and retreat house scheduled monument (NHLE 1019096),



the grade I listed Wykeham Chapel of St Nicholas (NHLE 1064471) and grade II listed Chapel Farmhouse (NHLE 1147513).

- 5.6.11 Where it is not possible to implement embedded mitigation, or to avoid impacts to earthwork remains or buried archaeological deposits, additional measures to reduce or offset those impacts would be required to manage the historic environment resource and may include (but not be limited to):
- i. An appropriate programme of archaeological investigation and recording, with the objective of advancing the understanding of the significance of archaeological remains within Section 5 that may be disturbed or either wholly or partially lost, in accordance with the guidance provided by the Overarching National Policy Statement (NPS) for Energy (EN-1) (Ref 6);
  - ii. Appropriate archaeological and geoarchaeological investigation and recording will be undertaken prior to the commencement of construction works, wherever possible, but may also include archaeological monitoring and recording (watching brief) works during construction; and
  - iii. Establishing an outline process for dealing with the unexpected discovery of archaeological remains including human remains and Treasure during construction within the OWSI and detailed CEMP.
- 5.6.12 Opportunities for further mitigation or enhancement will be reviewed as the Project develops, the results of the site walkover surveys and archaeological surveys become available and will be included in the assessment presented in the ES and OWSI submitted with the DCO application.
- 5.6.13 Any measures to be included within the Project will be informed by further design development and consultation with the relevant stakeholders, including engagement with the statutory consultees.
- 5.6.14 Finalised additional mitigation measures will be detailed within the ES.

## 5.7 Preliminary Assessment of Effects

- 5.7.1 The following section presents the findings of the preliminary assessment of effects upon the heritage assets, identified within the Study Area, as a result of construction or operational activities within Section 5.
- 5.7.2 The preliminary assessment of effects reported below takes into account the Design and Control measures, as previously described.
- 5.7.3 For a summary of the likely significant effects please refer to **Supplementary PEI Report Volume 2 Part B Chapter 13 Summary**. A supplementary summary of all non-significant effects is also included within this section in **Table 5.4** based upon the assessment scope detailed in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.
- 5.7.4 A full table summarising the preliminary assessment of likely non-significant effects on individual heritage assets is provided within **Supplementary PEI Report Volume 3 Part B Appendix 5B Preliminary Summary of Likely Non-Significant Effects**.
- 5.7.5 Unless stated otherwise all likely significant and non-significant effects reported below are adverse in nature.

- 5.7.6 It is noted that this is an ongoing assessment and is subject to change due to the ongoing design development of the Project, statutory consultation feedback and further stakeholder engagement. A full assessment will be included within the ES submitted with the DCO application.

## Likely Significant Effects

### Construction

- 5.7.7 The preliminary assessment of the effects arising from construction of Section 5 of the Project is described in this section. The preliminary assessment considers the design, control and additional mitigation measures described in section 5.6.
- 5.7.8 Potential impacts that may occur during the construction phase include direct physical impacts on heritage assets within the Section 5 draft Order Limits resulting from construction works e.g. topsoil stripping and groundworks for construction access routes, pylon working areas, construction compounds and drainage.
- 5.7.9 Setting impacts arising from the construction phase on heritage assets may arise due to:
- Temporary short-term impacts from construction activities which can be incremental until construction is completed, caused by the movement of mechanical plant, light, noise pollution and dust; and
  - Permanent long-term impacts as a result of the introduction of the physical form and appearance of the built infrastructure into the landscape during the construction stage and continuing for the operational duration of the Project.

### Designated Heritage Assets

- 5.7.10 The preliminary assessment has identified two designated heritage assets within the 3 km Section 5 Study Area that have the potential to experience temporary and/or permanent significant effects. These include one scheduled monument and one grade I listed building. Some assets may experience significant effects from construction activities and non-significant effects from the permanency of the infrastructure in the landscape, or vice versa. Where this is the case, the assessment for both effects is set out together for the asset in this Likely Significant Effects section, with the significant effects summarised in **Supplementary PEI Report Volume 2 Part B Chapter 13 Summary** and the non-significant effects summarised in **Supplementary PEI Report Volume 3 Part B Appendix 5B Preliminary Summary of Likely Non-Significant Effects**.

### Designated Assets within the 3 km Section 5 Study Area.

- 5.7.11 The scheduled monument of Wykeham Chapel moated monastic grange and retreat house, constructed in the 14<sup>th</sup> century (NHLE 1019096), is located approximately 110 m west of the draft Order Limits. Located at the centre of the scheduled monument is the grade I listed Wykeham Chapel of St Nicholas (NHLE 1064471) which is included in the scheduling as is the adjoining graveyard. A grade II listed building, the Chapel Farmhouse (NHLE 1147513) is also located within the scheduled boundary but is excluded from the scheduling. The grade II listed Gate Piers to Chapel Farmhouse (NHLE 1064472) are located to the immediate south-west of, and just outside, the scheduled boundary. Wykeham Chapel comprises a medieval moated monastic

grange with the remains of a retreat house and chapel. The grange was associated with Spalding Priory, approximately 5 km to the south west, which was originally a dependency of Crowland Abbey before the priory was refounded under the abbey of St Nicholas at Angers in 1074, gaining independence from the abbey in 1397. The majority of the land of Weston was under the jurisdiction of Spalding Priory and the abbey from the mid-13<sup>th</sup> century.

- 5.7.12 The grade I Wykeham Chapel of St Nicholas (NHLE 1064471) was built as a domestic chapel for the country residence of the Prior of Spalding in 1311. The establishment at Wykeham served as a monastic retreat house, a place of rest and recuperation for the monks. The chapel became a free chapel following the Dissolution but by the late 18<sup>th</sup> century it had fallen into disuse following the collapse of the roof. The Chapel is constructed of limestone ashlar and measures approximately 13 m by 6.5 m with fenestration existing in the north and eastern elevations. The scheduled moated island is rectangular, measuring 270 m by 140 m, with the centre of the island raised above the surrounding ground level, indicating the location of the earlier house. The moat is partly water filled and measures up to 10 m in width, with earthwork features indicating there was once a more extensive system of drainage. The moat is now crossed by two causeways on its western arm and by a narrow causeway on its northern arm. Standing 20 m to the south west of the Chapel is the late 17<sup>th</sup> century grade II listed Chapel Farmhouse (NHLE 1147513) which is constructed of red brick with limestone ashlar dressings. The principal elevation of the farmhouse faces southwards, although there is also significant fenestration to the eastern elevation, towards the draft Order Limits.
- 5.7.13 The scheduled monument is bounded by mature trees on all sides, with a 19<sup>th</sup> century farmstead located immediately to the south east and bounding the scheduled area; this farmstead is not recorded on the HER but is depicted on the First Edition OS map of 1887. A small area of mature trees lies just to the north east of the scheduled monument along the eastern field boundary. The immediate setting of the listed buildings comprises their close proximity and historic relationship to one another and the moated monastic grange, set within an isolated, enclosed landscaped site that contributes strongly to their value, with the surviving earthwork features of the monastic grange and standing remains of the chapel constituting a rare example of their type. The wider agricultural landscape which surrounds the heritage assets, forms their wider setting, across which the Chapel windows would once have afforded views. There are views of the spire of a Church (possibly Church of All Saints in Moulton) to the south east from Wykeham Lane, to the south east of the scheduled monument. While mature hedges now screen views into the monastic site, it is possible that intervisibility between Wykeham Chapel and the Church to the south east formed part of its historic setting. Although mature trees and hedges border the monastic site, as the trees are deciduous, there would be seasonal views into the surrounding fields and there are occasional gaps in the tree screening along the scheduled boundary.
- 5.7.14 The proposed pylon route would lie approximately 230 m east of Wykeham Chapel scheduled monument and grade I listed building, with a new line entry of overhead line and pylons linking Weston Marsh Substation B to the existing overhead line infrastructure to the south. The line entry introduces new infrastructure into fields to the immediate east of the scheduled monument and grade I listed Chapel of St Nicholas within the setting of these heritage assets, where none has previously existed. The proposed line entry would interrupt views of the agricultural setting of Wykeham Chapel as well as add to the existing infrastructure further to the east in

the skyline, further detracting from the intervisibility between the Chapel and the church spire to the south east.

- 5.7.15 Temporary construction works, including a site compound approximately 550 m to the north east of the scheduled monument and the construction haul road, would temporarily alter the setting of the high value assets due to construction traffic, plant movement, noise and lighting. This would have a small magnitude of impact on the ability to understand and appreciate the assets. This would result in a moderate adverse effect which, on assets of high value, would be significant.
- 5.7.16 The permanency of the infrastructure in the landscape within the wider agricultural setting, including the new line entry with the overhead line and proposed pylons 2WS009-N and 2WS008-N (as shown in **Supplementary PEI Report Volume 2 Part A Figure 5.1 Proposed Project Design**), plus the introduction of Weston Marsh Substation B, in the wider setting of the scheduled moated monastic grange and the grade I listed Wykeham Chapel, adds to the existing infrastructure on the skyline which has already partially diminished their wider setting in the flat open landscape. The existing 2WS and 4ZM overhead lines are within, and detract from, the setting of the heritage assets. The new proposed overhead lines required by the Project would also be located within the setting of, but closer to, the heritage assets. In addition, seasonal changes in the existing screening vegetation around the boundary of the scheduled monument, allow glimpsed views of the grade I Wykeham Chapel to /from the north and east in which the proposed new Weston Marsh B substation and proposed overhead lines would be visible. This would result in a medium magnitude of impact, resulting in a major adverse effect on assets of high value, which is significant.

### Operation

- 5.7.17 Impacts during the operation of the Project that may affect heritage assets include:
- i. security lighting with motion detectors;
  - ii. operational noise; and
  - iii. restrictions on accessibility to heritage assets.
- 5.7.18 In accordance with the Scoping Opinion: Proposed Grimsby to Walpole Project (Ref 3; Section 3.4, ID. 3.4.2), the assessment of physical impacts to, or changes to the settings of heritage assets, as a result of maintenance activities and traffic, have been scoped out of the preliminary assessment as they are unlikely to result in significant effects.
- 5.7.19 No additional significant effects are considered likely through operation, over and above those already identified in relation to the long-term presence of the Project in the landscape, assessed under the construction phase. Further assessment of the above operational elements will however be undertaken in the ES.

## Likely Non-Significant Effects

### Construction

#### Designated Heritage Assets

- 5.7.20 A number of designated heritage assets, which may experience non-significant effects, have been identified warranting further explanation of their assessment due to particular sensitivities, such as their high value, designed views, historic setting or their proximity to works proposed within the draft Order Limits. For completeness, **Table 5.4** summarises the findings of the preliminary assessment with respect to all impacts that are not predicted to result in significant effects with further detail on specific assets provided within **Supplementary PEI Report Volume 3 Part B Appendix 5B Preliminary Summary of Non-Significant Effects**.

#### Scheduled monuments within the 3 km Section 5 Study Area

- 5.7.21 The Pinchbeck Engine scheduled monument (NHLE 1004966) is a 19<sup>th</sup> century beam engine used for clearing Pinchbeck Marsh located 450 m west of the draft Order Limits of the access route for the marsh harrier mitigation and 1.7 km west of the proposed pylon 2WS008-N. The engine and boiler are housed in a red brick engine house with a date stone of 1833. The building is also designated as a grade II listed building (NHLE 1146782). The setting of the monument and grade II listed engine house comprises the pumping station, associated structures and the adjacent channels and watercourses which fed the pumping station and were used to manage water levels within the surrounding marsh.
- 5.7.22 Existing tree-lined shelter belts to the east of the monument, and the Engine's position lower than the road, provide screening with agricultural structures located opposite the asset further restricting views eastwards. A proposed marsh harrier mitigation reedbed and temporary access trackway are located approximately 450 m east of the Pinchbeck Engine. The proposed access trackway is to the west of the River Welland and would be situated within the setting of the asset.
- 5.7.23 During construction there is potential for a temporary setting change to the scheduled monument and listed building due to increased noise and traffic associated with vehicle movement along the access trackway and construction work of the reedbed to the north-east, although there would be limited intervisibility. As such, the temporary construction works would have a negligible magnitude of impact on an asset of high value (scheduled monument) and medium value (grade II listed building), with little change in how the asset is appreciated and understood. This would have a temporary minor adverse effect on the scheduled monument, which is not significant, and a negligible adverse effect on the listed building, which is not significant.
- 5.7.24 While pylons may be visible to the south east and north east of the asset, these are not within the setting of the asset, and the reedbed mitigation for the marsh harrier, whilst within the setting, would not detract from it. As such, permanency of the infrastructure in the landscape within the asset's wider agricultural setting would have no change to its value, resulting in a neutral effect on an asset of both high and medium value, which is not significant.



### Conservation Areas within the 3 km Section 5 Study Area

- 5.7.25 Pinchbeck Conservation Area includes a number of listed buildings comprising the grade I Church of St Mary (NHLE 1064433) and 7 grade II listed buildings which fall within the study area for Section 5. The conservation area is located approximately 1.7 km west of the draft Order Limits at its closest point. The conservation area focuses on the historic core of the settlement and includes a number of 18<sup>th</sup> and 19<sup>th</sup> century structures alongside the parish church which has medieval origins. The conservation area is centred on Church Street and Spalding Road, which are both gently-winding, tree-lined roads, which restrict long views. The conservation area retains much of its historic layout, despite modern infill and the expansion of the settlement to the north, west and south, beyond the conservation area boundary. To the east, the conservation area's setting is the surrounding rural countryside which contributes to the understanding of this historically rural settlement. There are limited views to the east towards the draft Order Limits from within the conservation area, restricted to the fields on the eastern edge of the settlement. The closest section of the draft Order Limits to the conservation area is the proposed access road to the proposed Marsh Harrier reedbeds, approximately 1.7 km to the east, while the proposed pylon route is approximately 2.4 km east of the conservation area. The land within the draft Order Limits does not form part of the setting of the conservation area or the buildings within it given the distance to the draft Order Limits. As such, the temporary construction works and permanency of the infrastructure in the landscape would have a magnitude of impact of no change on assets of high (grade I listed church) and medium value (conservation area, grade II listed buildings), resulting in neutral effects which are not significant.

### Listed buildings within the 3 km Section 5 Study Area

- 5.7.26 Situated to the north east of the draft Order Limits are two grade II listed buildings, Wraggmarsh House Farmhouse (NHLE 1147603) and Pigeoncote to the South of Wraggmarsh House (NHLE 1064477). The Farmhouse is located approximately 590 m from the draft Order Limits, whilst the Pigeoncote is closest at approximately 540 m.
- 5.7.27 The Pigeoncote dates to around 1740 so is not contemporary with the Farmhouse which dates from about 1800, although their proximity and possible historical association forms part of their immediate setting. The two listed assets are located approximately 60 m apart with the non-designated Wragg Marsh tramway (MLI22401) recorded once running between them. The Farmhouse (NHLE 1147603) stands two storeys tall with a three bay front with the principal elevation facing south west towards the Pigeoncote and draft Order Limits, partially screened by mature trees. The Pigeoncote (NHLE 1064477) is located in an isolated position in the middle of a field, comprising a circular plan form of two storeys built of red brick with a conical slate roof and tall weathervane. There are wide open views from and to the Pigeoncote across Lord's Drain, along Marsh Road and the agricultural land within Section 5.
- 5.7.28 The wider setting of the Farmhouse and Pigeoncote comprises the surrounding rural countryside which contributes to the functional context and understanding of these assets. The proposed pylon route would be situated within the wider agricultural setting of the listed buildings with the proposed pylon 4ZM411 approximately 960 m to the south west, marginally closer to the Pigeoncote than the existing 4ZM overhead line and pylon. Temporary construction works and the permanency of the infrastructure in the landscape within the wider agricultural setting (proposed pylons

LW200-LW202) of the farmhouse and Pigeoncote would have a small magnitude of impact causing slight changes to their value and how they are appreciated, resulting in a minor adverse effect on assets of medium value, that is not significant.

- 5.7.29 There would also be impacts to the grade II listed Chapel Farmhouse (NHLE 1147513) located within the Chapel moated monastic grange and retreat house scheduled monument, due to changes to its setting and seasonal views from the eastern elevation. The property is screened from views to or from the north due to its position to the south of the ruins of Wykeham Chapel (NHLE 1064471), although there may be seasonal views to and from the property to the east across the open fields. Its immediate setting has also been partially diminished by the addition of the later 19<sup>th</sup> century farmstead to the south east just outside the scheduled monument boundary of the monastic grange and retreat house (NHLE 1019096). Temporary construction works and the permanency of the infrastructure in the landscape within the wider agricultural setting (Indicative New Lattice Pylons 2WS009-N, 2WS008-N and overhead line) of the farmhouse would have a small magnitude of impact, altering its wider setting, slightly changing how the asset is understood and appreciated. This would result in a minor adverse effect on an asset of medium value, which is not significant.
- 5.7.30 There is a cluster of designated heritage assets within the settlement of Weston comprising one scheduled monument, the Churchyard Cross, St Mary's Churchyard (NHLE 1013529) which is also grade II listed (NHLE 1064473), the grade I listed Church of St Mary (NHLE 1064475) and five grade II listed buildings which are located within the 3 km Section 5 Study Area. The nearest to the draft Order Limits is the grade II listed Tomb Chest Approximately three Metres South of Church (NHLE 1147556) located approximately 450 m to the south west of the draft Order Limits.
- 5.7.31 The Church of St Mary was constructed in the 12<sup>th</sup> century and consists of a nave with west tower, north and south aisles with south porch, clerestory, north and south transepts and chancel. The west tower has three stages, surmounted by a castellated parapet and pinnacles to each corner. A number of grade II listed heritage assets centre around the 12<sup>th</sup> century Church of St Mary (NHLE 1064475) comprising the 17<sup>th</sup> century Tomb Chest (NHLE 1147556), row of seven 18<sup>th</sup> century Gravestones (NHLE 1064474) and the c.1918 Lychgate (NHLE 1147551), which is also a war memorial. The church is set within its churchyard which includes these heritage assets and is bounded by mature trees to the north and east, located approximately 460 m south of the nearest draft Order Limits.
- 5.7.32 The remaining listed buildings within Weston in the study area comprise the 18<sup>th</sup> century Oakleigh House (NHLE 1261851) and its associated barn (NHLE 1147591), located further south in Weston, approximately 650 m east of the draft Order Limits.
- 5.7.33 The church's tower can be glimpsed in the landscape, although it is mostly screened by mature trees surrounding the churchyard. The church serves the parish of Weston which forms part of its wider setting, within which the Project alignment crosses. The construction work of the proposed pylon route to the north and west, would have a temporary negligible adverse magnitude of impact on the setting of the Church of St Mary (NHLE 1064475) as an asset of high value, resulting in a minor adverse effect on the high value asset which is not significant. The Project does not fall within the setting of the grade II listed buildings within Weston. The proximity of the A151 road between the temporary construction works and the assets means no additional noise or traffic movements would alter the value of these assets.



- 5.7.34 The permanency of the infrastructure within the parish of the church, with the proposed pylon RJ13 located approximately 890 m to the north east, would hardly alter the wider setting of the church which has already been diminished by the presence of the A151 road. The impact is assessed to have a negligible magnitude of impact on a high value asset, resulting in a minor adverse effect that is not significant. The permanency of the infrastructure within the landscape would not alter the setting of the other listed assets within the study area in Weston. As such permanency of the infrastructure in the landscape would have no change to the value of the grade II listed assets, resulting in a neutral effect on assets of medium value, which is not significant.

#### Non-designated Assets

- 5.7.35 The preliminary assessment has identified non-designated heritage assets within the draft Order Limits and the 1 km Section 5 Study Area that have the potential to experience temporary or permanent non-significant effects. A number of these assets have been identified that require further explanation of their assessment due to particular sensitivities, such as their historic setting or their proximity to Section 5.

#### Non-designated Assets within the draft Order Limits

- 5.7.36 A number of non-designated heritage assets comprising buried archaeological remains have been identified within the draft Order Limits. Further archaeological surveys and evaluation is required to fully understand the extent, date and character of the remains and to inform the need for additional mitigation measures where appropriate. A preliminary assessment has been undertaken for each asset based on the information available at the time of writing. These preliminary assessments will be updated in the ES.
- 5.7.37 Tramway, Wragg Marsh (MLI22401) is an asset of low value that extends through the northern part of the draft Order Limits. The tramway dates to the 19th century and extends from Weston Barn House in the south and Fosdyke Bridge in the north. The construction of the bellmouth will result in the partial loss or disturbance of any surviving remains of the asset which have not been previously disturbed by the construction of the existing Marsh Road. This is assessed as a small magnitude of impact, resulting in a negligible adverse effect which would not be significant prior to the implementation of additional mitigation measures. This would remain a negligible residual effect after the completion of additional mitigation measures comprising an appropriate programme of archaeological investigation.
- 5.7.38 The earthwork remains of a medieval Sea Bank in Weston (MLI98445), are an asset of medium value that extend across the centre of the draft Order Limits. The asset was originally identified as Roman Bank on the 1905 OS map; however, the asset is medieval in date and was likely constructed in the 12<sup>th</sup> or 13<sup>th</sup> century. The asset survives as a low extant earthwork.
- 5.7.39 Construction of the Project may temporarily alter the setting of the medieval sea wall remains through construction traffic, plant movement and scaffolds in views to the south and north of the asset. Permanent changes to the setting of this heritage asset may arise from the presence of the proposed Weston Marsh Substation B and proposed new pylons and infrastructure between RJ7 and RJ9 in the landscape to the north and south of the asset. Despite the presence of the new pylons and infrastructure in the landscape, the relationship between the asset and its wider agricultural setting would still be legible. Therefore, the impact to the asset would be

of a small magnitude, resulting in a minor adverse residual effect which is not significant.

- 5.7.40 Topsoil stripping and ground works required to install the working area for proposed pylon RJ8, will result in the partial loss or disturbance of the asset. This is assessed as a small magnitude of impact, resulting in a minor adverse effect which would not be significant prior to the implementation of additional mitigation measures. This would be reduced to a negligible residual effect after the completion of additional mitigation measures comprising an appropriate programme of archaeological investigation. Whilst the proposed new Weston Marsh Substation B construction access and bellmouth do interact with the asset, the proposed construction access utilises a section of the seawall that has been previously removed and therefore there will be no further impacts to the asset from construction of the dway or bellmouth.
- 5.7.41 A now demolished, unnamed 19<sup>th</sup> century outfarm (MLI122922) is located within the footprint of the proposed Weston Marsh Substation B. The asset comprises any surviving buried foundations or structural remains associated with the now demolished farmhouse. The asset holds negligible heritage value, with very little surviving archaeological interest. There is potential for topsoil stripping and ground works associated with the construction of the proposed Weston Marsh Substation B to truncate or remove the asset. This is assessed as a medium magnitude of impact, resulting in a negligible adverse effect, which would not be significant prior to additional mitigation measures. This would remain a negligible residual effect after the completion of any additional mitigation measures comprising an appropriate programme of archaeological investigation.
- 5.7.42 The geoarchaeological desk-based assessment undertaken by Wessex Archaeology (Ref 16) identified the potential for palaeoenvironmental remains to be located across the Weston Marsh area within the draft Order Limits. Geoarchaeological monitoring has also been undertaken on four boreholes within the northern half of Section 5, close to the proposed location of the new Weston Marsh Substation A and extending southward towards the new Weston Marsh Substation B. The results of the borehole monitoring identified lower peat deposits that may contain palaeoenvironmental data (AEC501) at a depth of between 13.5 m and 14 m bgl. The palaeoenvironmental deposits are likely to date to the prehistoric period and have potential to contribute to a regional understanding of the formation of the Fens and sea level change, they are therefore assessed as being of medium value. Further, previously unrecorded early prehistoric archaeological assets may also be present in this area of Section 5. There is potential for ground works e.g. piling associated with construction for Weston Marsh Substations A and B, and the proposed pylons, to result in localised removal of the lower peat horizon. This is assessed as a small magnitude of impact, resulting in a minor adverse effect which would not be significant prior to the implementation of additional mitigation measures. This would be reduced to a negligible residual effect after the completion of additional mitigation measures comprising an appropriate programme of archaeological investigation.
- 5.7.43 Undated natural watercourses (MLI86087) have been recorded at the southern boundary of the draft Order Limits. The asset represents a series of silted up, creeks and channels associated with a system of watercourses identified from aerial photographs and are assessed as being of medium value. The construction of the construction access haul route and sustainable drainage system (SUDS) will result in the partial loss or disturbance of the asset. This is assessed as a small magnitude of impact, resulting in a negligible adverse effect which would not be significant prior to the implementation of additional mitigation measures. This would remain a negligible

residual effect after the completion of additional mitigation measures comprising an appropriate programme of archaeological investigation.

#### Non-Designated Heritage Assets within the 1 km Study Area

- 5.7.44 Crowtree Farm, Weston (MLI122916) is located approximately 70 m west of the draft Order Limits. The 19<sup>th</sup> century farm comprises a detached farmhouse at the western end of the farm complex with outbuildings to the north, including large modern sheds. The farmhouse is a two storey, brick building in a square plan, with a single storey wing to the north. The principal elevation of the farmhouse is to the southern elevation, although there is fenestration to the east elevation, overlooking the draft Order Limits. Views to the south are partially screened by mature trees within the garden of the farmhouse, while views to the east are long across the surrounding agricultural fields. The setting of the farm is formed by the complex of farm buildings and its position within the surrounding agricultural landscape, which contributes to the buildings' value. The proposed Project alignment is situated approximately 70 m east of the farm, with proposed pylon 4ZM19-N located approximately 200 m to the south east, with a satellite overhead line compound for the Weston Marsh Substation A located just beyond. Weston Marsh Substation A is proposed approximately 610 m to the south east of the asset. A small area of landscape filtering vegetation is proposed south east across Marsh Road to help minimise visual impacts upon the property. However, due to the proximity to the farm, the temporary construction works, including the compound, construction haul road and underground cabling, and the permanency of the infrastructure within the setting of the farm, this would have a medium magnitude of impact causing changes to its value and how it is appreciated, resulting in a minor adverse effect on an asset of low value, which is not significant.
- 5.7.45 Welland House Farm (Welland House), Weston (MLI122918) is located approximately 310 m to the north west of the draft Order Limits. Welland House is a partially extant 19<sup>th</sup> century farmstead which is shown on the First Edition OS map to include a regular courtyard with multiple regular yards and a detached farmhouse. The principal fenestration of the farmhouse is to the south and east elevations. Views to the south are screened beyond the farm by mature hedges bordering the garden and views to the east are towards the outbuildings. Modern agricultural sheds have replaced some of the historic structures to the east of the farmhouse, resulting in the loss of the courtyard plan and diminishing the immediate setting of the farmhouse. The wider setting of this non-designated heritage asset is the surrounding agricultural landscape, particularly to the east and south. To the west, the asset is located in close proximity to the River Welland and Vernatt's Drain. A proposed pylon alignment is located approximately 600 m to the east of the farm (Indicative new Lattice Pylons 4ZM417-N, 4ZM416-N), with the proposed Weston Marsh Substation A located approximately 980 m east of the farm. These new infrastructure elements of the draft Order Limits may be visible from the east and south elevations of the farmhouse, although partially screened by existing hedges and outbuildings as well as proposed landscape screening mitigation along the western end of Weston Marsh Substation A. Temporary construction works and the permanency of the infrastructure in the landscape, within the setting of the farm, would have a small magnitude of impact causing slight changes to its value and how it is appreciated, resulting in a negligible adverse effect on an asset of low value, which is not significant.
- 5.7.46 Bottom Yard, Weston (MLI122915) is a 19<sup>th</sup> century farmstead located approximately 30 m east of the draft Order Limits. There is a detached farmhouse with principal fenestration to the north and south elevations. Modern sheds and a brick outbuilding

lie to north. There appears to be limited survival of historic buildings as shown on the 19<sup>th</sup> century OS mapping and the replacement of historic structures has resulted in a loss of the courtyard plan and diminished the immediate setting of the farmhouse. The wider setting of the farm consists of its relationship to the surrounding agricultural fields, which survives and contributes to the farm's value. The nearest new infrastructure to the asset within Section 5 includes Weston Marsh Substation A, approximately 400 m to the south west. Proposed work within the draft Order Limits includes a proposed Substation approximately 420 m south west of the farm, as well as a proposed pylon route approximately 430 m to the west. Temporary construction works and structures, and the permanency of the infrastructure in the landscape within the wider agricultural setting (proposed pylons LW202-LW203) of the farm, would have a medium magnitude of impact causing changes to its value and how it is appreciated, resulting in a negligible adverse effect on an asset of negligible value, which is not significant.

- 5.7.47 Top Yard, Weston (MLI122919) is a non-designated 19<sup>th</sup> century farmstead located approximately 40 m east of the draft Order Limits. The farm consists of outbuildings in an L-shaped courtyard plan with a detached farmhouse. Elements of the historic farm have been removed and modern sheds added to the east of the farm. The rural, agricultural setting of the farm survives, which contributes to the farm's value. The proposed pylon route is located approximately 415 m west of the farm, along the alignment of the existing overhead line and pylons. within the rural setting of the farm. The garden surrounding the farm is bordered by mature trees, which would partially screen views beyond. Temporary construction works would have a small magnitude of impact causing changes to its value and how it is appreciated, resulting in a negligible adverse effect on an asset of low value, which is not significant. The permanency of the infrastructure in the landscape, whilst in the setting of the farmstead, would not alter its setting, which has already been diminished by the existing infrastructure with the new proposed pylons on the same locations as those of the existing ones. This would result in no change with a neutral effect which is not significant.
- 5.7.48 Unnamed Farmstead (Weston Marsh Farm), Weston (MLI122920) is a non-designated farm located approximately 20 m east of the draft Order Limits. The farm is of 19<sup>th</sup> century date and consists of a regular courtyard in a U-plan with a detached farmhouse. Most of the historic buildings have been removed with one rectangular shed building extant. The setting of the farm has been partially diminished by the loss of historic buildings, although the wider agricultural surroundings survive. The proposed pylon route is located approximately 210 m east of the farm, while a construction haul road is aligned north to south approximately 20 m west of the farm. Temporary construction works including increased noise, light and traffic in the fields to the west of the farm would have a small magnitude of impact resulting in a negligible adverse effect on an asset of negligible value, which is not significant. The permanency of the infrastructure in the landscape, whilst in the setting of the farmstead, would not alter its setting from that which has already been diminished by the existing infrastructure, with the new proposed pylons on the same locations as those of the existing ones. This would result in no change with a neutral effect which is not significant.
- 5.7.49 Shepherds Farm, Weston (MLI122924) is a 19<sup>th</sup> century farmstead located approximately 50 m north west of the draft Order Limits. The farm consists of a detached farmhouse and a working complex. The farmhouse is a two storey, brick building with the principal elevation to the north, with many of the traditional historic outbuildings demolished. The farm is bordered by Stone Gate road to the east and



mature trees and hedges to the north, east and south. The loss of some of the historic outbuildings resulted in the loss of the original farm plan and partially diminishes the immediate setting of the farmhouse. The wider setting of the farm is the surrounding agricultural landscape. The draft Order Limits includes a proposed pylon route approximately 330 m south east of the farm, partially along the existing overhead line which has already diminished the farm's wider setting. An additional new pylon and overhead line alignment is proposed approximately 500 m west of the farm, introducing new infrastructure into the farm's setting to its west. There are potential views from the principal elevation to the north west towards the proposed pylon alignment and the proposed substation approximately 1 km north west of the farm. These views will be partially screened by the mature, deciduous trees to the north of the farmhouse, although there may be seasonal views. Temporary construction works and the permanency of the infrastructure in the landscape within the wider agricultural setting of the farm would have a small magnitude of impact causing changes to its value and how it is appreciated, resulting in a negligible adverse effect on an asset of low value, which is not significant.

- 5.7.50 The Ship Inn, Surfleet Seas End, Surfleet (MLI87121) is located approximately 505 m south west of a construction access route and approximately 1.3 km from Weston Marsh Substation A within the draft Order Limits. The non-designated asset is a partially extant 19<sup>th</sup> century farmstead with a loose courtyard plan visible on the First Edition OS map; however, it may have origins in the 17<sup>th</sup> century associated with the drainage of the Fens. There has been significant loss of traditional buildings and historic fabric with modern development encroaching on its isolated setting. The principal elevation of The Ship Inn is to the south east, overlooking the River Glen and the surrounding rural countryside which contributes to its setting and the understanding of its historic associations with the waterways and rural countryside. There may be some intervisibility with the proposed pylons from the principal elevation of the asset, although it is partially screened by vegetation along the river. The temporary construction work and the permanency of the infrastructure within the landscape would therefore have a negligible magnitude of impact, resulting in a negligible adverse effect on an asset of low value, which is not significant.
- 5.7.51 A group of medieval saltern sites (MLI23633, MLI89833, MLI89834, MLI89835, MLI89836, MLI89837) of medium value are located between 370m and 450m west of the Marsh Harrier area of the draft Order Limits. These assets are comprised of an extensive group of saltern sites, running on a north to south alignment along the western side of the River Welland. The salterns comprise buried archaeological remains and extant earthworks and likely date to the 13<sup>th</sup> century. The setting of the medieval salterns is considered to be the nearby edge of the marshland and the River Welland which was used as a source of water for the production of salt. The wider agricultural landscape the saltern is situated within and would have served is also considered part of its setting, and therefore, the Project is located within the setting of the medieval salterns.
- 5.7.52 Construction of the Project may temporarily alter the setting of the extant medieval saltern earthworks through construction traffic, noise, and plant movement. These temporary and reversible impacts would have a small magnitude of impact and a minor adverse effect which would not be significant. Permanent changes to the setting of this heritage asset may arise from the presence of new pylons and infrastructure in the landscape east of the salterns. However, the relationship between the asset and its agricultural setting would still be legible. Therefore, the impact to the asset would be of a small magnitude, resulting in a minor adverse effect which is not significant.

## Operation

- 5.7.53 No additional non-significant effects are considered likely through operation, over and above those already identified relating to the long-term presence of the Project in the landscape assessed under the construction phase, further assessment of these operational elements will be undertaken in the ES.

Table 5.4 Preliminary overview of non-significant Historic Environment effects – Section 5

| Heritage Asset                                                | Value of the Asset | Potential Impact                                                                                                                                                                                                                                                     | Likely Non-Significant Effect | Rationale                                                                                                                                                                                                                                                                                                                                             |
|---------------------------------------------------------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Designated Assets within the 3 km Section 5 Study Area</b> |                    |                                                                                                                                                                                                                                                                      |                               |                                                                                                                                                                                                                                                                                                                                                       |
| Scheduled Monuments                                           | High               | Potential temporary change to the setting or value of the assets arising from the construction of the Project and potential permanent change to setting or value of the assets arising from the construction of the Project and throughout its operational duration. | 1                             | There are three scheduled monuments within the 3 km Section 5 Study Area, with two predicted likely to experience significant effects. The remaining scheduled monument is not anticipated to experience changes to its setting, or the way in which it is experienced or understood, that would result in significant effects.                       |
| Grade I listed buildings                                      | High               | Potential temporary change to the setting or value of the assets arising from the construction of the Project and potential permanent change to setting or value of the assets arising from the construction of the Project and throughout its operational duration. | 3                             | There are four grade I listed buildings within the 3 km Section 5 Study Area, with one predicted to experience likely significant effects. The remaining three grade I listed buildings are not anticipated to experience changes to their setting, or the way in which they are experienced or understood, that would result in significant effects. |
| Grade II* listed buildings                                    | High               | Potential temporary change to the setting or value of the assets arising from the construction of the Project and potential permanent change to setting or value of the assets arising from the construction of the Project and throughout its operational duration. | 0                             | There are no grade II* listed buildings within the 3 km Section 5 Study Area.                                                                                                                                                                                                                                                                         |



| Heritage Asset            | Value of the Asset | Potential Impact                                                                                                                                                                                                                                                     | Likely Non-Significant Effect | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conservation Areas        | Medium             | Potential temporary change to the setting or value of the assets arising from the construction of the Project and potential permanent change to setting or value of the assets arising from the construction of the Project and throughout its operational duration. | 1                             | The Project does not form part of the setting of the Pinchbeck Conservation Area and will not alter its value or the way it is appreciated or understood. This asset is not anticipated to experience any significant effects.                                                                                                                                                                                                |
| Grade II listed buildings | Medium             | Potential temporary change to the setting or value of the assets arising from the construction of the Project and potential permanent change to setting or value of the assets arising from the construction of the Project and throughout its operational duration. | 32                            | One of the grade II listed buildings within the Study Area is located in close proximity to Section 5 which forms part of their setting, and is likely to experience significant effects as a result of the Project. The remaining 32 grade II listed buildings are not anticipated to experience changes to their setting, or the way in which they are experienced or understood, that would result in significant effects. |

#### Non-designated Heritage Assets within the draft Order Limits

|  |               |                                                                                                    |   |                                                                                                                                                                                                                                                                                                                        |
|--|---------------|----------------------------------------------------------------------------------------------------|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Medium or Low | Permanent physical construction impacts resulting in the partial loss or disturbance of the asset. | 7 | Seven non-designated heritage assets of medium or low value, have the potential to experience partial loss or disturbance resulting in effects that are not significant. Archaeological mitigation measures i.e. appropriate archaeological investigation and recording would further off-set or reduce these effects. |
|--|---------------|----------------------------------------------------------------------------------------------------|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| Heritage Asset                                                      | Value of the Asset | Potential Impact                                                                                                                                                                                                                                                     | Likely Non-Significant Effect | Rationale                                                                                                                                                                                                                                          |
|---------------------------------------------------------------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Non-designated historic buildings and buried archaeological remains | Medium or Low      | Potential temporary change to the setting or value of the assets arising from the construction of the Project and potential permanent change to setting or value of the assets arising from the construction of the Project and throughout its operational duration. | 7                             | Seven non-designated heritage assets of medium or low value, have the potential to experience changes to their setting and heritage value, or the way in which they are appreciated and understood, resulting in effects that are not significant. |

#### Non-designated Heritage Assets within the 1 km Study Area

|                                                                     |                           |                                                                                                                                                                                                                                                            |    |                                                                                                                                                                                                                                                                                                                              |
|---------------------------------------------------------------------|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Non-designated historic buildings and buried archaeological remains | Medium, Low or negligible | Potential temporary change to the setting or value of the assets arising from the construction of the Project and potential change to setting or value of the assets arising from the construction of the Project and throughout its operational duration. | 52 | There are no expected significant effects to non-designated heritage assets within the 1 km Study Area. The 52 non-designated heritage assets are not anticipated to experience changes to their setting, heritage value, or the way in which they are appreciated and understood, that would result in significant effects. |
|---------------------------------------------------------------------|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## **5.8 Monitoring**

- 5.8.1 The control measures set out in section 5.6 of this chapter include provision for monitoring of the programme of additional archaeological mitigation measures by the Environmental Manager or Archaeological Clerk of Works (ACoW), in consultation with the Local Planning Authority. As such, no further requirement for monitoring the historic environment is anticipated at this time.

# References

- Ref 1 National Grid (2025). Preliminary Environmental Information Report [online]. Available at: <https://www.nationalgrid.com/the-great-grid-upgrade/grimsby-to-walpole/document-library#4257225834-3023854277> [Accessed 20 October 2025].
- Ref 2 South East Lincolnshire Joint Strategic Planning Committee (2019). South East Lincolnshire Local Plan 2011-2036 Adopted 2019. Available at: <https://southeastlincslocalplan.org/media/21941/South-East-Lincolnshire-Local-Plan-2011-2036/pdf/Local-Plan-text-March-2019.pdf?m=1720710748483> [Accessed February 2025].
- Ref 3 The Planning Inspectorate (2024). Scoping Opinion: Proposed Grimsby to Walpole Project [online]. Available at: <https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN020036-000109-Scoping%20Opinion%202017%20EIA%20Regs.pdf> [Accessed 18 October 2024].
- Ref 4 National Grid Electricity Transmission (2024). Grimsby to Walpole Environmental Impact Assessment Scoping Report [online]. Available at: <https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN020036-000004-EN020036%20-%20Scoping%20Report%20Volume%201%20Main%20Report.pdf> [Accessed 18 October 2024].
- Ref 5 National Grid (2025). Stage 1 Consultation Feedback Report. Available at: <https://www.nationalgrid.com/document/560496/download> [Accessed 20 October 2025].
- Ref 6 Department for Energy and Net Zero (November 2023). Overarching National Policy Statement Energy (EN-1) [online]. Available at: <https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1> [Accessed February 2025].
- Ref 7 Department for Levelling Up Homes and Communities (2023). National Planning Policy Framework [online]. Available at: <https://www.gov.uk/guidance/national-planning-policy-framework> [Accessed 7 May 2024].
- Ref 8 Natural England (2024). National Character Area 46 The Fens. Available at: <https://nationalcharacterareas.co.uk/the-fens/description> [Accessed 12 December 2024].
- Ref 9 British Geological Survey geology viewer [online]. Available at: <https://geologyviewer.bgs.ac.uk/> [Accessed 12 December 2024].
- Ref 10 Lincolnshire County Council (2011a). The Historic Character of The County of Lincolnshire English Heritage Project No. 4661 Main Report. Available at: <https://www.lincolnshire.gov.uk/downloads/file/2205/the-historic-character-of-lincolnshire-pdf> [Accessed February 2025].
- Ref 11 Lincolnshire County Council (2011b). The Historic Character of The County of Lincolnshire English Heritage Project No. 4661 The Historic Landscape Character Zones. Available at: <https://www.lincolnshire.gov.uk/downloads/file/2206/the-historic-landscape-character-zones-pdf> [Accessed February 2025].

- Ref 12 National Grid; Holford Rules [online]. Available at: <https://www.nationalgrid.com/sites/default/files/documents/13795-The%20Holford%20Rules.pdf> [Accessed 3 June 2024].
- Ref 13 National Grid. NGC Substations and the Environment: Guidelines on Siting and Design. [online] Available at: <https://www.nationalgrid.com/sites/default/files/documents/13796-The%20Horlock%20Rules.pdf> [Accessed 20 September 2024].
- Ref 14 National Grid Electricity Transmission (2024). Grimsby to Walpole Corridor Preliminary Routeing and Siting Study [online]. Available at: <https://www.nationalgrid.com/document/352621/download> [Accessed 3 March 2025].
- Ref 15 National Grid (2025). Preliminary Environmental Information Report Volume 2 Part B Section 5 Chapter 5 Historic Environment [online]. Available at: <https://www.nationalgrid.com/document/560626/download> [Accessed 20 October 2025].
- Ref 16 Wessex Archaeology (2024). Grimsby to Walpole. Geoarchaeological Desk-Based Assessment. Unpublished Document [Accessed September 2025].
- Ref 17 British Geological Survey. 2025. British Geological Viewer. Available online at: [https://geologyviewer.bgs.ac.uk/?\\_ga=2.51252461.590012620.1741009041-1253966356.1741009041](https://geologyviewer.bgs.ac.uk/?_ga=2.51252461.590012620.1741009041-1253966356.1741009041)

# **6. Water Environment and Flood Risk**

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# 6. Water Environment and Flood Risk

## 6.1 Introduction

- 6.1.1 This chapter presents the Supplementary Preliminary Environmental Information (PEI) in relation to the Water Environment and Flood Risk assessment for the New Weston Marsh Substations A and B Section (Section 5) of the Grimsby to Walpole Project (the Project).
- 6.1.2 The preliminary assessment of Section 5 reported within this chapter presents an update to the previously published June 2025 PEI Report (Ref 1), which formed part of the Stage 2 Consultation completed between 11 June and 6 August 2025. This update reflects the fact that since the launch of the Stage 2 consultation, further design development has been completed to confirm the requirement for two substations within Section 5, the preferred location of the new Weston Marsh Substation A and new Weston Marsh Substation B and the associated overhead line and underground cable connections. The draft Order Limits for Section 5 have also now been defined, whereas the June 2025 PEI Report was based upon a wider 'Refined Weston Marsh Substation Siting Zone' which covered a greater total area than the Section 5 draft Order Limits.
- 6.1.3 Updates to the assessment are primarily limited to the Baseline Conditions (section 6.5), Design, Control and Additional Mitigation Measures (section 6.6) and Preliminary Assessment of Effects (section 2.7) sections. The baseline section has been updated to reflect both a site walkover which has now been conducted and the confirmed draft Order Limits in Section 5. Control measures W05 and W06 have been updated to reflect the need for an underground cable within Section 5. The assessment has subsequently been updated to reflect the design development that has taken place for Section 5.
- 6.1.4 The chapter includes the following sections:
- i. An introduction to the topic (section 6.1);
  - ii. Identification of key local and regional policy relevant to the assessment (section 6.2). A full overview of the legislation and national, regional onshore and marine planning policy context that applies to the Project is presented within **Supplementary PEI Report Volume 2 Part A Chapter 2 Legislative, Regulatory and Planning Policy Context** and supporting appendices;
  - iii. A summary of the assessment scoping process and the subsequent scope of the Water Environment and Flood Risk assessment (section 6.3). Further detail is provided within **Supplementary PEI Report Volume 3 Part A Appendix 4A Planning Inspectorate Scoping Opinion Responses**;
  - iv. A high-level summary of the methodology of the Water Environment and Flood Risk assessment within Section 5 (section 6.4). A detailed description of the assessment methods and scope, applicable to the whole Project, is contained in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**;

- v. A description of the environmental baseline within the Section 5 Study Area relevant to the Water Environment and Flood Risk assessment, updated since publication of the June 2025 PEI Report based upon the Section 5 draft Order Limits (section 6.5);
- vi. A description of mitigation measures included for the purposes of the Water Environment and Flood Risk assessment reported within the Supplementary PEI Report (section 6.6). Further information regarding design development can be found in **Supplementary PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered** and the **Supplementary Design Development Report for Section 5**;
- vii. The likely significant and non-significant Water Environment and Flood Risk effects arising during construction and operation of the Project within Section 5 based upon the assessment completed to date (section 6.7); and
- viii. An outline of the proposed monitoring requirements in relation to Water Environment and Flood Risk effects (section 6.8).

6.1.5 Further supporting information is set out in **Table 6.1** below, including supporting figures and technical appendices.

Table 6.1 Supporting documentation

| Supporting Information                                                                                      | Description                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Topic Specific Supporting Documentation</b>                                                              |                                                                                                                                                                                                                                                                                                                                                                |
| <b>Supplementary PEI Report Volume 2 Part B Figures</b>                                                     | <b>Figure 6.1 Water Environment Receptors and Study Area</b><br><b>Figure 6.2 Principal Local Water Environment Regulators</b><br><b>Figure 6.3 Surface Water Flood Risk</b><br><b>Figure 6.4 Water Framework Directive Surface Water Body Status</b>                                                                                                          |
| <b>Supplementary PEI Report Volume 3 Part C Route-wide Appendix 4A Preliminary Flood Risk Assessment</b>    | Preliminary assessment of the potential flood risk in relation to the Project, which sets out further assessment to be completed in support of the Environmental Statement (ES) and Development Consent Order (DCO) application. The emerging outcomes of ongoing pre-application consultation with key flood risk stakeholders are referenced as appropriate. |
| <b>Supplementary PEI Report Volume 3 Part C Route-wide Appendix 5B Preliminary WFD Screening Assessment</b> | Preliminary assessment of the potential implications of the Project with respect to compliance with the Water Framework Directive (WFD).                                                                                                                                                                                                                       |

## Project Supporting Documentation

|                                                                                                                              |                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Supplementary PEI Report<br/>Volume 2 Part B Chapter 1<br/>Overview of the Section and<br/>Description of the Project</b> | A summary of the works within Section 5, including the permanent infrastructure, temporary construction works, and operational activities.                                                                                  |
| <b>Supplementary PEI Report<br/>Volume 3 Part A Appendix 2A<br/>Key Legislation</b>                                          | A list of identified environmental legislation considered relevant to the Project, which will be updated and amended as required to inform the ES.                                                                          |
| <b>Supplementary PEI Report<br/>Volume 3 Part A Appendix 2B<br/>National and Regional<br/>Planning Policy</b>                | A list of national and regional policies generally applicable to the assessment principles which underpin the June 2025 PEI Report, Supplementary PEI Report and ES.                                                        |
| <b>Supplementary PEI Report<br/>Volume 3 Part A Appendix 2C<br/>Local Plan Policy</b>                                        | An outline of the potentially relevant local planning policy allocations affecting Section 5 of the Project.                                                                                                                |
| <b>Supplementary PEI Report<br/>Volume 2 Part A Chapter 3<br/>Main Alternatives Considered</b>                               | A summary of the main alternatives considered in relation to Section 5 of the Project during the design development process, including the main reasons for selecting the chosen option.                                    |
| <b>Supplementary PEI Report<br/>Volume 2 Part A Chapter 4<br/>Approach to Preliminary<br/>Environmental Information</b>      | Sets out the Environmental Impact Assessment (EIA) approach and general methodology that has been used in developing the Supplementary PEI Report for Section 5 of the Project.                                             |
| <b>Supplementary PEI Report<br/>Volume 2 Part A Chapter 5<br/>Project Description</b>                                        | An overarching description of the Project and its key components, including updated design and construction information relating to Section 5.                                                                              |
| <b>Supplementary PEI Report<br/>Volume 3 Part A Appendix 5A<br/>Preliminary Code of<br/>Construction Practice</b>            | Sets out control and management measures that will be undertaken during construction of the Project if granted consent. The final Code of Construction Practice (CoCP) will be submitted in support of the DCO application. |

- 6.1.6 There are also interrelationships between the potential effects on Water Environment and Flood Risk and other environmental topics. Therefore. Please also refer to the following chapters within **Supplementary PEI Report Volume 2 Part B** and **Part C**:
- i. **Supplementary PEI Report Volume 2 Part B Chapter 4 Ecology and Biodiversity** considers the effects identified by the surface water environment assessment that may affect ecological receptors, including aquatic flora and fauna.
  - ii. **Supplementary PEI Report Volume 2 Part B Chapter 7 Geology and Hydrogeology** considers the effects identified by the surface water environment assessment that may affect hydrogeological receptors.
  - iii. **Supplementary PEI Report Volume 2 Part B Chapter 13 Summary** provides a concise, consolidated summary of the likely significant effects reported for all topics, based upon the preliminary assessment.

- iv. **Supplementary PEI Report Volume 2 Part C Route-wide Chapter 4 Water Environment** presents a summary of the route-wide preliminary impacts and likely significant effects of the Project upon the water environment.
- v. **Supplementary PEI Report Volume 2 Part C Route-wide Chapter 9 Cumulative Effects** reports those intra-project effects which could potentially act in combination to result in cumulative environmental effects. It also identifies a shortlist of other Committed Developments with which there may be potential for cumulative effects, and the relevant environmental topics for such effects (inter-project). The full cumulative effects assessment will be reported within the ES.

## 6.2 Legislation and Policy Framework

### Legislation and National Policy

- 6.2.1 Legislation and national policy relevant to the Project and this chapter is described in **Supplementary PEI Report Volume 2 Part A Chapter 2 Legislative, Regulatory and Planning Policy Context** and supporting appendices, the details of which are set out in **Table 6.1**.

### Regional and Local Policy

- 6.2.2 Regional and local plans or policies relevant to this assessment are as follows:
  - i. Lincolnshire Minerals and Waste Local Plan (2016) (Ref 2).
  - ii. Joint Lincolnshire Flood Risk and Water Management Strategy 2019-2050 (2019) (Ref 3).
  - iii. South East Lincolnshire Local Plan (Adopted March 2019) (Ref 4):
    - Policy 2 Development Management: states that development proposals requiring planning permission will be permitted provided that sustainable development considerations are met, specifically in relation to factors including sustainable drainage and flood risk and impacts or enhancement of areas of natural habitats;
    - Policy 3 Design of New Development: all development must use high quality and inclusive design which demonstrates how issues including, but not limited to, the mitigation of flood risk through flood-resistant and flood-resilient design and sustainable drainage systems will be secured.
    - Policy 4 Approach to Flood Risk: states that development proposed within an I area at risk of flooding will be permitted where it can be demonstrated that there are no other sites available at a lower risk of flooding, that essential infrastructure provides wider benefits that outweigh flood risk and that the application is supported by a site-specific flood risk assessment.
    - Policy 30 Pollution: outlines that development proposals will not be permitted where, taking account of any proposed mitigation measures, they would lead to unacceptable adverse impacts upon health and safety of the public, amenities of the area and the natural, historic and built environment by way of surface and groundwater quality.

- Policy 31 Climate Change and Renewable and Low Carbon Energy: with the exception of wind energy, the development of renewable energy facilities and associated infrastructure will be permitted, provided that individually, or cumulatively, there would be no significant harm to, amongst other factors, the natural environment.
- iv. South Holland Drainage Board Byelaws (2013) (Ref 5) and Welland and Deepings Internal Drainage Board (2022) (Ref 6).
- These byelaws are intended to secure the efficient working of the drainage system within the Board's district, including regulating environmental effects and promoting effective flood risk management.

## 6.3 Scope of Assessment

- 6.3.1 The scope of the assessment has been informed by the Scoping Opinion (Ref 7) provided by the Planning Inspectorate in September 2024 on behalf of the Secretary of State, following the submission of the EIA Scoping Report (Ref 8). The scope has also been informed through consultation and engagement with relevant consultees. A summary of the Scoping Opinion together with a response against each point of relevance to the Water Environment and Flood Risk chapter is provided in **Supplementary PEI Report Volume 3 Part A Appendix 4A Planning Inspectorate Scoping Opinion Responses**. A summary of the stakeholder engagement undertaken to date is provided in **Supplementary PEI Report Volume 3 Part A Appendix 4D Summary of Stakeholder Engagement**.
- 6.3.2 Non-statutory consultation feedback was discussed within the Grimsby to Walpole Stage 1 Consultation Feedback Report (Ref 9). Stage 2 Consultation Feedback relevant to Section 5 is discussed within the **Grimsby to Walpole Section 5 Consultation Feedback Report**.
- 6.3.3 Aspects of the Water Environment and Flood Risk which are included within the scope of the assessment are summarised in **Table 6.2**.
- 6.3.4 It should be noted that the operational phase impacts on aquatic environment and water resource receptors arising from overhead line aspects of the project were scoped out of the assessment at scoping stage and are therefore not considered further in this chapter, in accordance with the Scoping Opinion.

Table 6.2 Water Environment and Flood Risk effects scoped in for further assessment

| Receptor                                                                                                                                                                                                                                                                                                                                                                        | Relevant Assessment Criteria                                                             | Potential Effects Considered                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Construction Phase</b>                                                                                                                                                                                                                                                                                                                                                       |                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Aquatic environment receptors</b> , comprising:<br>- Main rivers<br>- WFD river and transitional waterbodies<br>- IDB-maintained watercourses<br>- Ordinary watercourses<br><br><b>Water resource receptors</b> , comprising:<br>- Licensed surface water abstractions<br>- Unlicensed surface water abstractions for private water supply<br>- Discharges to surface waters | WFD and WFD (Standards and Classification) Directions (England and Wales) 2015 (Ref 10). | <ul style="list-style-type: none"> <li>Deterioration in the water quality of aquatic environment receptors via generation of sediment laden run-off as a result of construction activities, e.g. watercourse crossings and excavations.</li> <li>Potential effects on the hydromorphology and flow conveyance as a result of increased sediment inputs or direct watercourse disturbance (including from new watercourse crossings).</li> <li>Deterioration in the water quality of aquatic environment receptors affected by mobilisation of contaminants from contaminated soil, or accidental spillage of pollutants (e.g. fuel or oil).</li> <li>Deterioration in the water quality of aquatic environment receptors affected by mobilisation of contaminants in groundwater and subsequently surface water.</li> <li>Impact from any dewatering for construction from temporary works impacting groundwater – surface water interactions.</li> <li>The potential effects noted above for surface water aquatic environment receptors could also have implications for surface water resource availability.</li> </ul> |
| <b>Flood risk receptors</b> (property and infrastructure at risk of flooding)                                                                                                                                                                                                                                                                                                   | National Planning Policy Framework (NPPF) (Ref 11)                                       | <ul style="list-style-type: none"> <li>Changes to watercourse flow conveyance arising from the presence of new or modified temporary watercourse crossings. This has the potential not only to affect the morphology of aquatic environment receptors, but to increase the risk of flooding to flood risk receptors.</li> <li>Changes to surface water flood risk due to changes in runoff rates resulting from ground disturbance and creation of impermeable surfaces, and to changes in surface water runoff pathways due to changes in ground surface levels.</li> <li>Changes to fluvial flood risk associated with loss of floodplain storage and/or change in floodplain flow conveyance.</li> <li>Changes to fluvial flood risk associated with compartmentalisation of the floodplain.</li> </ul>                                                                                                                                                                                                                                                                                                                 |



| Receptor                                                                                                                                                                                                                                                | Relevant Assessment Criteria                                                             | Potential Effects Considered                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                         |                                                                                          | <ul style="list-style-type: none"> <li>Impacts on the integrity of flood defence and land drainage infrastructure as a result of physical impingement of Project infrastructure.</li> </ul>                                                                                                                                                                                                                                                                                                                      |
| <b>Operational Phase</b>                                                                                                                                                                                                                                |                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Aquatic environment receptors</b> , comprising: <ul style="list-style-type: none"> <li>- Main rivers</li> <li>- WFD river and transitional waterbodies</li> <li>- IDB-maintained watercourses</li> <li>- Ordinary watercourses</li> </ul>            | WFD and WFD (Standards and Classification) Directions (England and Wales) 2015 (Ref 10). | <ul style="list-style-type: none"> <li>Deterioration in the water quality of aquatic environment receptors due to a spill or leakage of fuels/chemicals during periodic maintenance and refurb activities. These activities are unlikely to require heavy plant, or excavations or the need to construct new temporary access roads.</li> <li>The potential effects noted above for surface water aquatic environment receptors could also have implications for surface water resource availability.</li> </ul> |
| <b>Water resource receptors</b> , comprising: <ul style="list-style-type: none"> <li>- Licensed surface water abstractions</li> <li>- Unlicensed surface water abstractions for private water supply</li> <li>- Discharges to surface waters</li> </ul> |                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Flood risk receptors</b> (property and infrastructure at risk of flooding)                                                                                                                                                                           | NPPF (Ref 11)                                                                            | <ul style="list-style-type: none"> <li>Changes to surface water flood risk due to changes in runoff rates resulting from creation of impermeable surfaces, and to changes in surface water runoff pathways due to changes in ground surface levels.</li> <li>Changes to fluvial flood risk associated with loss of floodplain storage and/or change in floodplain flow conveyance.</li> </ul>                                                                                                                    |

6.3.5 The receptor types identified in **Table 6.2** are briefly introduced below. Features in these three classes are only identified as receptors where they intersect with the Section 5 Study Area for Water Environment and Flood Risk, as defined in section 6.5.

## Aquatic Environment Receptors

- 6.3.6 The basic unit for identification of aquatic environment receptors is WFD surface waterbodies, as defined in the Environment Agency (EA) Cycle 3 River Basin Management Plans (RBMPs) (Ref 12) or water-dependent designated nature conservation sites. This is to allow alignment of the EIA with the WFD assessment for the Project. However, other classes of watercourse (main river, IDB-maintained watercourse, ordinary watercourse) are also identified as receptors where appropriate.

## Water Resource Receptors

- 6.3.7 Water resource receptors are defined within this assessment as surface water abstractions including their associated upstream catchment. The potential for impacts on water quality and water balance/flow regime in the catchments upstream of abstraction locations have been assessed in order to determine potential effects on the abstractions themselves. The assessment of abstractions in the Water Environment and Flood Risk topic is restricted to those from surface water sources. The potential for effects on groundwater abstractions is considered in **Supplementary PEI Report Volume 2 Part B Chapter 7 Geology and Hydrogeology**.
- 6.3.8 Discharges to surface water from other parties are also considered as receptors, although there is little scope for effects of the Project on discharges, apart from direct physical impingement, which will be avoided through imposition of suitable stand-off distances between working areas and discharge infrastructure.

## Flood Risk Receptors

- 6.3.9 Flood risk receptors are defined within this assessment as property and infrastructure that could be at risk of flooding. Their value is defined in terms of the flood risk vulnerability classification set out in Table 2 of the Planning Practice Guidance (PPG) on Flood Risk and Coastal Change (Ref 13) that supports the NPPF (Ref 11). It is recognised that the primary purpose of the NPPF flood vulnerability classification is to guide Flood Risk Assessment (FRA) requirements for new development, but it is also considered to be a useful tool for assessing the relative value of external receptors for flood risk effects from new development.
- 6.3.10 The preliminary assessment for flood risk reported in this chapter only considers the impact of the Project on flood risk to external receptors. An appraisal of the risks of flooding to proposed project infrastructure and activities and proposed mitigation of these risks is provided in the **Supplementary PEI Report Volume 3 Route-wide Appendix 4A Preliminary Flood Risk Assessment**.

## 6.4 Assessment Methodology

- 6.4.1 The assessment scope, methodology, relevant guidance, key assumptions and limitations for the Water Environment and Flood Risk assessment are set out in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**. This includes a description of how receptor value, magnitude of impact and significance of effects are all described and assigned to the assessment. A summary of the key components is outlined below.

- 6.4.2 The text in this section presents a summary of the approach to the assessment of impacts arising from the Project on the surface water environment and flood risk in this Supplementary PEI Report. The methodology has been applied to the construction and operation phases of the Project to provide a preliminary assessment of impacts and effects. The final approach to the assessment reported in the ES which accompanies the DCO application will be kept under review, subject to further consultation with relevant statutory bodies.
- 6.4.3 The assessment methodology is generally consistent with guidance set out in LA113 from the Design Manual for Roads and Bridges (BMRB) (Ref 14). Whilst primarily intended for use in assessing the impacts of highways projects on the water environment, the methodology is widely accepted for assessing the effects of other types of linear infrastructure. The assessment methodology, particularly in respect to the value assigned to receptors, also draws on experience from previous electricity transmission projects, as well as having regard for the specific characteristics of the water environment in the Project Study Area.
- 6.4.4 A supporting FRA is being developed in accordance with the requirements of the Energy National Policy Statement EN-1 (Ref 15) and EN-5 (Ref 16), the NPPF (Ref 11), relevant local planning policy and local flood risk management guidelines published by the Lead Local Flood Authorities (LLFAs) and Internal Drainage Boards (IDBs). The FRA will be included within the ES. A preliminary FRA (PFRA) was previously published within the June 2025 PEI Report as an appendix to the Water Environment and Flood Risk chapter of the Route Wide Assessment. This has been updated based upon the latest design information for Section 5 and is included in **Supplementary PEI Report Volume 3 Part C Route-wide Appendix 4A Preliminary Flood Risk Assessment**.
- 6.4.5 An assessment of compliance with the WFD will be produced in line with Nationally Significant Infrastructure Projects: Advice on the Water Framework Directive (Ref 17) and included in the ES. A summary of assessment approach and Stage 1 Screening assessment was previously published within the June 2025 PEI Report, as an appendix to the Water Environment and Flood Risk chapter of the Route Wide Assessment. As with the preliminary FRA, this has been updated based upon the latest design information for Section 5 and is included in **Supplementary PEI Report Volume 3 Part C Route-wide Appendix 4B Preliminary WFD Screening Assessment**.
- 6.4.6 Relevant technical guidance and standards that have informed the methodology are listed in full in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.

## Assessment Assumptions and Limitations

- 6.4.7 All general assumptions and limitations for the topic are listed within **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**. The assessment within this Supplementary PEI Report does not consider the potential impacts of the assumed permanent easements that may be required for the Project. Any impacts and effects will be assessed and reported within the Environmental Statement.
- 6.4.8 These key parameters and assumptions will be reviewed based on the design presented in the DCO application and, where required, updated, or refined, for the ES. The ES will present the final key limitations and assumptions used within that

assessment, particularly drawing attention to any areas that may have changed from that presented in this preliminary assessment.

## 6.5 Baseline Conditions

### Study Area

- 6.5.1 The Section 5 Study Area for the Water Environment and Flood Risk assessment includes the area within the Section 5 draft Order Limits and extends to a 500 m buffer around the draft Order Limits. This is in accordance with the Scoping Report (Ref 8) and considered an appropriate Study Area based on the nature of the Project construction and operation (and maintenance) activities, technical knowledge of similar schemes, and an understanding of source-pathway-receptor linkages for Water Environment and Flood Risk. Beyond the 500 m buffer, effects resulting from the Project are unlikely and have therefore been scoped out. This was accepted by the Planning Inspectorate (PINS) in their Scoping Opinion (Ref 7). The Section 5 Study Area is presented in **Supplementary PEI Report Volume 2 Part B Figure 6.1 Water Environment Receptors and Study Area**.
- 6.5.2 The following sections provide a description of the baseline environment relevant to the Section 5 Study Area.

### Data Collection

- 6.5.3 At this stage, the Water Environment and Flood Risk baseline has been developed on the basis of a desk-based assessment of existing data, as summarised in **Table 6.3**. A site walkover was undertaken in July 2025 to supplement the data described below and inform assessment reported in the ES. The understanding obtained from the baseline data will be supplemented by subsequent consultation with relevant water and flood risk stakeholders. The baseline characterisation will therefore be refined where appropriate as data becomes available and as the details of the design are developed.
- 6.5.4 Flood model outputs (including flood extent and flood depth data) for the floodplains within the draft Order Limits are available from the following Environment Agency models:
- i. Main East Coast Breach Model and Report (Ref 18); and
  - ii. Northern Area Tidal Modelling (NTM) East Coast Overtopping Model and Report (Ref 19).
  - iii. Outer Dowsing Offshore Wind Model and Report (Ref 20)
  - iv. Tidal Nene and Tidal Welland Model and Report (Ref 21)
  - v. Welland Glen Model and Report (Ref 22)
- 6.5.5 The known or predicted current and future baseline environment described in this section has been informed by the data sources listed in **Table 6.3**.
- 6.5.6 The Flood Map for Planning was updated in March 2025 to represent the latest available data arising from the Environment Agency's updated National Flood Risk Assessment (NaFRA2) (Ref 23). This Supplementary PEI Report and the updated screening exercise presented in the **Supplementary PEI Report Volume 3 Part C**

**Appendix 4A Preliminary Flood Risk Assessment** is based on Environment Agency flood mapping data available prior to the March 2025 update. The assessment of flood risk in relation to the Project is to be updated to reflect the March 2025 updates to the Flood Map for Planning as part of the FRA submitted in support of the DCO application for the Project.

**Table 6.3** Data sources used to inform baseline conditions

| <b>Data topic</b>                                  | <b>Sources of information</b>                                                                                                                                                                                                                                                                                                                                       |
|----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Climate                                            | Met Office UK Climate averages at Holbeach (Ref 24)                                                                                                                                                                                                                                                                                                                 |
| Topography                                         | Ordnance Survey Mapping (Ref 25)                                                                                                                                                                                                                                                                                                                                    |
| Geology                                            | British Geological Survey (BGS) Geology of Britain Viewer (Ref 26)                                                                                                                                                                                                                                                                                                  |
| Soils and land use                                 | Department for Environment, Food and Rural Affairs (DEFRA) Multi-Agency Geographic Information for the Countryside (Magic Map) online GIS portal (Ref 27);<br>National Soil Research Institute Soilscales map viewer (Ref 28)                                                                                                                                       |
| Hydrology                                          | Environment Agency Statutory Main River Map for England (Ref 29)<br>Flood Estimation Handbook Web Service (Ref 30)                                                                                                                                                                                                                                                  |
| Flood risk                                         | Environment Agency Flood Map for Planning (Ref 31)<br>Environment Agency Risk of Flooding from Surface Water (RoFSW) (Ref 32)<br>National Flood Risk Assessment (NAFRA) Dataset (Ref 23)<br>Environment Agency Risk of Flooding from Reservoirs (Ref 33)<br>Environment Agency Flood Defence Asset database (Ref 34)<br>National River Flow Archive (NRFA) (Ref 35) |
| Water quality and Water Framework Directive status | Catchment Data Explorer database (Ref 36) of Cycle 2 and 3 WFD information                                                                                                                                                                                                                                                                                          |
| Water abstractions and discharge consents          | Environment Agency abstraction and discharge consent data including active discharge locations, abstraction licence strategies and local authority private water supply datasets (Ref 37) (Ref 38)                                                                                                                                                                  |

## Survey Work

- 6.5.7 Site walkover surveys were conducted in summer 2025 with a view to informing the ES. Observations from the surveys were recorded to inform both design development and environmental assessments, but did not result in any changes to the baseline understanding as reported herein.
- 6.5.8 The following data were not available at the time of writing this Supplementary PEI Report but will be available to inform the ES:
- Aquatic ecology surveys, including:

- General characteristics of watercourses to be crossed, including physical features such as length, depth, width, flow, water level, bed and bank substrate and bankside and in-channel vegetation cover;
- Aquatic habitat appraisal surveys and assessments; and
- Appraisal of potential for protected and notable species typically associated with watercourse habitats.

### Further Data Requests

- 6.5.9 To support the Water Environment and Flood Risk assessment presented in the ES, engagement is ongoing with LLFAs and IDBs to confirm and clarify interactions associated with watercourses under their maintenance.

### Existing Baseline

- 6.5.10 The following section outlines the Water Environment and Flood Risk baseline. The baseline section should be read in conjunction with the following supporting Figures and Appendices as found within **Supplementary PEI Report Volume 2** and **Volume 3** respectively:

- Supplementary PEI Report Volume 2 Part B Figure 6.1 Water Environment Receptors and Study Area;**
- Supplementary PEI Report Volume 2 Part B Figure 6.2 Principal Local Water Environment Regulators;**
- Supplementary PEI Report Volume 2 Part B Figure 6.3 Surface Water Flood Risk;**
- Supplementary PEI Report Volume 2 Part B Figure 6.4 Water Framework Directive Surface Water Body Status;**
- Supplementary PEI Report Volume 3 Part C Route-wide Appendix 4A Preliminary Flood Risk Assessment;** and
- Supplementary PEI Report Volume 3 Part C Route-wide Appendix 4B Preliminary WFD Screening Assessment.**

- 6.5.11 The draft Order Limits in Section 5 cover the new Weston Marsh Substations A and B and the proposed underground cable between them, as well as new sections of overhead line plus modifications to existing overhead lines. Section 5 is located within the southern extent of the Project commencing south of the River Welland and ending north west of the village of Weston. The Section 5 draft Order Limits and Study Area are located entirely within the local authority area of South Holland. The draft Order Limits for Section 5 are presented in **Supplementary PEI Report Volume 2 Part B Figure 1.1 Draft Order Limits.**

- 6.5.12 At this stage, baseline conditions have been assessed based upon desk-based information and will be reviewed and updated as required within the ES, based upon further field survey and data collection.

### Climate

- 6.5.13 Average annual rainfall estimates for the period 1991-2020 were taken from the Met Office website (Ref 24). This demonstrates the average annual total rainfall in the



locality of Section 5 was approximately 623 mm, based on the Holbeach station record (NGR TF440327) located approximately 14 km east of the Section 5 Study Area. This is lower than the Eastern and Northeastern England regional average (1991-2020) of 793 mm.

- 6.5.14 The distribution of rainfall throughout the year varied based on the Holbeach 1991-2020 record. The highest monthly average precipitation was recorded during August (64 mm) followed by October (63 mm). The driest months were March (51 mm) and February (52 mm).
- 6.5.15 Average monthly maximum and minimum temperature estimates for the period of 1991-2020 demonstrate that the summer months (June - August) featured the highest monthly maximum temperatures, and the winter months (December - February) featured the lowest monthly minimum temperatures. The temperature profile is consistent with the range to be expected for the East of England.
- 6.5.16 Across the Eastern and Northeastern England districts, there has been minimal increase in annual rainfall between 1991-2020. The average annual maximum temperatures and average annual minimum temperatures both exhibit an increasing trend for the same period.

### Topography and Land Use

- 6.5.17 A review of Ordnance Survey (OS) mapping shows the land across the Section 5 Study Area to be generally flat and low-lying, with elevations ranging between 3 and 6 metres above ordnance datum (mAOD). The low-lying nature of the land is such that frequent surface water features are present across the Section 5 Study Area, including ponds, drains and streams, with the River Welland in the north and west of the Study Area.
- 6.5.18 The land within the Section 5 Study Area is primarily used for agricultural purposes. There are no major roads crossed by the draft Order Limits, with highway infrastructure primarily limited to minor/local roads providing connectivity between agricultural land holdings and the wider A road network (A17, A16 and A151). The existing junction of the A151 is however located within the Study Area to the south of Section 5.
- 6.5.19 No existing properties are located within Section 5, although localised residential properties and farm buildings are present in close proximity. The closest settlement to the Section 5 draft Order Limits is the village of Moulton Seas End, approximately 1.4 km to the south east.
- 6.5.20 Existing 400kV overhead lines are present within the draft Order Limits and are being modified as part of the Project. The existing 4ZM overhead line is oriented north west to south east and the 2WS overhead line orientated north east to south west.

### Hydrology and Surface Water Features

- 6.5.21 Surface water features identified within the Section 5 Study Area are shown in **Supplementary PEI Report Volume 2 Part B Figure 6.1 Water Environment Receptors and Study Area** and includes two Environment Agency main rivers (River Welland and River Glen) and a network of ordinary and IDB-maintained watercourses. The IDB-maintained and ordinary watercourses fall within the district of the Welland and Deepings IDB to the west of the River Welland and the district of the South Holland IDB to the east as shown in **Supplementary PEI Report Volume 2**



**Part B Figure 6.2 Principal Local Water Environment Regulators.** The entire Section 5 Study Area is located within the Anglian River Basin District (RBD).

- 6.5.22 The River Welland and River Glen predominantly lie to the west of the Section 5 Study Area. A short section of the River Glen approximately 120 m in length, flows in a north easterly direction through the north western part of the Study Area, before joining the River Welland. The River Welland bisects the Section 5 draft Order Limits at the northern extent of the Section 5 Study Area. This main river flows in a northeasterly direction towards the Wash and is tidally influenced across the reach located within the Section 5 Study Area.
- 6.5.23 South Holland IDB comprises many hydrological catchments. Section 5 is within the 'R' catchment, which includes Lord's North and Lord's South (CMT208P) (Ref 39).
- 6.5.24 The Lord's North and Lord's South catchments include IDB-maintained watercourses such as Wykeham Drain (DRN208P1703), Crowtree Connection (DRN208P2001), New Drain (DRN208P1101) and Domino Drainium (DRN208P0502). These drain to the IDB watercourse named Lord's Drain (DRN208P0701). However, under the WFD classifications Lord's Drain is known as Moulton River and is classified as a blue line watercourse. The IDB drainage network conveys flows to the River Welland (Main River) via several water level control structures. The nearest water control structures to the draft Order Limits are Lord's Drain Pumping Station and Lord's Drain Sluice (NGR TF295307). Although the pumping stations lie outside the Study Area, they may still influence hydraulics by altering flow regimes upstream which could impact drainage and flood risk considerations.
- 6.5.25 The Welland and Deepings IDB is split into 19 smaller catchments (Ref 40), five of which traverse the Section 5 Study Area west of the River Welland. The catchments are named the Risegate Eau catchment, Surfleet catchment, Bluegowt Outfall catchment, Spalding Urban catchment and Pinchbeck Marsh catchment.
- 6.5.26 The Risegate Eau Catchment is situated north of the River Glen. The Surfleet Catchment is also situated north of the River Glen and comprises three IDB-maintained watercourses that all discharge in an easterly direction to the River Welland, via the Surfleet Marsh Pumping Station (NGR TF284298). The Bluegowt Outfall Catchment is located south of the River Glen and west of the River Welland. The catchment comprises two IDB-maintained watercourses: Blue Gowt Drain discharges to the River Glen (NGR TF27629); while Vernatt's Drain discharges into the River Welland via a pumping station (NGR TF281292). The Spalding Urban and Pinchbeck Marsh catchments lie in the southwest of the Study Area, with Vernatt's Drain flowing between them.
- 6.5.27 Further engagement with South Holland IDB and Welland and Deepings IDB will be carried out prior to finalisation of the ES to ensure that watercourse connectivity and the level management regime in both catchments are fully understood.
- 6.5.28 **Table 6.4** summarises the receptors considered in the preliminary assessment. The value of each receptor has been determined in accordance with **Supplementary PEI Report Volume 2 Part A Chapter 4 Approach to Preliminary Environmental Information** and **Supplementary PEI Report Volume 3 Part A Appendix 4B EIA Assessment Methodologies and Scope**.

**Table 6.4** Identified surface water receptors and associated value – aquatic environment receptors

| Receptor                                                                  | Value | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------------------------------------------------------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| River Welland WFD Transitional and Coastal Water Body<br>(GB530503100400) | High  | <ul style="list-style-type: none"> <li>• A main river and a WFD transitional and coastal water body supporting moderate status in the Cycle 3 classifications.</li> <li>• Supports The Wash SSSI downstream.</li> <li>• No licenced abstractions.</li> <li>• Potential for effects from two overhead line watercourse crossings proposed (WM-WCX-1 and WM-WCX2).</li> </ul>                                                                                                                                                                                                                                                                      |
| Risegate Eau WFD River Water Body<br>(GB205031055525)                     | High  | <ul style="list-style-type: none"> <li>• A WFD river water body supporting poor status in the Cycle 3 classifications.</li> <li>• The WFD catchment intersects the Study Area although the 'blue line' watercourse itself is located outside of the Study Area.</li> <li>• Supports the Wash SSSI downstream.</li> <li>• No licenced abstractions.</li> </ul>                                                                                                                                                                                                                                                                                    |
| Whaplode River WFD Water Body<br>(GB205031055495)                         | High  | <ul style="list-style-type: none"> <li>• A WFD river water body supporting moderate status in the Cycle 3 classifications.</li> <li>• The WFD catchment intersects the Study Area although the 'blue line' watercourse itself is located outside of the Study Area.</li> <li>• No licenced abstractions.</li> </ul>                                                                                                                                                                                                                                                                                                                              |
| Moulton River WFD River Water Body<br>(GB205031050755)                    | High  | <ul style="list-style-type: none"> <li>• A WFD river water body supporting moderate status in the Cycle 3 classifications.</li> <li>• The WFD 'blue-line' watercourse is within the draft Order Limits.</li> <li>• A South Holland IDB-maintained drain known as Lord's Drain (DRN208P0701).</li> <li>• Supports the Wash SSSI 7.3km downstream.</li> <li>• Potential for direct effects from 19 watercourse crossings proposed (WM-WCX-4 to WM-WCX-22).</li> <li>• Potential for indirect effects as a result of construction of the new Weston Marsh Substations A and B, underground cable and pylons in the water body catchment.</li> </ul> |
| Vernatt's Drain WFD River Water Body<br>(GB205031050705)                  | High  | <ul style="list-style-type: none"> <li>• A WFD river water body supporting moderate status in the Cycle 3 classifications.</li> <li>• The WFD 'blue-line' watercourse is located within the western extent of the Study Area outside the draft Order Limits.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                          |

| Receptor                                             | Value    | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------------------------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                      |          | <ul style="list-style-type: none"> <li>• A Welland and Deepings IDB-maintained watercourse (Vernatts Drain (ID-222)).</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Glen WFD River Water Body (GB105031050720)           | High     | <ul style="list-style-type: none"> <li>• A WFD river water body supporting moderate status in the Cycle 3 classifications.</li> <li>• The WFD 'blue-line' watercourse is located within the western extent of the Study Area outside the draft Order Limits.</li> <li>• Intersected by the Section 5 Study Area to the west of the River Welland.</li> <li>• Contains a Welland and Deepings IDB-maintained watercourse (Blue Gowt Outfall (ID-75)).</li> </ul>                                                                                                                                                                                                                                                                                                              |
| South Holland Main Drain Water Body (GB205032050405) | Moderate | <ul style="list-style-type: none"> <li>• A WFD river water body supporting moderate status in the Cycle 3 classifications.</li> <li>• The WFD catchment intersects the Study Area although the 'blue-line' watercourse is located outside of the Section 5 Study Area.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| IDB maintained watercourses                          | Medium   | <ul style="list-style-type: none"> <li>• A network of IDB-maintained watercourses managed by Welland and Deepings IDB and South Holland IDB to maintain drainage within the respective catchments draining to the River Welland. Artificial or heavily modified morphology.</li> <li>• 13 High Priority watercourses present in the Section 5 Study Area in the vicinity of the new Weston Marsh Substations A and B. Largely outside of the draft Order Limits but within the Section 5 Study Area.</li> <li>• Potential for direct impacts as a result of watercourse crossings and diversions.</li> <li>• Potential for indirect impacts via changes to runoff rates and water quality as a result of construction activities and the substation(s) operation.</li> </ul> |
| Ordinary watercourses*                               | Low      | <ul style="list-style-type: none"> <li>• Network of heavily modified or artificial drainage channels mainly in the form of field drains along arable field boundaries. Tributary drains to the IDB-maintained, arterial network.</li> <li>• Potential for direct impacts as a result of watercourse crossings and diversions. Potential for indirect impacts via changes to runoff rates and water quality as a result of construction activities and the substation(s) operation.</li> </ul>                                                                                                                                                                                                                                                                                |

\*Not recorded under any other designations

6.5.29 There are no Environment Agency gauging stations on any of the watercourses traversing the Section 5 Study Area. Given that this area is located in an IDB-managed pumped catchment, data from nearby flow gauging stations on other

watercourses are unlikely to serve as a useful proxy for the hydrological behaviour of the catchment. Further engagement with South Holland IDB will be carried out prior to finalisation of the ES to ensure that watercourse connectivity and the level management regime in this catchment is fully understood.

### Water Quality and Water Framework Directive Status

- 6.5.30 The Section 5 Study Area is located within the Anglian RBD, two Operational Catchments and seven water bodies, as shown in **Supplementary PEI Report Volume 2 Part B Section 5 Figure 6.4 Water Framework Directive Surface Waterbody Status**.
- 6.5.31 The WFD classifications for these waterbodies are informed by monitoring a range of parameters that are indicators of water quality from the Environment Agency monitoring sites. As **Table 6.5** shows, the waterbodies currently achieve poor to moderate ecological status due to poor nutrient and soil management, sewage discharge, and private sewage treatment and have artificial or heavily modified hydromorphological designations. The waterbodies in Section 5 all have a chemical status of 'fail' due to exceedance of priority hazardous substances, in particular mercury and its compounds, dissolved oxygen, and polybrominated diphenyl ethers (PBDE).
- 6.5.32 Summary details of the current status for the WFD water bodies relevant to Section 5 are provided in **Table 6.5**, with further detail regarding reasons for not achieving good status (RNAG) and WFD objective provided in **Supplementary PEI Report Volume 3 Part C Route-wide Appendix 5B Preliminary WFD Screening Assessment**. Information on groundwater water bodies is included in **Supplementary PEI Report Volume 2 Part B Chapter 7 Geology and Hydrogeology**.

Table 6.5 WFD waterbodies in direct connectivity with Section 5

| Water Body (ID)                                      | Water Body Type    | Water Body Type (Cycle 3) | Overall Water Body status (Cycle 3) (2022) <sup>1</sup> |
|------------------------------------------------------|--------------------|---------------------------|---------------------------------------------------------|
| Risegate Eau Water body (GB205031055525)             | River              | Artificial                | Poor                                                    |
| Vernatt's Drain Water body (GB205031050705)          | River              | Artificial                | Moderate                                                |
| Welland (GB530503100400)                             | Transitional Water | Heavily modified          | Moderate                                                |
| Moulton River Water body (GB205031050755)            | River              | Artificial                | Moderate                                                |
| Whaplode River Water body (GB205031055495)           | River              | Artificial                | Moderate                                                |
| Glen Water body (GB105031050720)                     | River              | Artificial                | Moderate                                                |
| South Holland Main Drain Water Body (GB205032050405) | River              | Artificial                | Moderate                                                |

<sup>1</sup> These are the 2022 statuses as obtained from the Catchment Data Explorer

- 6.5.33 The Section 5 Study Area is not located within a surface water Drinking Water Protected Area or Safeguard Zone. The Section 5 Study Area does transect the Glen Nitrate Vulnerable Zone (NVZ), Vernatt's Drain NVZ, Risegate Eau NVZ and Whaplode River NVZ.
- 6.5.34 Information on groundwater Safeguard Zones is included in **Supplementary PEI Report Volume 2 Part B Chapter 7 Geology and Hydrogeology**.

#### **Surface Water-Dependent Nature Conservation sites**

- 6.5.35 Four non-statutory nature conservation sites that are dependent on surface water have been identified within the Section 5 Study Area for Water Environment and Flood Risk. This is shown in **Supplementary PEI Report Volume 2 Part B Figure 4.3 Sites Statutorily designated for their County Biodiversity Importance**, and listed below:
- i. Blue Gowt Drain North Local Wildlife Site (LWS) – Drainage channel that comes off from the River Glen LWS;
  - ii. Pinchbeck Marsh LWS;
  - iii. Surfleet Seas End Saltmarsh LWS – Area running alongside River Welland that contains coastal and floodplain grazing marsh and mudflats; and
  - iv. Vernatt's Drain LWS – Drainage channel that runs through arable land close to the River Welland.
- 6.5.36 Further detail, including a preliminary assessment of the likely effects of the Project upon these receptors, is provided within **Supplementary PEI Report Volume 2 Part B Chapter 4 Ecology and Biodiversity**. Groundwater Dependent Terrestrial Ecosystems (GWDTEs) will be addressed separately in the ES.

#### **Water Resources**

- 6.5.37 Data to characterise existing water interests has been collected from the EA. Based on the available data within the Section 5, there are four licensed surface water abstractions in the Section 5 Study Area in **Table 6.6** below.
- 6.5.38 Correspondence with South Holland District Council indicates that there are no private water supplies located within its reaches of the Section 5 Study Area. There are no permitted surface water discharges in the Section 5 Study Area.
- 6.5.39 An assessment of effects upon any identified groundwater abstractions, including private water supplies, is provided in **Supplementary PEI Report Volume 2 Part B Chapter 7 Geology and Hydrogeology**.
- 6.5.40 The Welland Abstraction Licensing Strategy (ALS) (Ref 38) indicated that the Section 5 Study Area is located in a restricted water availability area and that is only available for abstraction for on average 98 days per annum (Assessment Point 4, Surfleet).
- 6.5.41 The identified water resource receptors within the Section 5 Study Area and their associated values are listed in **Table 6.6** below.

Table 6.6 Water resource receptors within the Section 5 Study Area

| Receptor                                                                                           | Value | Rationale                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------------------------------------------------------------------|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Licensed abstraction from Lord's Drain at Lamberts Farm, Spalding<br>(AN/031/0014/062)             | Low   | <p>Within the draft Order Limits.</p> <p>Located on Lord's Drain along the eastern edge and downstream of the draft Order Limits (NGR TF298271) and utilised by Lamberts Farm for spray irrigation storage. The Lord's Drain is an IDB arterial watercourse and flows north to discharge to the River Welland via a pumping station (NGR TF295307).</p>                                       |
| Licensed abstraction from Lord's Drain for George Hay & Sons LTD<br>(5/31/14/*S/0264)              | Low   | <p>Within the Study Area outside the draft Order Limits and downstream of Project infrastructure.</p> <p>Located on the Lord's Drain to the north of the Study Area. Used for trickle irrigation storage by Wragg Marsh Farm (NGR TF299302). The Lord's Drain is an IDB high priority watercourse and flows north to discharge to the River Welland via a pumping station (NGR TF295307).</p> |
| Licensed abstraction from Wykeham Drain for Lincolnshire Field Products LTD<br>(5/31/14/*S/0247)   | Low   | <p>Within the Study Area, however outside and upstream of the draft Order Limits.</p> <p>Located on Wykeham Drain to the south west of the Study Area. The abstraction is used by Lincolnshire Field Products Ltd for spray irrigation storage. The Wykeham Drain is an IDB-maintained watercourse and is a tributary to Lord's Drain.</p>                                                    |
| Licensed abstraction from Vernatt's Drain for Lincolnshire Field Products LTD<br>(5/31/14/*S/0247) | Low   | <p>Within the Study Area outside of and upstream of the draft Order Limits.</p> <p>Located on Vernatt's Drain west of the Study Area and River Welland. The abstraction is used by Lincolnshire Field Products Ltd for direct spray irrigation. Vernatt's Drain is a WFD blue line watercourse and a Welland and Deepings IDB-maintained drain that discharges to the River Welland.</p>      |

## Flood Risk and Land Drainage

- 6.5.42 The Environment Agency's Flood Map for Planning (Ref 31) provides an indication of the likelihood of flooding from fluvial and tidal sources, with Flood Zones 1, 2 and 3 indicating a Low Medium and High (Ref 31) likelihood of flooding respectively. Flood Zone extents are shown on **Supplementary PEI Report Volume 2 Part B Figure 6.1 Water Environment Receptors and Study Area**.
- 6.5.43 According to the Environment Agency Flood Map for Planning (Ref 31), the majority of the Section 5 Study Area is located within Flood Zone 3 (high risk), equivalent to an annual chance of flooding from rivers of 1 in 100 (1%) and from the sea of 1 in 200 (0.5%) or greater. The dominant risk within the Section 5 Study Area is that from tidal flooding. The new Weston Marsh Substation B and associated infrastructure is



located entirely within Flood Zone 3. The majority of the new Weston Marsh Substation A location is also classified as Flood Zone 3, although the footprint also includes areas in Flood Zone 2.

- 6.5.44 Section 5 is situated within three Flood Warning Areas as listed below:
- Tidal flooding from the Right Bank of the River Welland near Spalding and Moulton Common (055FWTWELL3);
  - Tidal Welland between Fulney and Fosdyke Bridge (055FWTWELL1); and
  - East of Spalding and surrounding areas (055FWTWELL4B).
- 6.5.45 According to the Environment Agency Asset Information and Maintenance (AIMS) database (Ref 39), and site walkover surveys, there are tidal flood defences present in the form of embankments along the banks of the River Welland which are maintained by the EA. The defences provide a design standard of protection of 50 years. The Section 5 Study Area appears to benefit to some level from these defences. However, further work is required to determine the level of the benefit and the potential residual risks associated with defence breach or overtopping. This will determine the type and level of flood protection required for the substation(s).
- 6.5.46 There are a number of areas at risk of surface water flooding within the Section 5 Study Area according to the Environment Agency's surface water flood risk mapping (Ref 32) as illustrated in **Supplementary PEI Report Volume 2 Part B Figure 6.3 Surface Water Flood Risk**. Some isolated areas are classified as low, medium and high and are likely associated with small watercourses and localised topographic low points.
- 6.5.47 Risk of flooding from sewers is not considered as a significant source of flooding in Section 5 due to the predominantly rural setting of the Project.
- 6.5.48 The Environment Agency's on-line flood risk mapping for reservoirs (Ref 33) indicates no risk of flooding from reservoir failure within the Section 5 Study Area.
- 6.5.49 Flood modelling to inform the Outer Dowsing Offshore Wind project was previously undertaken by SLR Consulting (Ref 20). Site-specific modelling for the Grimsby to Walpole Project has not yet been undertaken. Existing models are in review and a proposed updated modelling methodology is to be agreed with the Environment Agency (EA) prior to implementation. The confirmed methodology and subsequent modelling outputs will be reported within the ES and FRA prepared for the DCO Application.
- 6.5.50 A number of external receptors for flood risk effects from the Project have been identified within the Section 5 Study Area. The receptors and their associated value are identified in **Table 6.7**.

**Table 6.7 Identified flood risk receptors and associated value**

| Receptor                                                                      | Value  | Rationale                     |
|-------------------------------------------------------------------------------|--------|-------------------------------|
| Agricultural land and undeveloped land                                        | Low    | Water compatible development. |
| Agricultural premises and commercial property designated as 'Less Vulnerable' | Medium | Less vulnerable development.  |



| Receptor                                                                                                                                                                                                                 | Value     | Rationale                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|------------------------------------------------------------|
| Residential properties and other 'Highly Vulnerable' development types and access roads designated as 'More Vulnerable.' This includes properties along Marsh Road, Carrington Road, Hall Gate road and Stone Gate road. | High      | More vulnerable development.                               |
| Flood defence embankments along the River Welland and other essential infrastructure that is vulnerable to flooding, such as the A151 and A16.                                                                           | Very High | Essential infrastructure or highly vulnerable development. |

## Future Baseline

- 6.5.51 The future baseline relates to known or foreseeable changes to the current baseline in the future, against which the effects of the Project during construction and operation can be assessed. Specifically, it accounts for anticipated changes including: those caused by changing climatic conditions, policy, legislation, advances in technology and by other confirmed development projects which will be complete prior to construction of the Project.
- 6.5.52 At this preliminary stage, a full assessment of the implications of any committed development projects with regard to future baseline conditions has not been undertaken. A list of the currently known developments which are anticipated to be included within the future baseline scenario is provided within **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope Annex A Developments for Consideration Within the Future Baseline**. This will be reviewed and updated as appropriate during development of the ES, as with other information which informs assessment of the future baseline.

## Climate and Flood Risk

- 6.5.53 Climate change is likely to lead to significant changes in hydrological conditions within the Section 5 Study Area over the lifetime of the Project. Outputs from UKCP18 (Ref 42) and the Future Flows and Groundwater Levels (FFGWL) Project (Ref 43) will be used to assess likely changes in ambient conditions for the purposes of the future baseline.
- 6.5.54 The FFGWL project is the first of its kind to conduct a consistent assessment of the impact of climate change on river flows and groundwater levels across Great Britain. The project modelled a total of 282 river catchments and 24 boreholes to capture the range of climate, land use, geological and geographical characteristics found in England, Wales and Scotland. The outputs aid the study of the impact of climate change on water availability and allows river basin management plans to be tested for robustness (Ref 44).
- 6.5.55 Analysis of the impact of climate change on transient flows for watercourses traversing the Section 5 Study Area has not been conducted due to the lack of location-specific data from the above study. However, an upstream datapoint on the River Chater, a tributary of the River Welland, indicates that transient flows are projected to decrease at all flow percentiles across all models. For the Q30 flow

percentile, a decrease of up to 10% by 2080 is predicted by most models. At the Q90 flow percentile, decreases in transient flows range between 60% and 20% by 2080, depending on the model used (Ref 45). Assessment of seasonal average changes in the region of the Section 5 Study Area indicate that in the 2050s winter flows will increase up to 20% in most scenarios, spring flows will decrease by up to 20% in most scenarios, summer flows will decrease by between 20% and 40% in most scenarios and autumn flows will decrease by up to 20% in most scenarios (Ref 46).

- 6.5.56 For the FRA, the impacts of climate change on future flood risk will be assessed in line with current Environment Agency guidance (Ref 47). Current Environment Agency recommendations for climate change factors to be applied to extreme rainfall and river flows for the Project area and are summarised in **Table 6.8**, **Table 6.9** and **Table 6.10**. These factors are based on analysis of UKCP18 climate model outputs for rainfall and from hydrological models driven by UKCP18 rainfall outputs.

Table 6.8 Peak river flow climate change allowances (Ref 48)

| Allowance Category                  | Potential Change Anticipated for the 2020s | Potential Change Anticipated for the 2050s | Potential Change Anticipated for 2080s |
|-------------------------------------|--------------------------------------------|--------------------------------------------|----------------------------------------|
| <b>Welland Management Catchment</b> |                                            |                                            |                                        |
| Upper                               | 22%                                        | 26%                                        | 53%                                    |
| Higher                              | 10%                                        | 10%                                        | 28%                                    |
| Central                             | 5%                                         | 4%                                         | 17%                                    |

Table 6.9 3.3 per cent Annual Exceedance Probability (AEP) peak rainfall climate change allowances (Ref 48)

| Allowance Category                  | Potential Change Anticipated for the 2050s | Potential Change Anticipated for the 2070s |
|-------------------------------------|--------------------------------------------|--------------------------------------------|
| <b>Welland Management Catchment</b> |                                            |                                            |
| Upper                               | 35%                                        | 35%                                        |
| Central                             | 20%                                        | 25%                                        |

Table 6.10 1 per cent AEP peak rainfall climate change allowances (Ref 48)

| Allowance Category                  | Potential Change Anticipated for the 2050s | Potential Change Anticipated for the 2070s |
|-------------------------------------|--------------------------------------------|--------------------------------------------|
| <b>Welland Management Catchment</b> |                                            |                                            |
| Upper                               | 40%                                        | 40%                                        |
| Central                             | 20%                                        | 25%                                        |

- 6.5.57 Net sea level rise in northern England will be lower than in the south due to glacial isostatic adjustment<sup>1</sup>, which causes the northern parts of the UK to rise slowly. In the Humber region, net sea level rise from the year 2000 is projected to increase by 1.15 m to 1.55 m by 2125, based on higher central and upper end allowances (Ref 47). In the Anglian region, net sea level rise from the year 2000 is expected to increase by 1.20 m to 1.60 m by 2125, according to the same allowances (Ref 47).

### Topography and Land Use

- 6.5.58 Land use change can affect the permeability of the ground, which can affect surface water run-off. The Section 5 Study Area is within an IDB-managed pumped catchment. Changes to agricultural land use practices and rising tidal levels in the River Welland resulting from climate change may impact the management arrangements for this catchment in the future. Given that the surrounding areas are largely rural and in Flood Zone 3, significant new urban development pressure is unlikely. Nevertheless, developers of any new commercial or residential development will be obliged to meet the requirements of the NPPF, as well as IDB requirements to limit runoff rates, to ensure that surface runoff is managed within developments so as not to increase flood risk to others.

### Water Quality and Water Framework Directive Status

- 6.5.59 Given the current status of the WFD waterbodies within the Section 5 Study Area is moderate or poor, it is anticipated the future status will improve, ultimately to good, as required by the WFD. Improvements to WFD water body status associated with improvements to individual quality elements (i.e., PBDE) would result in higher-quality, aquatic environments in these waterbodies. Given that the value of WFD waterbodies is not determined by their status, this does not influence the assessment relative to the existing or future baseline.
- 6.5.60 The WFD reasons for not achieving good status for waterbodies within the Study Area are included in **Supplementary PEI Report Volume 3 Part C Route-wide Appendix 4B Preliminary WFD Screening Assessment**.

### Water Resources

- 6.5.61 The location and rate of surface water abstractions in the area could vary over time and may result in changes to ALS water availability. The Welland ALS has restricted water availability for new abstractions in the region of the Section 5 Study Area. Any new licences would be subject to volume, hands-off flow and/or minimum residual flow restrictions to ensure sufficient flow remained for environmental support purposes.

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<sup>1</sup> **Glacial Isostatic Adjustment (GIA)**: During the last Ice Age, massive ice sheets covered much of northern Europe, including parts of the UK. The weight of these ice sheets caused the Earth's crust to depress.

1. **Post-Glacial Rebound**: After the ice sheets melted, the crust began to slowly rebound or rise. This process is still ongoing today. In northern England, the land is rising more significantly due to this rebound effect.
2. **Relative Sea Level Changes**: Because the land in northern England is rising, the relative sea level rise is lower compared to the south. In southern England, the land is not rising as much, and in some areas, it might even be subsiding slightly. This makes the relative sea level rise appear higher in the south

This difference in land movement due to GIA is why you see varying rates of sea level rise across different parts of the UK.

## 6.6 Design, Control and Additional Mitigation Measures

### Design Mitigation Measures

- 6.6.1 The Project is being designed to avoid sensitive receptors as far as practicable. This is in accordance with the 'Holford Rules' (Ref 49) applicable to routing of new overhead lines and the 'Horlock Rules' (Ref 50) which apply to design and siting of substations. These approaches are explained in further detail within the Corridor Preliminary Routeing and Siting Study (CPRSS) (Ref 51) and **Supplementary PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered**. Principles include, but are not limited to, seeking to avoid areas of highest amenity, cultural or scientific value, taking advantage of natural screening provided by existing landform and features (e.g. woodland) and keeping visual, noise and other environmental effects to a minimum.
- 6.6.2 The Section 5 draft Order Limits have been located to avoid sensitive Water Environment and Flood Risk receptors, where practicable. This is consistent with the sequential approach to management of flood risk advocated in NPS EN-1 (Ref 52); and NPPF (Ref 11).
- 6.6.3 As part of the process of ongoing Project design, the Water Environment and Flood Risk team will continue to work alongside other environmental disciplines and the design team to ensure that appropriate mitigation is incorporated into the final design for permanent infrastructure to minimise effects on Water Environment and Flood Risk receptors. These include, but are not limited to, the following:
- i. Any flood protection measures for the substation (s) are to be designed in accordance with National Grid Electricity Transmission plc (National Grid) internal guidance on substation flood resilience and consistent with planning policy requirements to ensure no increased flood risk to third parties;
  - ii. Substation surface water drainage systems will provide attenuation of runoff from impermeable surfaces to greenfield rates and incorporate appropriate pollution prevention measures, incorporating the use of Sustainable Urban Drainage Systems (SuDS) as far as practicable;
  - iii. If watercourse diversions are required to provide sufficient space for the substation platforms, then these will be designed to provide an equivalent conveyance capacity to the existing watercourses and will incorporate morphological features to promote aquatic biodiversity to a level that is consistent with maintaining effective land drainage. Culverting will be avoided as far as practicable; and
  - iv. Any requirements for water supply and foul water treatment and disposal for office and welfare facilities at substation(s) will be designed to minimise impacts on water resources and receiving water quality.
  - v. Where underground cables cross watercourses, it is assumed that most ordinary watercourses would be open cut crossings. Some watercourses could be crossed using a trenchless technique. Where there is uncertainty on crossing technique due to the design still evolving, open cut would be assessed as it is the worst-case. Crossings techniques proposed at each watercourse will be confirmed and described in the ES once the design has evolved, and ground conditions are better understood following ground investigation works.

- 6.6.4 The preliminary assessment of effects presented herein assumes that the embedded design mitigation set out above will be implemented. The specific details of these measures will be developed for the ES for the DCO application.

## Control Mitigation Measures

### Construction

- 6.6.5 A Preliminary Code of Construction Practice (CoCP) is provided in **Supplementary PEI Report Volume 3 Part A Appendix Preliminary Code of Construction Practice**. General aspects of the control measures pertinent to Water Environment and Flood Risk include:
- i. GG03: Suitably experienced Environmental Advisers will be appointed for the duration of the construction phase. In addition, qualified and experienced Environmental Clerks of Works (EnvCoW) will be available during the construction phase to advise, supervise and report on the delivery of the mitigation methods and controls outlined in the Management Plans. The EnvCoW(s) will monitor that the works proceed in accordance with relevant environmental DCO requirements and adhere to the required good practice and mitigation measures. The EnvCoW(s) will be supported as necessary by appropriate specialists, including ecologists and arboriculturists, soils and land drainage experts.
  - ii. GG04: Construction workers will undergo training to increase their awareness of environmental issues as applicable to their role on the Project. Topics will include where appropriate:
    - pollution prevention and pollution incident response;
    - dust management and control measures; location and protection of sensitive environmental sites and features;
    - adherence to protected environmental areas around sensitive features;
    - working hours and noise and vibration reduction measures;
    - working with potentially contaminated materials;
    - waste management and storage;
    - flood risk response actions;
    - agreed traffic routes, access points, etc.;
    - soil management; and
    - drainage management.
  - i. GG05: A record of condition will be carried out (photographic and descriptive) of the working areas that may be affected by the construction activities, prior to works commencing. This record will be available for comparison following reinstatement after the works have been completed to ensure that the standard of reinstatement at least meets that recorded in the pre-condition survey.
  - ii. GG06: A Construction Environmental Management Plan (CEMP), a Landscape and Ecological Management Plan (LEMP), a Site Waste Management Plan (SWMP) and a Construction Traffic Management Plan (CTMP), Emergency

Action Plan, Public Rights of Way Management Plan (PRoWMP), Overarching Written Scheme of Investigation (WSI), Biodiversity Management Plan, Noise and Vibration Management Plan, Pollution Prevention Plan, Foundation Works Risk Assessment, Carbon efficiency Plan, Dust Management Plan (DMP), DrMP along with a Soil Management Plan (SMP) will be produced prior to construction. These are collectively referred to as ‘the environmental control Plans.’

- iii. GG07: The CEMP will set out site specific measures and construction methodologies to avoid or reduce potential effects of the Project on the environment during construction. The contractor(s) shall undertake regular site inspections to check conformance to the Management Plans.
- iv. GG15: Fuels, oils and chemicals will be stored responsibly, away from sensitive water receptors. Where practicable, they will be stored >15 m from watercourses, ponds and groundwater dependent terrestrial ecosystems. Where it is not practicable to maintain a >15 m distance, additional measures will be identified. All refuelling, oiling and greasing of construction plant and equipment will take place above drip trays or other suitable controls and also away from drains as far as is reasonably practicable. Vehicles and plant will not be left unattended during refuelling. Appropriate spill kits will be made easily accessible for these activities. Potentially hazardous materials used during construction will be safely and securely stored including use of secondary containment where appropriate. Stored flammable liquids such as diesel will be protected either by double walled tanks or stored in a bunded area with a capacity of 110% of the maximum stored volume. Spill kits will be located nearby.
- v. GG16: Runoff across the site will be controlled through a variety of methods including header drains, buffer zones around watercourses, on-site ditches, silt traps and bunding. There will be no intentional discharge of site runoff to ditches, watercourses, drains or sewers without appropriate treatment and agreement of the appropriate authority (except in the case of an emergency).
- vi. GG17: Wash down of vehicles and equipment will take place in designated areas within construction compounds. Wash water will be prevented from passing untreated into watercourses and groundwater. Appropriate measures will include use of sediment traps, daily checks and ongoing monitoring.
- vii. GG23: Stone pads or similar will be installed in areas where heavy equipment, such as cranes and piling rigs, are to be used. The stone pads will provide stable working areas and will reduce disturbance to the ground. The stone pad area will be stripped of the topsoil, which will be stored and reinstated in accordance with the Soil Management Plan.

6.6.6 The control and management measures included within this document specific to the Water Environment and Flood Risk include:

- i. W01: All works affecting watercourses or within the relevant permitting stand-off distance from the top of bank or landward toe of a flood defence on main rivers and IDB maintained watercourses will be in accordance with a method approved under consents issued under the Environmental Permitting Regulations 2016, Land Drainage Act 1991, IDB Byelaws (where relevant) or the protective provisions of the DCO for the benefit of the Environment Agency, LLFAs and IDBs . Where possible, a stand-off distance from the top of bank of all watercourses/waterbodies will be established (with the exception of crossings and where existing field access roads are already located adjacent to



watercourses are to be utilised). To align with Environment Agency and IDB consenting requirements, it is proposed that this will be: 16 m for tidal main rivers; 8 m for non-tidal main rivers; and 9 m for IDB-maintained watercourses. No statutory stand-off distances are specified for ordinary watercourses, but any works liable to cause an obstruction to flow would be subject to consent under the Land Drainage Act 1991. Appropriate stand-off distances should also be implemented where Project construction activities coincide with water supply and sewerage infrastructure. These are to be agreed on a case-by-case basis. For any instances where the stand-off distances stated above cannot be achieved between construction works and watercourses, these works would be subject to the appropriate consent by the relevant drainage authority (Flood Risk Activity Permit (FRAP) for main rivers, Ordinary Watercourse Consent (OWC) for ordinary watercourses).

- ii. W02: For open cut watercourse crossings and installation/ removal of vehicle crossing points, good practice measures will include but not be limited to, where practicable:
  - reducing the working width for open cut crossings of a main or ordinary watercourse whilst still providing safe working;
  - installation of a pollution boom downstream of open cut works;
  - the use and maintenance of temporary lagoons, tanks, bunds, silt fences or silt screens as required;
  - have spill kits and straw bales readily available at all crossing points for downstream emergency use in the event of a pollution incident;
  - the use of all static plant such as pumps in appropriately sized spill trays;
  - prevent refuelling of any plant or vehicle within 15 m of a watercourse;
  - prevent storing of soil stockpiles within 15 m of a main river;
  - inspect all plant prior to work adjacent to watercourses for leaks of fuel or hydraulic fluids; and
  - reinstating the riparian vegetation and natural bed of the watercourse, using the material removed when appropriate, on completion of the works and compacting as necessary. If additional material is required, appropriately sized material of similar composition will be used.
- iii. W03: Riverbank and in-channel vegetation will be retained where not directly affected by installation works. As far as possible, natural substrate will be provided through temporary watercourse crossing culverts.
- iv. W04: Where watercourses are to be crossed by construction traffic, measures to be applied include the use of temporary culverts or temporary clear span bridges. Once the temporary culvert is installed, the area above the temporary culvert will be backfilled and construction mats placed over the backfilled area to permit the passage of plant, equipment, materials, and people. Temporary culverts will be sized to reflect the span width and the estimated flow characteristics of the watercourse under peak flow conditions and kept free from debris. Where used, temporary bridges will be designed specifically to consider the span length and the weight and size of plant and equipment that will cross the bridge. Trenchless methods will be used where feasible, and if open-cut is unavoidable, working



width will be minimised, flows isolated with flume pipes or over-pumping, silt controls installed, and works will be scheduled during low-flow periods to reduce sediment disturbance. Where flood defences are present, crossing design should ensure that their integrity and standard of protection are preserved. Watercourse bed, banks and any flood defences will be subject to full reinstatement on removal of temporary watercourse crossings on completion of construction works. Specific detailed designs for each watercourse crossing, consistent with these design principles, will be prepared by the construction contractor. These will be subject to the appropriate consent by the relevant drainage authority (FRAP from the Environment Agency for main rivers; OWC from the LLFA or IDB for ordinary watercourses).

- v. W05: The contractor(s) will comply with all relevant consent conditions or DCO provisions regarding dewatering and other discharge activities. This will particularly be with regard not only to volumes and discharge rates, but also to water quality (particularly suspended solids, pH and hydrocarbons) and will include discharges to land, water bodies or third-party drains/sewers. It is assumed that temporary discharges generated from dewatering activities, for example, around pylon bases and in underground cable sections, would be made to ground, rather than to watercourses. Where this is not practicable in localised areas, any discharge to surface water would be made in compliance with relevant consents.
- vi. W06: The Project will incorporate appropriate surface water drainage measures into its final design for the haul roads, access tracks, works compounds and laydown areas so that they do not lead to a significant increase in flood risk. Access roads (and working areas) in the floodplain are to be as close to ground level as possible (a slight raised surface, relative to the adjacent land, is often required to allow for drainage). This is to minimise the loss of floodplain storage volumes associated with raised structures such as raised access roads, working areas and associated topsoil stockpiles. Cross drainage would be provided as necessary at topographic low points. Stockpiles would be located outside of the undefended floodplain as far as reasonably practicable. Stockpile impacts in the floodplain, where unavoidable, will be mitigated through appropriate positioning (e.g. aligned parallel with flow pathways), leaving gaps and cross-drainage. Approaches to bridges and culverts in Flood Zones would minimise ramping up to the bridge deck so as not to impede flood flow conveyance.
- vii. W07: The contractor(s) will subscribe to the EA's Floodline service, which provides advance warning of potential local flooding events, and subscribe to the Met Office's Weather Warnings email alerts system and any other relevant flood warning information. The contractor(s) will implement a suitable flood risk action plan, which would form part of the Emergency Action Plan, and will include appropriate evacuation procedures should a flood occur or be forecast.
- viii. W08: Active private water supplies will be identified with landowners through the landowner discussions. Appropriate measures would be considered during construction to prevent any water quality deterioration from pollution. In the event of a landowner or tenant reporting that installation activities have affected their private water supplies, an initial response will be provided within 24 hours. Where the installation works have affected a private water supply, an alternative water supply will be provided, as appropriate.

- ix. W09: In the event of a significant spill during construction, all relevant landowners/tenants will be contacted within 24 hours, within 250 m of the spill, to determine if there are any private water supplies that might be affected; an assessment of the likelihood of groundwater contamination reaching identified private water supplies will be undertaken, and where a private water supply is judged likely to be affected, an alternative water supply will be provided, as appropriate.
- x. W10: Severance of existing land drainage routes, including agricultural field drainage systems would be managed during construction through provision of temporary alternative drainage routes, and these drainage systems would be permanently reinstated to ensure their existing function is maintained.
- xi. W11: Appropriate control of runoff from working areas will be achieved through implementation of a DrMP for the construction phase. The DrMP will use sustainable urban drainage systems (SuDS) principles, promoting infiltration of runoff wherever possible and specifying appropriate treatment and attenuation storage to ensure any discharges to watercourses are uncontaminated and limited to greenfield rates. The DrMP will cover all aspects of construction works and temporary infrastructure. Drainage measures will be phased to be completed before the commencement of earthwork operations, in a specific area, and will be retained until the drainage system of the completed Project is fully operational, or site restoration works are completed. This will include the temporary diversion of existing agricultural drainage around working areas, if required, followed by reinstatement on completion of works. At this stage of the design process, preliminary work has already been done to identify runoff treatment and attenuation requirements for temporary access tracks and working areas associated with overhead line construction, including defining potential locations of water treatment areas and discharge outfalls. Further work is required to develop drainage strategies for substations, considering arrangements for both construction and operational phases of the Project, which will be reported as part of the ES chapter and FWRA in submission with the DCO application).

## Additional Mitigation Measures

- 6.6.1 Additional mitigation measures are those required to reduce likely significant adverse environmental effects which may still occur despite the inclusion of the embedded design and control measures described above.
- 6.6.2 Based upon the preliminary assessment, additional mitigation measures are not anticipated for aquatic environment and water resources receptors, but mitigation may be necessary for flood risk receptors in relation to Water Environment and Flood Risk effects. However, this will remain under review during the completion of further assessment and development of the ES and will be confirmed following further engagement and assessment.
- 6.6.3 No additional mitigation measures have been assumed within the Preliminary Assessment of Effects reported in the following sections.

## 6.7 Preliminary Assessment of Effects

- 6.7.1 The following section presents the findings of the preliminary assessment of effects upon the receptors identified within the Study Area, as a result of construction, maintenance and/or operational activities within Section 5.
- 6.7.2 The preliminary assessment of effects reported below take into account the Design and Control measures, as previously described.
- 6.7.3 For a summary of the likely significant effects please refer to **Supplementary PEI Report Volume 2 Part B Chapter 13 Summary**. A supplementary summary of all non-significant effects is also included within this Section in **Table 6.11**, based upon the assessment scope detailed in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.
- 6.7.4 It is noted that this is an ongoing assessment and is subject to change due to the ongoing design development of the Project, statutory consultation feedback and further stakeholder engagement. A full assessment will be included within the ES submitted with the DCO application.

### Infrastructure Overview

- 6.7.5 The receptors listed in section 6.5 have the potential to be directly or indirectly impacted due to the construction and permanent presence of new and existing pylons, the new Weston Marsh Substations A and B, including the associated permanent access road and underground cables.
- 6.7.6 The proposed temporary and permanent features within Section 5 are illustrated on the following figures:
- Supplementary PEI Report Volume 2 Part B Figure 1.2 Permanent and Operational Features;** and
  - Supplementary PEI Report Volume 2 Part B Figure 1.3 Temporary and Construction Features.**
- 6.7.7 The proposed location of the new Weston Marsh Substations A will require diversions of to both IDB-maintained watercourses and ordinary watercourses where existing channels are routed within the substation footprint. Design of any permanent diversions of these watercourses is ongoing and further information on this element will be provided within the ES.
- 6.7.8 Temporary watercourse crossings would also be required to facilitate access during the construction of the new overhead line and modifications of existing overhead line. As set out within **Supplementary PEI Report Volume 3 Part A Appendix 5C Indicative Bridge and Culvert Schedule** works constitute the following:
- 19 temporary access watercourse crossings comprising:
    - 18 assumed closed culvert temporary access crossings, at ordinary watercourses; and
    - One single span bridge temporary access crossing (WM-WCX-14) at the Lord's Drain IDB-maintained watercourse.
  - 41 permanent overhead line watercourse crossings comprising:

- Two permanent overhead line crossings over the River Welland, specifically WM-WCX-1 and WM-WCX-2;
- Three permanent overhead line crossings over IDB maintained watercourses;
- 36 permanent overhead line crossings over mapped field drains which are not maintained by the IDB.

- 6.7.9 An overhead line oversail does not create any impact at ground level. The primary consideration is maintaining adequate ground clearance to ensure EA or IDB access for maintenance operations can be undertaken along main rivers and IDB-maintained watercourses.
- 6.7.10 In contrast, watercourse crossings (particularly involving culverts) result in direct physical impacts upon the water environment.
- 6.7.11 Two temporary construction compounds are proposed to the north west of the new Weston Marsh Substation A and one temporary construction compound is proposed to the west of the new Weston Marsh Substation B.
- 6.7.12 The approximately 3 km of underground cable route connecting the two substations will transect a number of watercourses. The anticipated number of open cut crossings of non-IDB maintained watercourses is to be confirmed following further design.
- 6.7.13 Modified and repurposed pylons on existing 4ZM and 2WS overhead lines along with new lattice pylons, used in the Project, minimally obstruct water flow and do not significantly affect floodplain storage or conveyance. Furthermore, pylons are resilient to water damage from occasional flooding, and the conductors are located sufficiently above the highest flood level conceivable over the lifetime of the Project, ensuring that they will remain operational during a flood event and will not pose a safety risk.

## Likely Significant Effects

### Construction

#### Aquatic Environment and Water Resources Receptors

- 6.7.14 Based upon the preliminary assessment, no significant effects are predicted for aquatic environment and water resource receptors within Section 5 as a result of the construction phase of the Project. Further discussion is provided in the following sections in relation to the predicted non-significant effects of the Project.

#### Flood Risk

Changes to Fluvial Flood Risk Associated With Loss of Floodplain Storage and/or Change in Floodplain Flow Conveyance

- 6.7.15 The land within the Section 5 Study Area is predominantly within Flood Zone 3, with pockets of Flood Zone 2 and 1 in the centre of the draft Order Limits. The construction of infrastructure within this zone has potential to reduce or displace floodplain storage, which could adversely impact flood risk. It is assumed, temporary works would include stockpiling of materials within the floodplain, due to both the

temporary storage of soils and the import of aggregate for the design elements. The construction of haul roads, presence of stockpiles, watercourse crossings and working areas also has the potential to compartmentalise the floodplain by obstructing water flow.

- 6.7.16 The area within the Section 5 draft Order Limits is defended floodplain. Therefore, under normal conditions, there would be no effect on floodplain storage and conveyance arising from project construction activities. However, under conditions of flood defence overtopping or breach, the presence of the Project construction works could lead to a change in residual flood risk for external receptors, through reducing floodplain storage or impeding flood conveyance.
- 6.7.17 The potential for loss of the floodplain and changes in floodplain flow conveyance would be managed through embedded control measures, including ensuring that temporary access watercourse crossings have sufficient conveyance capacity (Preliminary CoCP Measure W04), ensuring that access roads and working areas in the floodplain are as close to ground level as possible (W06) and that appropriate provision for disruption of drainage is provided (W10). It should also be noted that construction activities are temporary, temporary works infrastructure would be removed and the affected land and watercourses which are not permanently affected by the Project would be fully reinstated following completion.
- 6.7.18 A full assessment of potential changes in flood risk to external third party receptors has not yet been completed. There are several factors which require further assessment to inform the FRA and ES, informed by engagement with the EA. Specifically these include confirmation of the standard of defence provided by the existing system of flood risk management assets; confirmation of compensatory storage requirements; review existing flood models and agreement of the scope of future assessment to be reported within the FRA and ES. Further information has been provided in the **Supplementary PEI Report Volume 3 Part C Route-wide Appendix 4A Preliminary Flood Risk Assessment**.
- 6.7.19 Notwithstanding the application of embedded measures, the magnitude of impacts upon flood risk due to potential loss of floodplain storage and/or change in floodplain flow conveyance is precautionarily assessed as medium adverse, given the large scale of the proposed works at the new Weston Marsh Substations A and B. Based upon the receptor sensitivities of essential infrastructure (very high), residential infrastructure (high), commercial infrastructure and local roads (medium), and agricultural land and undeveloped land (low), associated effects on flood risk receptors during the construction phase are assessed as minor to major adverse, with moderate or greater effects assessed as significant.

## Operation and Maintenance

### Aquatic Environment and Water Resources Receptors

- 6.7.20 The operational phase impacts on aquatic environment and water resource receptors arising from overhead line aspects of the project were scoped out of the assessment at scoping stage and are therefore not considered further, in accordance with the Scoping Opinion (Ref 7).



## Flood Risk

### Changes to Fluvial Flood Risk Associated With Loss of Floodplain Storage and/or Change in Floodplain Flow Conveyance

- 6.7.21 The effects on flood risk receptors from the operation of the Project have been scoped into the assessment for the new Weston Marsh Substations A and B and pylons in Section 5. As noted above, the Project infrastructure within Section 5 is within an area of defended floodplain. Therefore, under normal conditions, there would be no effect on floodplain storage and conveyance arising from the Project. However, under conditions of flood defence overtopping or breach, the presence of the Project infrastructure could lead to a change in residual flood risk for external receptors through reducing floodplain storage or impeding flood conveyance.
- 6.7.22 Due to their open lattice structure, the impact on floodplain storage resulting from the presence of existing (4ZM and 2WS) and proposed pylons is considered to be negligible, even under conditions where flood defences are overwhelmed. Regarding impacts on flow conveyance, this too is likely to be negligible, except under circumstances where pylons are located close to flood defence breach or overtopping. This will be considered further as part of modelling assessments being carried out to support the FRA submitted with the DCO Application.
- 6.7.23 In relation to the new Weston Marsh Substations A and B, National Grid design criteria (Ref 52) requires substations to be resilient to flooding up to and including a 1 in 1,000-year (0.1% AEP) flood event with an allowance for climate change. To ensure the substations achieve the required flood resilience there may be a requirement for land raising in the area, or the construction of a flood defence wall or embankment to provide resilience to the substations and associated accesses.
- 6.7.24 The current standard of protection of all current defences needs to be assessed to ensure defences are accurately represented in any modelling required. Correspondence with the Environment Agency (received 04 February 2025) indicates that local flood storage compensation may be required as the new Weston Marsh Substations A and B lie within a defended tidal zone. This is to offset the displaced flood water for 1% AEP fluvial event plus climate change and 0.5% AEP tidal event plus climate change. There may be increased residual risk of flooding under the circumstances of breach or overtopping at this location if a substations platform level is raised behind defences and associated additional mitigation is not in place. The permanent impacts of the substations upon flood risk are, however, subject to further design development and ongoing flood risk assessment.
- 6.7.25 Further investigations are required and consultations with the Environment Agency to understand the flood risk in the Study Area, review of existing flood models and define the scope of the assessment to be reported in the FRA and ES. This will include an assessment of the effects of climate change over the lifetime of the Project.
- 6.7.26 At this preliminary stage of assessment, the magnitude of impacts upon flood risk due to permanent loss of floodplain storage capacity is assessed as large adverse, given current uncertainty around magnitude of impacts and requirements for additional mitigation. In the absence of additional mitigation, effects during the operational phase of the Project upon flood risk receptors of very high to medium value are likely to be major to moderate, and therefore significant. Effects upon low value receptors would be minor and are therefore not assessed as significant.

## Non-Significant Effects

- 6.7.27 For completeness, **Table 6.11** summarises the findings of the preliminary assessment with respect to those impacts that are not predicted to result in significant Water Environment and Flood Risk effects.



Table 6.11 Preliminary summary of non-significant Water Environment and Flood Risk effects – Section 5

| Impact                                                                                                                                                                                          | Receptor                                                                                       | Value of Receptor <sup>1</sup> | Magnitude of Change <sup>2</sup> | Significance <sup>3</sup>    | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|--------------------------------|----------------------------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Construction Phase</b>                                                                                                                                                                       |                                                                                                |                                |                                  |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Aquatic Environment Receptors</b>                                                                                                                                                            |                                                                                                |                                |                                  |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Deterioration in the water quality of aquatic environment receptors via generation of sediment laden run-off as a result of construction activities, e.g. watercourse crossings and excavations | WFD river and transitional waterbodies (referred to in <b>Table 6.4</b> and <b>Table 6.5</b> ) | High                           | Negligible                       | Not significant (negligible) | During the construction phase, comprising the modification of existing pylons, new pylons, underground cable and two new substations, there is potential to generate sediment laden runoff which could, in absence of any appropriate embedded measures, adversely affect water quality in surface water receptors. Activities that could potentially produce sediment-laden runoff include: <ul style="list-style-type: none"> <li>• Construction and removal of haul roads, construction compounds and working areas (including topsoil stripping, earthworks and excavations);</li> <li>• open cut installation methods within the cable sections of the Project, requiring more extensive topsoil strip and excavation than elsewhere in Section 5.</li> <li>• Runoff from installed haul roads, temporary construction compounds and working areas;</li> </ul> |
|                                                                                                                                                                                                 | IDB-maintained watercourses and ordinary watercourses (referred to in <b>Table 6.4</b> )       | Low - Medium                   | Small Adverse                    | Not significant (minor)      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

| Impact | Receptor | Value of Receptor <sup>1</sup> | Magnitude of Change <sup>2</sup> | Significance <sup>3</sup> | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------|----------|--------------------------------|----------------------------------|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        |          |                                |                                  |                           | <ul style="list-style-type: none"> <li>• Direct sediment disturbance from in channel works for the construction of access crossings;</li> <li>• Potential diversion/realignment of ordinary watercourses and IDB watercourses; and</li> <li>• The use and management of soil stockpiles.</li> </ul> <p>The assessment of suspended sediment-related effects is considered precautionary, given that the watercourses across the Section 5 Study Area are likely to experience baseline variation in suspended sediment due to agricultural practices in the area.</p> <p>Works to install the underground cable introduce potential for temporary negative effects during construction, due to associated pollution risks and potential effects on hydromorphology. In the overhead line sections, the amount of topsoil strip would be less than within cable sections, so the potential for surface water quality to deteriorate due to receipt of silted runoff is comparatively lower.</p> <p>As specified in <b>Supplementary PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice</b>, temporary water and groundwater control/pumping during excavations for the substations, pylon</p> |

| Impact                                                                                                                                                                     | Receptor                                                                                       | Value of Receptor <sup>1</sup> | Magnitude of Change <sup>2</sup> | Significance <sup>3</sup>    | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|--------------------------------|----------------------------------|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                            |                                                                                                |                                |                                  |                              | foundations or open trenching for undergrounding of assets would be undertaken in accordance with Environment Agency guidance (control measure GH05). Assuming implementation of all relevant measures within the Preliminary CoCP (including GG03, GG16, W01, W05 and W11) predicted effects on watercourses due to sediment laden run-off are not significant.                                                                              |
| Potential impacts on hydromorphology and flow conveyance as a result of increased sediment inputs from watercourse disturbance (including from new watercourse crossings). | WFD river and transitional waterbodies (referred to in <b>Table 6.4</b> and <b>Table 6.5</b> ) | High                           | Negligible                       | Not significant (negligible) | Works directly affecting watercourses, such as access/ underground cable crossings (open cut) and diversions, could result in a direct impact on their hydromorphology. The direct impacts would be mitigated to an extent with the implementation of the measures set out within the Preliminary CoCP. This includes W01, W02 and W04. As a result, predicted effects are not significant.                                                   |
|                                                                                                                                                                            | IDB-maintained watercourses and ordinary watercourses (referred to in <b>Table 6.4</b> )       | Low - Medium                   | Small Adverse                    | Not Significant (Minor)      | Where there is a requirement to undertake works in and around the watercourses, including installation of access crossings (assumed to be culverts for most watercourses), the footprint of these would be kept to a minimum and ensure minimum change to existing morphology and flow conveyance, by adhering to embedded environmental measure W02.<br><br>Excess sediment ingress via runoff from working areas could indirectly influence |

| Impact                                                                                                                                                                                      | Receptor                                                                                       | Value of Receptor <sup>1</sup> | Magnitude of Change <sup>2</sup> | Significance <sup>3</sup>    | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|--------------------------------|----------------------------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                             |                                                                                                |                                |                                  |                              | <p>channel characteristics, for example due to a subsequent build-up of sediment within the channel.</p> <p>Any potential increases in sediment-laden runoff from working areas would be mitigated using the embedded environmental measures outlined in the Preliminary CoCP (GG03, GG16, W01, W05 and W11). As a result, predicted effects are not significant.</p>                                                                                                                                                                                                           |
| Deterioration in the water quality of aquatic environment receptors affected by mobilisation of contaminants from contaminated soil or accidental spillage of pollutants (e.g fuel or oil). | WFD river and transitional waterbodies (referred to in <b>Table 6.4</b> and <b>Table 6.5</b> ) | High                           | Negligible                       | Not significant (negligible) | <p>The construction works have the potential to affect water quality conditions within surface water features via:</p> <ul style="list-style-type: none"> <li>• accidental spillage of fuel, oil, concrete or other chemicals used during construction;</li> </ul>                                                                                                                                                                                                                                                                                                              |
|                                                                                                                                                                                             | IDB-maintained watercourses and ordinary watercourses (referred to in <b>Table 6.4</b> )       | Low - Medium                   | Small Adverse                    | Not significant (minor)      | <ul style="list-style-type: none"> <li>• mobilisation/leaching of contaminants from historical soil contamination during excavation works;</li> <li>• contaminated water pumped from excavations;</li> <li>• trenchless crossing techniques associated with inadvertent releases of drilling fluids/muds; and</li> <li>• open cut crossings of watercourses causing disturbance of bed sediments.</li> </ul> <p>The detailed arrangement for trenchless crossings would be informed by the Project's ground investigation data, to reduce the risks of breakout of drilling</p> |

| Impact                                                                                                                                                     | Receptor                                                                                       | Value of Receptor <sup>1</sup> | Magnitude of Change <sup>2</sup> | Significance <sup>3</sup>    | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|--------------------------------|----------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                            |                                                                                                |                                |                                  |                              | muds. The designs would also accord with any conditions set out within secondary consents and permits for the works from the relevant authorities. The implementation of the embedded measures outlined in the Preliminary CoCP (GG03, GG15, GG23, W02, W05, W09 and W11) designed to prevent surface water pollution (for example implementation of good working practices with adherence to the Outline CoCP) would ensure the effect on surface water receptors and water resources/WFD receptors is not significant.                                                                                                                                                      |
| Deterioration in the water quality of aquatic environment receptors affected by mobilisation of contaminants in groundwater and subsequently surface water | WFD river and transitional waterbodies (referred to in <b>Table 6.4</b> and <b>Table 6.5</b> ) | High                           | Negligible                       | Not significant (negligible) | <p>The risk of pollution of groundwater as a result of Project construction activities would be controlled through preparation of a Foundation Works Risk Assessment (FWRA, Control Measure GH02 - <b>Supplementary PEI Report Volume 2 Part B Section 5 Chapter 7 Geology and Hydrogeology</b>) for piling and excavation works. This would specify the use of suitable piling methods to prevent the creation of pathways for vertical groundwater movement between superficial and deeper aquifers.</p> <p>Therefore, in this preliminary assessment, effects upon surface water receptors resulting from the mobilisation of ground contaminants are not significant.</p> |
|                                                                                                                                                            | IDB-maintained watercourses and ordinary watercourses (referred to in <b>Table 6.4</b> )       | Low - Medium                   | Small Adverse                    | Not significant (minor)      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

| Impact                                                                                                               | Receptor                                                                                       | Value of Receptor <sup>1</sup> | Magnitude of Change <sup>2</sup> | Significance <sup>3</sup>    | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|--------------------------------|----------------------------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Impact from any dewatering for construction from temporary works impacting groundwater – surface water interactions. | WFD river and transitional waterbodies (referred to in <b>Table 6.4</b> and <b>Table 6.5</b> ) | High                           | Negligible                       | Not significant (negligible) | Any discharge of water generated during construction (e.g. from pylon foundation excavations) to land would be of unpolluted water only and undertaken in accordance with control measure W05 within the Preliminary CoCP.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                                                                                                                      | IDB-maintained watercourses and ordinary watercourses (referred to in <b>Table 6.4</b> )       | Low - Medium                   | Small Adverse                    | Not significant (minor)      | <p>The superficial deposits within the Study Area are designated as unproductive strata. There is a lack of groundwater level information within the superficial deposits within the Study Area. In a worst-case scenario, the Tidal Flat deposits may have consistent shallow groundwater across the Study Area and limited groundwater control/pumping may be required for construction within the superficial deposits. It is assumed dewatering within the superficial deposits would be required to facilitate construction and not within the bedrock, so there would be no requirement for dewatering of the bedrock aquifers and therefore, no significant effects.</p> <p>Where dewatering is required, temporary measures would be undertaken in accordance with Environment Agency guidance and in line with control measures. Groundwater effects on flows and levels are predicted to be limited and as a result, there is a limited scope for groundwater dependent surface water flows to be affected.</p> |

| Impact                                                                                                                                                  | Receptor                                                               | Value of Receptor <sup>1</sup> | Magnitude of Change <sup>2</sup> | Significance <sup>3</sup>    | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|--------------------------------|----------------------------------|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                         |                                                                        |                                |                                  |                              | <p>For mobilisation of pre-existing contamination, control measures proposed in <b>Supplementary PEI Report Volume 2 Part B Section 5 Chapter 7 Geology and Hydrogeology</b> would be implemented. It is likely that these control measures would protect surface water.</p> <p>Therefore, predicted effects due to dewatering of temporary works areas are not significant.</p>                                                                                                                                                                                                                                                                                                              |
| <b>Water Resource Receptors</b>                                                                                                                         |                                                                        |                                |                                  |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| The potential effects noted above for surface water aquatic environment receptors could also have implications for surface water resource availability. | Licensed surface water abstractions (referred to in <b>Table 6.6</b> ) | Low                            | Negligible                       | Not significant (negligible) | <p>Four surface water abstractions were identified within the draft Order Limits. Any effects on the abstraction or discharge infrastructure and any indirect effects on flow or quality in receiving watercourses as a result of the construction of the Project would not affect the ability of the abstraction to operate as consented.</p> <p>Indirect effects on the quantity and quality of water available for abstraction downstream of the draft Order Limits would be controlled by control measures secured via the Preliminary CoCP.</p> <p>It is therefore concluded that predicted effects on water resource receptors within the Section 5 Study Area are not significant.</p> |



| Impact                                                                                                                                                                                                                              | Receptor                                                                           | Value of Receptor <sup>1</sup> | Magnitude of Change <sup>2</sup> | Significance <sup>3</sup>             | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--------------------------------|----------------------------------|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Flood Risk Receptors</b>                                                                                                                                                                                                         |                                                                                    |                                |                                  |                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Changes to surface water flood risk due to changes in runoff rates resulting from ground disturbance and creation of impermeable surfaces, and to changes in surface water runoff pathways due to changes in ground surface levels. | Property and Infrastructure at risk of flooding (referred to in <b>Table 6.7</b> ) | Low – Very High                | Negligible                       | Not significant (negligible to minor) | <p>It is anticipated that during construction, there may be temporary changes to land surface permeabilities. Temporary surfaces with lower permeability relative to the baseline include stone aggregate surfaces on the following: haul roads, pylon working areas, construction compounds and laydown areas. It is assumed Type 1 aggregate would be used, which has a lower permeability than the soils present across the majority of the Study Area. However, this finish is not as impermeable as tarmac or concrete.</p> <p>Underground cabling works may increase surface water flood risk through ground disturbance and changes to runoff pathways (open excavation or ground compaction). In addition, construction phase dewatering may be required in areas with a high water table or where works intersect saturated soils. This could temporarily lower local groundwater levels, which could affect nearby surface water features, shallow wells, or existing drainage systems.</p> <p>Changes to surfacing resulting from temporary works could reduce rainfall infiltration rates, increase runoff rates, and induce overland flow during construction. This could contribute to</p> |

| Impact                                                                                                                                                                       | Receptor                                                                           | Value of Receptor <sup>1</sup> | Magnitude of Change <sup>2</sup> | Significance <sup>3</sup>             | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--------------------------------|----------------------------------|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                              |                                                                                    |                                |                                  |                                       | <p>localised changes to the land drainage regime, resulting in ponding of water or waterlogging of soils. Areas with a sloping topography where topsoil has been stripped would be particularly vulnerable to these changes. Any potential watercourse diversions may also disrupt or sever existing field drainage systems, dependent on the alignment of any diversions. The design of Section 5 remains in development with the above aspects anticipated.</p> <p>The proposed embedded measures to prevent an increase in surface water flood risk during construction are set out in the Preliminary CoCP, and include W06 and W10.</p> <p>Based upon the implementation of these embedded measures, effects on flood risk receptors due to changes in run-off rates and pathways during the construction phase are predicted to be negligible to minor adverse, and therefore not significant.</p> |
| Changes to watercourse flow conveyance arising from the presence of new or modified temporary watercourse crossings increasing the risk of flooding to flood risk receptors. | Property and Infrastructure at risk of flooding (referred to in <b>Table 6.7</b> ) | Low – Very High                | Negligible                       | Not significant (negligible to minor) | There are temporary watercourse crossings proposed within the draft Order Limits. In the absence of appropriate measures, these crossings could impact flow conveyance, which could potentially influence flood risk upstream of the watercourse crossing.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

| Impact                                                                                                                                    | Receptor                                                                           | Value of Receptor <sup>1</sup> | Magnitude of Change <sup>2</sup> | Significance <sup>3</sup>             | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--------------------------------|----------------------------------|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                           |                                                                                    |                                |                                  |                                       | <p>The effects of the underground cable construction on flood risk and the land drainage regime in the catchment of the watercourses would be reduced by avoiding any large-scale stockpiling or storage of cable trench arisings in the floodplain.</p> <p>The proposed embedded measures to prevent an increase in flood risk due to changes in existing watercourse flow conveyance are set out in the Preliminary CoCP, by adopting a trenchless technique where feasible for cabling beneath ordinary watercourses and include W04 and W10.</p> <p>Based upon the implementation of these measures, predicted effects upon flood risk due to new or temporary watercourse crossing are not significant.</p> |
| Impacts on the integrity of flood defence and land drainage infrastructure as a result of physical impingement of Project infrastructure. | Property and Infrastructure at risk of flooding (referred to in <b>Table 6.7</b> ) | Low – Very High                | Negligible                       | Not significant (negligible to minor) | <p>In the absence of appropriate measures, the impingement of Project infrastructure could deteriorate the factor of safety of flood defences, which could potentially increase flood risk to downstream receptors.</p> <p>Project infrastructure would only impact watercourses which have flood defence embankments present such as the River Welland. The Section 5 Study Area is defended floodplain, therefore, protects</p>                                                                                                                                                                                                                                                                                |

| Impact | Receptor | Value of Receptor <sup>1</sup> | Magnitude of Change <sup>2</sup> | Significance <sup>3</sup> | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------|----------|--------------------------------|----------------------------------|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        |          |                                |                                  |                           | <p>for events up to the standard of protection.</p> <p>The proposed embedded measures to maintain the integrity of the flood defence during construction are set out in the draft Outline CoCP and include W04. Generally, a hierarchy of mitigation principles would be as follows:</p> <ul style="list-style-type: none"> <li>• Avoid where possible</li> <li>• Pre-commencement survey</li> <li>• Minimise invasive works to the flood defence through bridging or placing of additional material</li> <li>• Ensure any crossings are designed to bear design loads to avoid compaction settlement of the flood defence</li> <li>• Ensure full restoration of flood defence following completion of works, followed by completion survey.</li> <li>• If invasive works are required to a flood defence which would lead to a loss of standard of protection (i.e. through temporary breach or partial removal) design of alternative flood protection, through realignment around works would be required.</li> </ul> <p>Based upon the implementation of embedded measures, effects on flood risk receptors due to impacts upon existing flood defences and drainage infrastructure during the construction</p> |

| Impact                                                                                    | Receptor                                                                                       | Value of Receptor <sup>1</sup> | Magnitude of Change <sup>2</sup> | Significance <sup>3</sup>    | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                           |                                                                                                |                                |                                  |                              | phase are predicted to be negligible to minor adverse, and therefore not significant.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Operation Phase</b>                                                                    |                                                                                                |                                |                                  |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Aquatic Environment and Water Resources Receptors</b>                                  |                                                                                                |                                |                                  |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Increased pollution from storage of potential pollutants such as oil-filled transformers. | WFD river and transitional waterbodies (referred to in <b>Table 6.4</b> and <b>Table 6.5</b> ) | High                           | Negligible                       | Not significant (negligible) | The substations have the potential to affect water quality conditions and therefore, aquatic environment receptors within the associated water features via the introduction of contaminants.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                                                                                           | IDB-maintained watercourses and ordinary watercourses (referred to in <b>Table 6.4</b> )       | Low - Medium                   | Small adverse                    | Not significant (minor)      | <p>Substation drainage design would incorporate suitable pollution prevention measures for surface runoff through the use of SuDS, plus containment and oil interceptors for transformers as required. Foul drainage arisings from welfare facilities on the site would either be discharged to the mains sewer network or tankered off site to an appropriate permitted treatment facility.</p> <p>Overhead line maintenance would involve light vehicles using existing agricultural access, and would not involve significant ground disturbance.</p> <p>Underground cabling maintenance involves ground disturbance and may increase pollution risks in the event of a fault. This can be mitigated through bunding and inspection and maintenance of equipment. In the event where repair</p> |

| Impact                                                                                                                                                                                                         | Receptor                                                                           | Value of Receptor <sup>1</sup> | Magnitude of Change <sup>2</sup> | Significance <sup>3</sup>             | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--------------------------------|----------------------------------|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                |                                                                                    |                                |                                  |                                       | works are required mitigation would correlate with the construction mitigation proposes except at a smaller and more localised measure. Therefore, the impacts of the operation of Section 5 on aquatic environment receptors and water resources is considered negligible to minor and not significant.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Flood Risk Receptors</b>                                                                                                                                                                                    |                                                                                    |                                |                                  |                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Changes to surface water flood risk due to changes in runoff rates resulting in the creation of impermeable surfaces, and to changes in surface water runoff pathways due to changes in ground surface levels. | Property and Infrastructure at risk of flooding (referred to in <b>Table 6.7</b> ) | Low – Very Hwestonigh          | Negligible                       | Not significant (negligible to minor) | <p>It is assumed no significant increase in permanent impermeable area associated with the foundation elements of pylons within Section 5. Permanent impermeable surfaces are assumed to include tarmac access roads to and within the substation(s) and concrete and/or tarmac hardstanding within the substation(s) boundaries and associated building footprints. The proposed measures for the impermeable surfaces associated with the substation(s) during operation include mitigation through drainage design. Once the overhead line construction is complete and underground cables have been installed, land and any associated land drainage would be reinstated.</p> <p>Overhead line maintenance is assumed to involve light vehicles using existing agricultural access and not involve significant ground disturbance. Therefore,</p> |

| Impact | Receptor | Value of Receptor <sup>1</sup> | Magnitude of Change <sup>2</sup> | Significance <sup>3</sup> | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------|----------|--------------------------------|----------------------------------|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        |          |                                |                                  |                           | <p>the impacts of the operation of Section 5 Project infrastructure on flood risk receptors is considered negligible and not significant.</p> <p>The installation of cable ducts or conduits may lead to long-term disruption of shallow groundwater flow or existing subsurface drainage systems. These installations can potentially influence flood risk or soil saturation post-construction. Potential effects on groundwater flows and levels from the underground cable are addressed in <b>Supplementary PEI Report Volume 2 Part B Chapter 7 Geology and Hydrogeology</b>.</p> <p>Potential effects on baseline groundwater flood risk are anticipated to be negligible and not significant.</p> |

<sup>1</sup> The value of receptor is defined using the criteria set out in Appendix 4B Environmental Impact Assessment Methodologies and Scope and is defined as Low, Medium, High and Very High.

<sup>2</sup> The magnitude of change on a receptor resulting from activities relating to the development is defined using the criteria set out in Appendix 4B Environmental Impact Assessment Methodologies and Scope and is defined as negligible, small, medium, large adverse and beneficial.

<sup>3</sup> The significance of the environmental effects is based on the combination of the value of a receptor and the magnitude of change and is expressed as major (significant), moderate (potentially significant) or minor/negligible (not significant), subject to the evaluation methodology outlined in Appendix 4B Environmental Impact Assessment Methodologies and Scope.



## **6.8 Monitoring**

- 6.8.1 Given that significant effects have been identified within the Water Environment and Flood Risk assessment of Section 5 and due to the large Flood Zone 3 extent within this section, it may be necessary to undertake monitoring during the construction phase for assurance purposes. The requirement for this will be assessed further within the ES when further characterisation of the hydrological regime has been undertaken.

# References

- Ref 1 National Grid Electricity Transmission (2025). Grimsby to Walpole Preliminary Environmental Information Report [online]. Available at: <https://www.nationalgrid.com/the-great-grid-upgrade/grimsby-to-walpole/document-library#4257225834-3023854277> [Accessed 12 September 2025].
- Ref 2 Lincolnshire County Council (2016) Lincolnshire Minerals and Waste Local Plan: Core Strategy and Development Management. [online] Available at: <https://www.lincolnshire.gov.uk/downloads/file/2361/core-strategy-and-development-management-policies> [Accessed 02 October 2024]
- Ref 3 Lincolnshire County Council (2019) Joint Lincolnshire Flood Risk and Water Management Strategy 2019-2050. [online] Available at: Joint flood risk water management strategy 2019-2050 (lincolnshire.gov.uk) [Accessed 02 October 2024]
- Ref 4 South East Lincolnshire Joint Strategic Planning Committee (2019). South East Lincolnshire Local Plan 2011-2036 (Adopted March 2019) [online]. Available at: <https://www.southeastlincslocalplan.org/wp-content/uploads/2019/02/Local-Plan-text-March-2019.pdf> [Accessed 02 October 2024]
- Ref 5 Water Management Alliance (2013) South Holland Drainage Board Byelaws [online]. Available at: [https://www.wlma.org.uk/uploads/SHIDB\\_Byelaws.pdf](https://www.wlma.org.uk/uploads/SHIDB_Byelaws.pdf) [Accessed 31 October 2024]
- Ref 6 Welland and Deepings Internal Drainage Board (2022) Land Drainage Byelaws [online]. Available at: S25C-0i22090609400 (wellandidb.org.uk) [Accessed 17 October 2024]
- Ref 7 Planning Inspectorate. (2024) Scoping Opinion: Proposed Grimsby to Walpole Project. [online]. Available at: <https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN020036-000109-Scoping%20Opinion%202017%20EIA%20Regs.pdf> [Accessed 23 October 2024]
- Ref 8 Planning Inspectorate (2024) Grimsby to Walpole, Volume 1 – Environmental Impact Assessment Scoping Report. [online]. Available at: <https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN020036-000004-EN020036%20-%20Scoping%20Report%20Volume%201%20Main%20Report.pdf> [Accessed 23 October 2024]
- Ref 9 National Grid (2025). Stage 1 Consultation Feedback Report. Available at: <https://www.nationalgrid.com/document/560496/download> [Accessed 09 September 2025].
- Ref 10 UK Government. The Water Environment (Water Framework Directive) (England and Wales) (Amendment) Regulations 2015. 2015. [online] Available at: <https://www.legislation.gov.uk/uksi/2015/1623/contents> [Accessed 26 November 2024]
- Ref 11 Department for Levelling Up, Housing and Communities (2025). National Planning Policy Framework, Chapter 14: Meeting the challenge of climate change, flooding and coastal change [online] Available at: <https://www.gov.uk/guidance/national->

planning-policy-framework/14-meeting-the-challenge-of-climate-change-flooding-and-coastal-change [Accessed 07 February 2025]

- Ref 12 Environment Agency (2022) Anglian river basin district river basin management plan: updated 2022 [online] Available at: <https://www.gov.uk/guidance/anglian-river-basin-district-river-basin-management-plan-updated-2022> [Accessed 10 January 2024]
- Ref 13 Department for Levelling Up, Housing and Communities (2022). Flood Risk and Coastal Change [online] Available at: <https://www.gov.uk/guidance/flood-risk-and-coastal-change> [Accessed 25 November 2024]
- Ref 14 Highways England, Transport Scotland, Welsh Government and Department for Infrastructure (2020). Design Manual for Roads and Bridges. LA 113 Road Drainage and the Water Environment. [online]. Available at: <https://www.standardsforhighways.co.uk/search/d6388f5f-2694-4986-ac46-b17b62c21727> [Accessed 23 October 2024].
- Ref 15 Department for Energy Security and Net Zero (2024) Overarching National Policy Statement for energy (EN-1) [online] Available at: <https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1> [Accessed 25 November 2024].
- Ref 16 Department for Energy Security and Net Zero (2024) National Policy Statement for electricity networks infrastructure (EN-5) [online] Available at: <https://www.gov.uk/government/publications/national-policy-statement-for-electricity-networks-infrastructure-en-5> [Accessed 28 October 2025].
- Ref 17 Planning Inspectorate (2024) Nationally Significant Infrastructure Projects: Advice on the Water Framework Directive. [online] Available at: <https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-the-water-framework-directive> [Accessed 13 November 2024]
- Ref 18 Mott MacDonald (2010) Northern Area Tidal Modelling, Volume 1-5: Breach Flood Mapping – Information received from the Environment Agency 2024
- Ref 19 Mott MacDonald (2010) Northern Area Tidal Modelling, Volume 3: Overtopping Flood Mapping – Information received from the Environment Agency 2024
- Ref 20 Outer Dowsing Offshore Wind (2025). Chapter 24 Hydrology and Flood Risk, Environmental Statement (Document Reference: 6.3.24.3)
- Ref 21 River Nene Model Audit Technical Note (2025). (Document Reference: EGL-NGET-CONS-XX-RP-YE-002)
- Ref 22 Welland Glen Hydraulic Modelling Report (2016). (Document Reference:345540/WAM/WCD/02/D)
- Ref 23 NAFRA Dataset (2020) [online]. Available at: <https://www.arcgis.com/home/item.html?id=f8488c24a34f4456a69abd894a2ba180> [Accessed 21 October 2024]
- Ref 24 Met Office (2024) Climate Averages at Holbeach [online]. Available at: <https://www.metoffice.gov.uk/research/climate/maps-and-data/uk-climate-averages/u12hg1nxt> [Accessed 04 November 2024]

- Ref 25 Microsoft (2024) Bing Maps. Images courtesy of OS [online]. Available at: <https://www.bing.com/maps?cp=52.391106%7E-1.477661&lvl=11.0> [Accessed 21 October 2024]
- Ref 26 British Geological Survey (2024) Geology of Britain Viewer [online]. Available at: [https://geologyviewer.bgs.ac.uk/?\\_ga=2.214071191.1293546165.1715951454-3653579.1715951454](https://geologyviewer.bgs.ac.uk/?_ga=2.214071191.1293546165.1715951454-3653579.1715951454) [Accessed: 21 October 2024]
- Ref 27 Department for Environment, Food and Rural Affairs (DEFRA) (2024). Available at: <https://magic.defra.gov.uk/MagicMap.html> [Accessed 20 October 2024].
- Ref 28 Cranfield Soil and AgriFood Institute (2024) Soilscales Map [online]. Available at: <https://www.landis.org.uk/soilscales/> [Accessed: 21 October 2024]
- Ref 29 Environment Agency (2019). Environment Agency Statutory Main River Map [online]. Available at: <https://environment.maps.arcgis.com/apps/webappviewer/index.html?id=17cd53dfc524433980cc333726a56386> [Accessed: 21 October 2024]
- Ref 30 UK Centre of Ecology & Hydrology Flood Estimation Handbook Web Service. [online]. Available at: <https://fehweb.ceh.ac.uk/> [Accessed: 21 October 2024]
- Ref 31 UK Government (2025). Flood Map for Planning [online]. Available at: <https://flood-map-for-planning.service.gov.uk/> [Accessed 21 January 2025]
- Ref 32 Environment Agency (2025) Long Term Flood Risk [online]. Available at: <https://www.gov.uk/check-long-term-flood-risk> [Accessed 21 January 2025]
- Ref 33 Environment Agency Risk of Flooding from Reservoirs (2025) [online]. Available at: See flood risk on a map - Check your long term flood risk - GOV.UK ([check-long-term-flood-risk.service.gov.uk](https://check-long-term-flood-risk.service.gov.uk)) [Accessed: 21 January 2025]
- Ref 34 Environment Agency Flood Defence Asset Database (2025) [online]. Available at: <https://www.data.gov.uk/dataset/76828b72-3c9c-4700-83c7-d7c36047d322/flood-map-for-planning-rivers-and-sea-spatial-flood-defences-without-standardised-attributes> [Accessed 21 January 2025]
- Ref 35 UK Centre for Ecology & Hydrology National River Flow Archive [online]. Available at: <https://www.data.gov.uk/dataset/76828b72-3c9c-4700-83c7-d7c36047d322/flood-map-for-planning-rivers-and-sea-spatial-flood-defences-without-standardised-attributes> [Accessed 21 October 2024]
- Ref 36 Environment Agency (2025). Catchment data explorer database [online]. <https://environment.data.gov.uk/catchment-planning/> [Accessed 21 January 2025]
- Ref 37 Data request – Information received from the Environment Agency August 2024
- Ref 38 Environment Agency (2021) Welland Catchment Abstraction Licensing Strategy [online]. Available at: <https://assets.publishing.service.gov.uk/media/606d942fd3bf7f4017cbef03/CAMS-The-Welland-Catchment-Abstraction-Management-Strategy.pdf> [Accessed 03 January 2025]
- Ref 39 Water Management Alliance (2013) South Holland Drainage Board: Area of the Drainage District [online] Available at: [https://www.wlma.org.uk/uploads/210-SHIDB\\_Index.pdf](https://www.wlma.org.uk/uploads/210-SHIDB_Index.pdf) [Accessed 15 April 2025]

- Ref 40 Welland and Deepings Internal Drainage Board (2022) Map of our district [online] Available at: <https://www.wellandidb.org.uk/about-us/map-of-our-district> [Accessed 15 April 2025]
- Ref 41 Department for Environment Food and Rural Affairs (2018) Environment Agency Asset Information and Maintenance (AIMS) database [online]. Available at: <https://environment.data.gov.uk/asset-management/index.html> [Accessed 23 October 2024]
- Ref 42 Met Office (2024). UKCP18 Summaries and Headline Findings [online]. Available at: <https://www.metoffice.gov.uk/research/approach/collaboration/ukcp/summaries/index> [Accessed 28 November 2024]
- Ref 43 UK Centre for Ecology & Hydrology (2024). Future Flows and Groundwater Levels [online]. Available at: <https://www.ceh.ac.uk/our-science/projects/future-flows-and-groundwater-levels> [Accessed 23 October 2024]
- Ref 44 UK Centre for Ecology & Hydrology (2024). National Changes in River Flow [online]. Available at: <https://www.ceh.ac.uk/national-changes-river-flow-overview> [Accessed 08 January 2025]
- Ref 45 UK Centre for Ecology & Hydrology (2024). Enhanced Future Flows and Groundwater (eFLaG) Portal [online]. Available at: <https://eip.ceh.ac.uk/hydrology/eflag/> [Accessed 14 February 2025]
- Ref 46 UK Centre for Ecology & Hydrology (2024). Future Flows: Changes By Season [online]. Available at: <https://www.ceh.ac.uk/future-flows-river-flow-changes-season> [Accessed 14 February 2025]
- Ref 47 Environment Agency (2022). Flood Risk Assessments: Climate Change Allowances [online] Available at: <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances> [Accessed 25 November 2024]
- Ref 48 Department for Environment Food & Rural Affairs (2024) Climate change allowances for peak river flow in England [online] Available at: <https://environment.data.gov.uk/hydrology/climate-change-allowances/river-flow> [Accessed 25 November 2024]
- Ref 49 National Grid (no date) The Holford Rules [online] Available at: <https://www.nationalgrid.com/sites/default/files/documents/13795-The%20Holford%20Rules.pdf> [Accessed 13 March 2025]
- Ref 50 National Grid (no date) Horlock Rules [online] Available at: <https://www.nationalgrid.com/sites/default/files/documents/13796-The%20Horlock%20Rules.pdf> [Accessed 13 March 2025]
- Ref 51 National Grid Electricity Transmission (2024). Grimsby to Walpole Corridor Preliminary Routeing and Siting Study [online]. Available at: <https://www.nationalgrid.com/document/352621/download> [Accessed 3 March 2025].
- Ref 52 National Grid (2016). General electricity and substation design manual for civil, structural and building engineering, Section No:13; Flood defences for electricity for substations (TS 2.10.13, Issue 2)
- Ref 53 South Holland Internal Drainage Board (2023) Map of our district [online] Available at: [https://www.wlma.org.uk/uploads/210-SHIDB\\_Index.pdf](https://www.wlma.org.uk/uploads/210-SHIDB_Index.pdf) Accessed 29 August 2025

# 7. Geology and Hydrogeology

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# 7. Geology and Hydrogeology

## 7.1 Introduction

- 7.1.1 This chapter presents the Supplementary Preliminary Environmental Information (PEI) in relation to the Geology and Hydrogeology assessment for the New Weston Marsh Substations A and B Section (Section 5) of the Grimsby to Walpole Project (the Project).
- 7.1.2 The preliminary assessment of Section 5 reported within this chapter presents an update to the previously published June 2025 PEI Report (Ref 1), which formed part of the Stage 2 Consultation completed between 11 June 2025 and 6 August 2025. This update reflects the fact that since the launch of the Stage 2 Consultation, further design development has been completed to confirm the requirement for two substations within Section 5, the preferred location of the new Weston Marsh Substation A and new Weston Marsh Substation B and the associated overhead line and underground cable connections. The draft Order Limits for Section 5 have also now been defined, whereas the June 2025 PEI Report was based upon a wider 'Refined Weston Marsh Substation Siting Zone' which covered a greater total area than the Section 5 draft Order Limits.
- 7.1.3 Updates to the assessment are primarily limited to the Baseline Conditions (section 7.5) and Preliminary Assessment of Effects (section 7.7) sections, both of which have been updated to reflect the draft Order Limits for Section 5.
- 7.1.4 Specifically, the chapter includes the following sections:
- i. An introduction to the topic (section 7.1);
  - ii. Identification of key local and regional policy relevant to the assessment (section 7.2). A full overview of the legislation and national, regional onshore and marine planning policy context that applies to the Project is presented in **Supplementary PEI Report Volume 2 Part A Chapter 2 Legislative, Regulatory and Planning Policy Context** and supporting appendices;
  - iii. A summary of the assessment scoping process and the subsequent scope of the Geology and Hydrogeology assessment (section 7.3). Further detail is provided within **Supplementary PEI Report Volume 3 Part A Appendix 4A Planning Inspectorate Scoping Opinion Responses**;
  - iv. A high level summary of the methodology of the Geology and Hydrogeology assessment within Section 5 (section 7.4). A detailed description of the assessment methods and scope, applicable to the whole Project, is contained in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**;
  - v. A description of the environmental baseline within the Section 5 Study Area relevant to the Geology and Hydrogeology assessment, updated since publication of the June 2025 PEIR based upon the Section 5 draft Order Limits (section 7.5);

- vi. A description of mitigation measures included for the purposes of the Geology and Hydrogeology assessment reported within the Supplementary PEI Report (section 7.6). Further information regarding design development can be found in **Supplementary PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered** and the **Grimsby to Walpole Section 5 Design Development Report**;
- vii. The likely significant and non-significant Geology and Hydrogeology effects arising during construction and operation of the Project within Section 5, based upon the assessment completed to date (section 7.7); and
- viii. An outline of the proposed monitoring requirements in relation to Geology and Hydrogeology (section 7.8).

7.1.5 Further supporting information is set out in **Table 7.1** below, including supporting figures and technical appendices:

Table 7.1 Supporting documentation

| Supporting Information                                                                                           | Description                                                                                                                                                                                                                                                                                    |
|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Topic Specific Supporting Documentation</b>                                                                   |                                                                                                                                                                                                                                                                                                |
| <b>Supplementary PEI Report Volume 2 Part B Section 5 Figures</b>                                                | <b>Figure 7.1 Superficial Geology</b><br><b>Figure 7.2 Bedrock Geology</b><br><b>Figure 7.3 Aquifer Designations – Superficial Deposits</b><br><b>Figure 7.4 Aquifer Designations – Bedrock Geology</b><br><b>Figure 7.5 Landfills, Waste and Potentially Contaminative Previous Land Uses</b> |
| <b>Supplementary PEI Report Volume 3 Part B Appendix 7A Initial Contamination Risk Classification</b>            | A list of identified sites with potentially contaminative uses within the Section 5 Study Area, a table identifying the risk classification criteria and an initial risk classification for each feature, to allow a proportionate assessment of potential effects within the PEI Report.      |
| <b>Supplementary PEI Report Volume 3 Part B Sections 1 to 7 Appendix 7B Minerals Safeguarding Report</b>         | A report for the full Study Area across the Project which identifies any safeguarded minerals and provides an appraisal of the effects of the Project against relevant minerals policy.                                                                                                        |
| <b>Project Specific Supporting Documentation</b>                                                                 |                                                                                                                                                                                                                                                                                                |
| <b>Supplementary PEI Report Volume 2 Part B Chapter 1 Overview of the Section and Description of the Project</b> | A summary of the works within Section 5, including the permanent infrastructure, temporary construction works, and operational activities.                                                                                                                                                     |
| <b>Supplementary PEI Report Volume 3 Part A Appendix 2A Key Legislation</b>                                      | A list of identified environmental legislation considered relevant to the Project, which will be updated and amended as required to inform the Environmental Statement (ES).                                                                                                                   |

| Supporting Information                                                                                          | Description                                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Supplementary PEI Report Volume 3<br/>Part A Appendix 2B National and Regional Planning Policy</b>           | A list of national and regional policies generally applicable to the assessment principles which underpin the June 2025 PEI Report, Supplementary PEI Report and ES.                                                                                    |
| <b>Supplementary PEI Report Volume 3<br/>Part A Appendix 2C Local Plan Policy</b>                               | An outline of the potentially relevant local planning policy allocations affecting Section 5 of the Project.                                                                                                                                            |
| <b>Supplementary PEI Report Volume 2<br/>Part A Chapter 3 Main Alternatives Considered</b>                      | A summary of the main alternatives considered during the design development process which are relevant to Section 5 of the Project, including the main reasons for selecting the chosen option.                                                         |
| <b>Supplementary PEI Report Volume 2<br/>Part A Chapter 4 Approach to Preliminary Environmental Information</b> | Sets out the Environmental Impact Assessment (EIA) approach and general methodology that has been used in developing the Supplementary PEI Report for Section 5 of the Project.                                                                         |
| <b>Supplementary PEI Report Volume 2<br/>Part A Chapter 5 Project Description</b>                               | An overarching description of the Project and its key components, including updated design and construction information relating to Section 5.                                                                                                          |
| <b>Supplementary PEI Report Volume 3<br/>Part A Appendix 5A Preliminary Code of Construction Practice</b>       | Sets out control and management measures that will be undertaken during construction of the Project if granted consent. The final Code of Construction Practice (CoCP) will be submitted in support of the Development Consent Order (DCO) application. |

- 7.1.6 There are interrelationships related to the potential effects on Geology and Hydrogeology and other environmental topics. Therefore, please also refer to the following chapters within **Supplementary PEI Report Volume 2 Part B** and **Part C**:
- i. **Supplementary PEI Report Volume 2 Part B Chapter 4 Ecology and Biodiversity** should be consulted in relation to effects identified by the Geology and Hydrogeology assessment including impacts on land and groundwater quality, that may affect ecological receptors, such as Groundwater Dependent Terrestrial Ecosystems (GWDTE) and Sites of Specific Scientific Interest (SSSI).
  - ii. **Supplementary PEI Report Volume 2 Part B Chapter 6 Water Environment** should be consulted in relation to the effects on groundwater, including impacts on groundwater quality and quantity, identified by the Geology and Hydrogeology assessment that may affect hydrological receptors, such as surface water receptors.
  - iii. **Supplementary PEI Report Volume 2 Part B Chapter 8 Agriculture and Soils** should be consulted in relation to temporary and permanent loss of soils and soil functions and how the Project may impact the shallow soils across the Study Area.
  - iv. **Supplementary PEI Report Volume 2 Part B Chapter 13 Summary** provides a concise, consolidated summary of the likely significant effects reported for all topics, based upon the preliminary assessment.

- v. **Supplementary PEI Report Volume 2 Part C Route-wide Chapter 9 Cumulative Effects** reports those intra-project effects which could potentially act in combination to result in cumulative environmental effects. It also identifies a shortlist of other Committed Developments with which there may be potential for cumulative effects, and the relevant environmental topics for such effects (inter-project). The full cumulative effects assessment will be reported within the ES.

## 7.2 Legislation and Policy Framework

### Legislation and National Policy

- 7.2.1 Legislation and national policy relevant to the Project and this chapter is described in **Supplementary PEI Report Volume 2 Part A Chapter 2 Legislative, Regulatory and Planning Policy Context** and supporting appendices, detail of which is set out in **Table 7.1**.

### Regional and Local Policy

- 7.2.2 Regional and local plans or policies relevant to this assessment are as follows:
  - i. South East Lincolnshire, 2019. South East Lincolnshire Local Plan 2011 – 2036 (Ref 2):
    - Policy 28 – The Natural Environment: sets out the requirements for development proposals to prevent impacts on locally-designated sites (relevant for Geological Conservation Sites); and
    - Policy 30 – Pollution: sets out requirements for development proposals to prevent impacts on the land quality/condition (relevant for geology receptors) and groundwater quality (relevant for hydrogeology receptors).
  - ii. Greater Lincolnshire Nature Partnership, 2021. Geodiversity Strategy 2022 – 26 (Ref 3): this document sets out the Geodiversity Action Plan (GAP) and a summary of geodiversity sites within Lincolnshire, along with planning and conservation advice for sites of geodiversity value.
  - iii. Lincolnshire County Council, 2017. Lincolnshire Minerals and Waste Local Plan Core Strategy and Development Management Policies (Ref 4): sets out the key principles for working of minerals and waste management development in Lincolnshire and the development management policies for minerals and waste which will be considered for any future planning applications.

## 7.3 Scope of Assessment

- 7.3.1 The scope of the assessment has been informed by the Scoping Opinion (Ref 5) provided by the Planning Inspectorate in September 2024 on behalf of the Secretary of State, following publication of the EIA Scoping Report (Ref 6). The scope has also been informed through consultation and engagement with relevant consultees. A summary of the Scoping Opinion together with a response against each point of relevance to the Geology and Hydrogeology chapter is provided in **Supplementary PEI Report Volume 3 Part A Appendix 4A Planning Inspectorate Scoping Opinion Responses**. A summary of the stakeholder engagement undertaken to date

is provided in **Supplementary PEI Report Volume 3 Part A Appendix 4D Summary of Stakeholder Engagement**.

- 7.3.2 Non-statutory consultation feedback was discussed within the Grimsby to Walpole Stage 1 Consultation Feedback Report (Ref 7). Stage 2 Consultation Feedback relevant to Section 5 is discussed within the **Grimsby to Walpole Section 5 Consultation Feedback Report**.
- 7.3.3 The scope of the construction assessment covers the following receptor groups:
- i. Human health (construction workers, adjacent land users) – only in the context of land contamination assessments (various other aspects of human health are addressed in **Supplementary PEI Report Volume 2 Part C Route-wide Chapter 7 Health and Wellbeing**);
  - ii. Groundwater aquifers;
  - iii. Groundwater abstractions;
  - iv. Soil/land quality – only in the context of land contamination assessments (other aspects being addressed in **Supplementary PEI Report Volume 2 Part B Chapter 8 Agriculture and Soils**);
  - v. Structures; and
  - vi. Designated geological conservation sites (none present within the Section 5 Study Area).
- 7.3.4 The scope of the operation and maintenance assessment covers the following receptor groups:
- i. Human health (future land users) – only in the context of land contamination assessments (various other aspects of human health are addressed in **Supplementary PEI Report Volume 2 Part C Route-wide Chapter 7 Health and Wellbeing**);
  - ii. Groundwater aquifers;
  - iii. Groundwater abstractions; and
  - iv. Structures.

## 7.4 Assessment Methodology

- 7.4.1 The assessment scope, methodology, relevant guidance, key assumptions and limitations for the Geology and Hydrogeology assessment are set out in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**. This includes a description of how receptor sensitivity, magnitude of impact and significance of effects are all defined and assigned to the assessment. A summary of the key components is outlined below.
- 7.4.2 The assessment for Geology and Hydrogeology has been undertaken in line with Land Contamination Risk Management (LCRM) guidance (Ref 8), which includes an approach for land contamination assessments in relation to human health, land and groundwater receptors. This guidance is based on the source-pathway-receptor approach, which forms the basis of the approach used for assessing effects relating to contamination. This approach is also consistent with the Environment Agency's



(EA) Approach to Groundwater Protection (Ref 9) including the requirements noted in that guidance in relation to Nationally Significant Infrastructure Projects. The EA's guidance (Ref 9) also applies to physical effects on groundwater, forming the framework used for the assessment of these effects.

- 7.4.3 The assessment has been undertaken using recognised criteria based on Construction Industry Research and Information Association (CIRIA) Publication 552 Contaminated Land Risk Assessment: A Guide to Good Practice (Ref 10), adapted as necessary to support environmental impact assessment.
- 7.4.4 The assessment is expected to be developed further in the ES, where further relevant information becomes available, for example from ongoing consultation or additional data collection.

## Assessment Assumptions and Limitations

- 7.4.5 All general assumptions and limitations for the topic are listed within **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**. There are no additional assumptions and limitations specific to the Geology and Hydrogeology assessment for Section 5.
- 7.4.6 The key parameters and assumptions which inform the assessment will be reviewed based on the design presented in the DCO application and, where required, updated, or refined, for the ES. The ES will present the final key assumptions and limitations used within that assessment, particularly drawing attention to any areas that may have changed from that presented in this preliminary assessment.
- 7.4.7 External data requests made to the Environment Agency and Local Planning Authority to help inform the PEI Report assessments were based on a slightly different geographical extent than the current draft Order Limits, reflecting the refinement of the design in Section 5 since the PEI Report. This does not introduce a substantial additional limitation, because the variance relates to peripheral parts of the Order Limits, such as areas relating to access and environmental mitigation, rather than areas of pylon or substation construction (which are of greater importance for Geology & Hydrogeology assessment). Updated requests will be submitted to third parties, including the EA and the relevant local authorities, in support of the ES to ensure full coverage of the Study Area for the Geology and Hydrogeology assessments.

## 7.5 Baseline Conditions

### Study Area

- 7.5.1 For the purposes of the Geology and Hydrogeology assessment, a general Study Area of the draft Order Limits plus a 250 m buffer for geological receptors and a 500 m buffer for hydrogeological receptors has been applied. This is considered to be a proportionate and suitable approach for this assessment, in line with the Scoping Opinion (Ref 5). As outlined within the Scoping Report (Ref 6), hydrogeological receptors further from the draft Order Limits are more susceptible to effects from the Project than geological receptors due to the mobile nature of groundwater and corresponding potential for the Project to affect receptors at a greater distance, hence the use of a larger Study Area for the hydrogeological assessment.

## Data Collection

- 7.5.2 The following data has been used to inform the baseline conditions:
- i. Published historical mapping to identify potentially contaminative former land uses (National Library of Scotland mapping), (Ref 11);
  - ii. UK Health Security Agency radon mapping (Ref 12);
  - iii. Geological mapping published by the British Geological Survey (BGS) (1:50,000 scale) (Ref 13);
  - iv. Historical borehole records held by the BGS (Ref 13), details of which are provided within **Table 7.2**;
  - v. Groundwater abstraction details (public and private), discharge consents, historical pollution incident records, and historical and authorised landfills, as available from the EA and Local Planning Authorities, obtained through formal data requests;
  - vi. Department for Environment, Food and Rural Affairs (DEFRA) groundwater aquifer information, provided through MAGIC (Multi-Agency Geographic Information for the Countryside) (Ref 14);
  - vii. Source Protection Zones (SPZ) data, available under Open Government License (Ref 15);
  - viii. Environment Agency (EA) Catchment Data Explorer records on groundwater quality (Ref 16);
  - ix. Natural England designated Sites, i.e. Geological SSSIs, provided through MAGIC (Ref 14);
  - x. Zetica Unexploded Ordnance (UXO) online hazard mapping (Ref 17);
  - xi. Records from South Holland District Council, including locations of any private water supplies, obtained through a formal data request and received on 07 November 2024; and
  - xii. Records on locally designated geological sites, including a review of relevant local planning documentation and readily available local geo-conservation documents.
- 7.5.3 The data sources listed above are as specified in the Scoping Report (Ref 6). Furthermore, where additional information over and above this is available from geotechnical assessments being undertaken in support of the engineering design of the Project, this supplementary information has also been used. This includes Groundsure historical feature polygons and geo-environmental data search records for partial coverage within the Study Area (approximately 2,900 ha in a 100 m wide swathe for the Project), originally obtained relative to earlier provisional engineering design alignment options. This dataset covers approximately 20 per cent of the draft Order Limits in Section 5.

## Existing Baseline

- 7.5.4 The following section outlines the Geology and Hydrogeology baseline. The baseline section should be read in conjunction with the following supporting Figures and



Appendices as found within **Supplementary PEI Report Volume 2** and **Volume 3** respectively:

- i. **Supplementary PEI Report Volume 2 Part B Figure 7.1 Superficial Geology;**
- ii. **Supplementary PEI Report Volume 2 Part B Figure 7.2 Bedrock Geology;**
- iii. **Supplementary PEI Report Volume 2 Part B Figure 7.3 Aquifer Designations – Superficial Deposits;**
- iv. **Supplementary PEI Report Volume 2 Part B Figure 7.4 Aquifer Designations – Bedrock Geology;**
- v. **Supplementary PEI Report Volume 2 Part B Figure 7.5 Landfills, Waste and Potentially Contaminative Previous Land Uses;**
- vi. **Supplementary PEI Report Volume 3 Part B Appendix 7A Initial Contamination Risk Classification; and**
- vii. **Supplementary PEI Report Volume 3 Part B Appendix 7B Minerals Safeguarding Report.**

### **Topography and Current Land Use**

- 7.5.5 Section 5 covers the two new substations (Weston Marsh A and B) and an underground cable between them. Section 5 also covers multiple sections of overhead line, which require diverting into the substations from the north (from the new Lincolnshire Connection Substation (LCS) B) and south (from the new Walpole B Substation).
- 7.5.6 Section 5 is located north east of Spalding and directly east of Surfleet Seas End and the River Welland, which enters the draft Order Limits in the north west of Section 5 and runs parallel to the draft Order Limits to the south west through the Section 5 Study Area.
- 7.5.7 The land within Section 5 is primarily used for agricultural purposes and there are no major roads within the draft Order Limits, with the exception of the A151 which enters the far south east of the draft Order Limits. The major roads within the Section 5 Study Area include the A16, present directly south west of the draft Order Limits, B1180 in the south west and B1357 in the south east. There are also minor/local roads in several locations in Section 5. Localised residential properties and farm buildings are present beyond the extent of the draft Order Limits within the Section 5 Study Area, with the village of Weston in the south east of the Section 5 Study Area.
- 7.5.8 The land across the Section 5 Study Area is shown to be generally flat lying on Ordnance Survey (OS) mapping, with only occasional topographic highs of less than 10 m above ordnance datum (AOD). The low-lying nature of the land, as discussed above, is such that frequent surface water features are present across the Section 5 Study Area, including ponds, drains and streams, and the River Welland is located in the north and west of the Section 5 Study Area.
- 7.5.9 Existing overhead lines are present within the Section 5 Study Area and within the draft Order Limits, shown on aerial imagery and historical mapping, with one existing overhead line (4ZM) orientated north west to south east through the Section 5 Study Area and a second existing overhead line (2WS) north east to south west, from the centre of the draft Order Limits to the south west beyond the Section 5 Study Area.

These existing overhead lines will require modifications and connection to the substation(s) in Section 5.

- 7.5.10 Aerial imagery indicates commercial built development within the Section 5 Study Area, with no notable features within the draft Order Limits but those within the Section 5 Study Area include a plant nursery with above ground tanks, warehouses, an auto centre and a scrap yard. Further details about these land uses (e.g. locations and distances from the draft Order Limits) are provided in the **Supplementary PEI Report Volume 3 Part B Appendix 7A Initial Contamination Risk Classification**.

### Historical Land Use

- 7.5.11 Historical surface ground workings are recorded within the north of the draft Order Limits for Section 5, south east of the River Welland, dated between 1886 and 1973 and associated with a pond which is shown on current aerial imagery.
- 7.5.12 Tanks are recorded on historical mapping in two locations within the Section 5 Study Area, one within the eastern section of the draft Order Limits and one to the west outside of the draft Order Limits. A disused sewage works is noted on historical mapping within the Section 5 Study Area approximately 440 m south east of the draft Order Limits. Further details about these land uses (e.g. locations and distances from the draft Order Limits) are provided in **Supplementary PEI Report Volume 3 Part B Appendix 7A Initial Contamination Risk Classification**.

### Geology

#### Made Ground

- 7.5.13 There are no recorded artificial deposits on published geological mapping (Ref 13) within the draft Order Limits for Section 5. Five localised areas of Made Ground are recorded in the south west of the Section 5 Study Area and outside of the draft Order Limits. There is no indication on historical mapping as to what these are associated with. The southern two areas extend beneath part of the A16 road and a roundabout.
- 7.5.14 Isolated Made Ground deposits are expected throughout the draft Order Limits and Section 5 Study Area adjacent to permanent access roads and in areas of historical and current land uses, as noted within the 'Topography and Current Land Use' and 'Historical Land Use' sections above.

#### Superficial Deposits

- 7.5.15 The Section 5 Study Area is recorded to be entirely underlain by superficial deposits comprising Tidal Flat deposits, consisting of clay and silt. The distribution of superficial deposits within the Section 5 Study Area are shown on **Supplementary PEI Report Volume 2 Part B Figure 7.1 Superficial Geology**.

#### Bedrock

- 7.5.16 The Section 5 Study Area is almost entirely underlain by mudstone of the Oxford Clay Formation, typically described as smooth to slightly silty mudstone with sporadic beds of argillaceous limestone nodules. Mudstone and siltstone of the West Walton Formation, typically described as calcareous mudstone, silty mudstone and siltstone, with subordinate fine-grained sandstones and argillaceous limestone or siltstone

nodules, is recorded within the south of the Section 5 Study Area, but not within the draft Order Limits.

7.5.17 The distribution of bedrock strata within the Section 5 Study Area is shown on **Supplementary PEI Report Volume 2 Part B Figure 7.2 Bedrock Geology**.

**Geological Setting**

7.5.18 No linear geological features (e.g. faults, breaklines, etc.) are recorded within the Section 5 Study Area. Published geological mapping (Ref 13) shows the bedrock strata as being generally horizontal across the Section 5 Study Area, with no indication of strata dip.

7.5.19 Borehole records published by the BGS within the draft Order Limits have been reviewed as part of this assessment to help confirm the anticipated geological sequence in line with the published geological mapping. Eight BGS borehole records (Ref 13) are located within the draft Order Limits and these have been summarised in **Table 7.2** below.

**Table 7.2** Summary of British Geological Survey Boreholes within the draft Order Limits for Section 5

| <b>Borehole ID</b> | <b>Location (Easting, Northing)</b> | <b>Location Description</b>                                                                                                       | <b>Stratigraphy</b>                                                                                                                                     |
|--------------------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| TF23SE10           | 528660, 330190                      | In the location of existing pylon 4ZM413, north of River Welland                                                                  | <ul style="list-style-type: none"><li>• 0 – 0.15 m: Clay</li><li>• 0.15 – 12.19 m: Silty sand</li></ul>                                                 |
| TF22NE12           | 528970, 329990                      | Southeast of River Welland, approximately 70 m south east of new pylon LW200                                                      | <ul style="list-style-type: none"><li>• 0 – 0.30 m: Topsoil</li><li>• 0.30 – 12.19 m: Silty sand/sandy silt</li></ul>                                   |
| TF22NE13           | 529050, 329660                      | South east of River Welland, west of Marsh Road, directly west of existing pylon 4ZM411                                           | <ul style="list-style-type: none"><li>• 0 – 0.30 m: Topsoil</li><li>• 0.30 – 1.22 m: Sandy clay</li><li>• 1.22 – 12.19 m: Silty sand</li></ul>          |
| TF22NE10           | 529710, 328800                      | East of Marsh Road, west of an unnamed road and Lord’s Drain, south of Western Barn House, directly west of existing pylon 4ZM408 | <ul style="list-style-type: none"><li>• 0 – 0.61 m: Silty sandy clay</li><li>• 0.61 – 1.83 m: Sandy silt</li><li>• 1.83 – 12.19 m: Silty sand</li></ul> |

| Borehole ID | Location (Easting, Northing) | Location Description                                                                                                        | Stratigraphy                                                                                                                                         |
|-------------|------------------------------|-----------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| TF22NE9     | 529940, 328500               | South of Western Barn House and west of Lord's Drain, directly south of new pylon 4ZM407-N                                  | <ul style="list-style-type: none"> <li>0 – 0.91 m: Sandy silt</li> <li>0.91 – 12.19 m: Silty sand</li> </ul>                                         |
| TF32NW13    | 530130, 328250               | South of Western Barn House and north of St Lamberts Cottage, east of Lord's Drain, directly west of existing pylon 4ZM406. | <ul style="list-style-type: none"> <li>0 – 0.84 m: Sandy silt</li> <li>0.84 – 12.19 m: Silty sand</li> </ul>                                         |
| TF32NW12    | 530350, 327970               | East of Lord's Drain and north east of St Lamberts Cottage, at the location of existing pylon 4ZM405.                       | <ul style="list-style-type: none"> <li>0 – 0.46 m: Sandy clay</li> <li>0.46 – 2.13 m: Sandy silt</li> <li>2.13 – 12.27 m: Silty sand</li> </ul>      |
| TF32NW14    | 530570, 327700               | West of Carrington Road, east of St Lamberts Cottage, at the location of existing pylon 4ZM404.                             | <ul style="list-style-type: none"> <li>0 – 0.91 m: Silty sandy clay</li> <li>0.91 – 6.10 m: Silty sand</li> <li>6.10 – 12.5 m: Silty sand</li> </ul> |

- 7.5.20 The geological logs as summarised in **Table 7.2** suggest some variance from the published BGS geological mapping (Ref 13), as the mapping describes Tidal Flat deposits generally as clay and silt whereas the logs indicate a more substantial granular (sand) content. The mapping description relates to the nature of Tidal Flat deposits in general, and it appears based on the logs that there are local variations (resulting from original depositional processes) that mean that there is a greater sand content in this area.
- 7.5.21 No Local Geological Sites or sites nationally designated for their geological importance (e.g. SSSI) are located within the Section 5 Study Area.
- 7.5.22 An area of saltmarsh is recorded by the EA in the north of Section 5 within the draft Order Limits on either side of the River Welland, east of Surfleet. This area is classified by the EA as Mid-Low degree or frequency of immersion in seawater (Ref 18).
- 7.5.23 Relevant information from the BGS geohazards database information that is available is summarised below. The limitations associated with this dataset, including the basis of its spatial extent, are discussed within **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**. The geohazards classifications are described relative to the superficial geology, so reference to **Supplementary PEI Report Volume 2 Part B Figure 7.1 Superficial Geology** should be made for the areas affected by the classifications described.

- 7.5.24 The Tidal Flat deposits are classified as Class D in relation to compressibility, meaning that compressibility and uneven settlement hazards are probably present. These deposits are also classified as Class C for shrink swell clays, meaning ground conditions are predominantly medium plasticity, and Class D for running sands, defined by the BGS as ‘running sands conditions are probably present’.

### Hydrogeology

- 7.5.25 The superficial deposits (Tidal Flat deposits) and solid strata (mudstone of the Oxford Clay Formation and mudstone and siltstone of the West Walton Formation) across the Section 5 Study Area are designated as Unproductive Strata, defined as strata which have negligible significance for water supply or baseflows to rivers, lakes and wetlands.
- 7.5.26 The designations and spatial distribution of the superficial and bedrock aquifers within the Section 5 Study Area are shown on **Supplementary PEI Report Volume 2 Part B Figure 7.3 Aquifer Designations – Superficial Deposits** and **Supplementary PEI Report Volume 2 Part B Figure 7.4 Aquifer Designations – Bedrock Geology**.
- 7.5.27 The Section 5 Study Area is not located within any groundwater bodies monitored by the EA as part of the Water Framework Directive (WFD), due to the unproductive nature of both the superficial deposits and solid strata within Section 5.
- 7.5.28 No drinking water safeguard zones or nitrate vulnerable zones (NVZ) are present within the Section 5 Study Area.

### Groundwater Levels

- 7.5.29 The EA does not hold any records for groundwater levels within the Section 5 Study Area.
- 7.5.30 The BGS does not hold any records of monitored groundwater levels within the Section 5 Study Area. However, the BGS borehole records (Ref 13) can provide groundwater level information, if groundwater was encountered during drilling. The BGS borehole records (Ref 13) indicate the presence of variable groundwater levels within the Tidal Flat deposits, with two of the eight borehole logs that are located within the draft Order Limits recording an absence of groundwater whilst the remaining six recorded shallow groundwater at between 0.9 m and 2.7 m depth. Whilst these records are from 1963, so may not reflect precise groundwater levels at present day, they indicate that generally the draft Order Limits would be expected to contain shallow perched groundwater in the Tidal Flat deposits, which may be laterally discontinuous, which is consistent with the geological setting of this area. The extent and depth of this shallow groundwater would be expected to vary seasonally.

### Source Protection Zones

- 7.5.31 No groundwater source protection zones (SPZ) are present within the Section 5 Study Area, due to the unproductive nature of the superficial and bedrock strata within this Section.

### Abstractions

- 7.5.32 There are no recorded groundwater abstractions within the Section 5 Study Area, due to the unproductive nature of the superficial and bedrock strata.
- 7.5.33** South Holland District Council have provided records of private water supplies within their district area, none of which are within the Section 5 Study Area.

### Environmental Setting

- 7.5.34 Zetica UXO online risk mapping (Ref 17) shows the Section 5 Study Area as lying entirely within an area of Low bomb risk with no strategic targets. The closest strategic target to Section 5 is located approximately 1.5 km south west of the draft Order Limits for Section 6 and is recorded as a UXO find, to the east of Spalding.
- 7.5.35 There are no recorded historical or active landfills, waste exemptions or recorded waste sites within the Section 5 Study Area.
- 7.5.36 South Holland District Council does not record any sites designated as 'contaminated land' in accordance with Part 2A of the Environmental Protection Act (1990) (Ref 19). They have advised that they do not hold any other publicly available information regarding potentially contaminative historical land uses.

### Pollution Incidents

- 7.5.37 The EA has recorded two pollution incidents within the Section 5 Study Area.
- 7.5.38 One Category 4 (no impact for both land and water) pollution incident is approximately 380 m north east of the draft Order Limits, immediately north of the River Welland. This pollution incident is dated 2007 and is associated with fly tipping, although no pollutant type is recorded.
- 7.5.39 Another pollution incident is recorded within the Section 5 Study Area, in the far south and adjacent to the boundary between Sections 5 and 6, approximately 250 m west of the draft Order Limits. This incident is dated 2012 and is recorded to have had a Category 3 (minor) impact on water, and Category 4 (no impact) on land and air, associated with unauthorised disposal of sewage effluent and vegetable washings.
- 7.5.40 The locations of recorded historical pollution incidents within the Section 5 Study Area are shown on **Supplementary PEI Report Volume 2 Part B Figure 7.5 Landfills, Waste and Potentially Contaminative Previous Land Uses**.

### Discharge Consents

- 7.5.41 There are no recorded discharge consents within the Section 5 Study Area.

### Radon

- 7.5.42 The full Section 5 Study Area is recorded as being in an area where less than 1% of homes are at or above the radon Action Level, which is the lowest risk category defined by the UK Health Security Agency (Ref 12).

### Minerals

- 7.5.43 A Minerals Safeguarding Report has been prepared for the Project, which is provided in **Supplementary PEI Report Volume 3 Part B Sections 1 to 7 Appendix 7B**



**Minerals Safeguarding Report.** This report identifies the safeguarded minerals and safeguarded areas within the draft Order Limits. It also identifies any potential effects on these as a result of the Project, within the context of relevant mineral safeguarding policy.

- 7.5.44 There are no recorded safeguarded minerals or mineral safeguarding areas within the Section 5 Study Area and the minerals report has not identified any potentially significant effects on safeguarded minerals. Therefore, these have not been considered within this Supplementary PEI Report, in line with the agreed approach within the Scoping Opinion (Ref 5).

## Future Baseline

- 7.5.45 The future baseline relates to known or foreseeable changes to the current baseline in the future, against which the effects of the Project during construction and operation are assessed. Specifically, it accounts for anticipated changes including: those caused by changing climatic conditions, policy, legislation, advances in technology and by other confirmed development projects which will be complete prior to construction of the Project.
- 7.5.46 At this preliminary stage, a full assessment of the implications of any committed development projects with respect to future baseline conditions has not been undertaken. A list of the currently known developments which are anticipated to be included within the future baseline scenario is provided within **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope Annex A Developments for Consideration Within the Future Baseline**. This will be reviewed and updated as appropriate during development of the ES, as with other information which informs assessment of the future baseline.
- 7.5.47 It is currently anticipated that, subject to gaining development consent in 2028, construction works would begin in 2029 and be completed by 2033. Up to and including that period, it is not expected that ground conditions, with respect to land contamination and geology, would change significantly. This assumes that any future activities undertaken within the Study Area would be permitted or controlled in accordance with current contaminated land legislation.
- 7.5.48 Hydrogeological conditions are more susceptible to change and therefore may be affected by the following factors:
- i. Climate change – changes in rainfall can affect aquifer recharge, groundwater levels and flow gradients (including consequent effects on the movement of contaminants in the ground);
  - ii. Future developments - such developments that are completed prior to the construction start date of the Project, including housing – increases in housing within the areas surrounding the Study Area have the potential to affect recharge to the underlying aquifers. Increased demand for drinking water associated with these can also affect future water resources and groundwater levels in aquifers; and
  - iii. Change in nitrate concentrations due to changes in land use or leaks from infrastructure - leaking waste water infrastructure represents a potential diffuse source of nutrients (nitrogen and phosphorus), other contaminants (e.g. heavy metals) and coliform bacteria to groundwater.



- 7.5.49 It is not considered likely at this stage that any change to the baseline conditions would significantly affect the assessment of effects within Section 5. This will remain under review prior to submission of the ES, to ensure that any changes in circumstances are considered on a case-by-case basis.

## 7.6 Design, Control and Additional Mitigation Measures

### Design Mitigation Measures

- 7.6.1 The Project and draft Order Limits have been designed to avoid sensitive receptors, such as landfills and designated geological sites, as far as practicable. This is in accordance with the 'Holford Rules' (Ref 20) applicable to routing of new overhead lines and the 'Horlock Rules' (Ref 21) which apply to design and siting of substations. These approaches are explained in further detail within the Corridor Preliminary Routeing and Siting Study (CPRSS) (Ref 22) and **Supplementary PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered**. Principles include, but are not limited to, seeking to avoid areas of highest amenity, cultural or scientific value, taking advantage of natural screening provided by existing landform and features (e.g. woodland) and keeping visual, noise and other environmental effects to a minimum.
- 7.6.2 Following selection of the preferred route corridor, environmental specialists have been integral to ongoing design refinement of works within Section 5. This has further contributed to the avoidance or reduction of the potential environmental impacts of the Project.

### Control Mitigation Measures

- 7.6.3 A Preliminary CoCP has been prepared for this project, provided in **Supplementary PEI Report Volume 3 Part B Appendix 5A Preliminary Code of Construction Practice**. The control and management measures included within the Preliminary CoCP relevant to Geology and Hydrogeology within Section 5 include:
- i. GH01: Intrusive ground investigations and assessment will be undertaken prior to construction which will inform appropriate geotechnical design in relation to the Study Area/structure specific ground conditions including ground instability/adverse ground conditions.
  - ii. GH02: Construction methods such as appropriate piling techniques will be required to minimise the risk of mixing of aquifer bodies through the creation of new pathways. This includes the provision of a Foundation Works Risk Assessment (FWRA), which would be undertaken once the proposed foundation solutions are known, in accordance with CL:AIRE guidance 'Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention' (Ref 23).
  - iii. GH03: Appropriate training of construction and maintenance workers in the handling and use of potentially hazardous substances and the associated risks.
  - iv. GH04: All use and storage of chemicals to be undertaken in accordance with The Control of Pollution (Oil Storage) Regulations 2001 and EA guidance 'Protect groundwater and prevent groundwater pollution' (Ref 24).

- v. GH05: Any temporary dewatering activities during construction will be undertaken in accordance with EA guidance (Ref 9), and if required, an Abstraction Licence and Environmental Permit (for the discharge) and will be limited to the depth and time required to facilitate construction activities.
- vi. GH06: General good practice environmental and waste management procedures for construction sites (e.g. regular vehicle checks, use of spill kits, correct waste storage and disposal).
- vii. GH07: If required (e.g. for maintenance during the operational phase), herbicides to be used in accordance with relevant DEFRA guidance (Ref 25).
- viii. GH11: A protocol for dealing with any unexpected contamination will be included in the CEMP.
- ix. W05: The contractor(s) will comply with all relevant consent conditions or DCO provisions regarding de-watering and other discharge activities. This will particularly be with regard to volumes and discharge rates, but also to water quality (particularly suspended solids, pH and hydrocarbons) and will include discharges to land, water bodies or third-party drains/sewers. It is assumed that temporary discharges generated from dewatering activities, for example, around pylon bases and in underground cable sections, would be made to ground, rather than to watercourses. Where this is not practicable in localised areas, any discharge to surface water would be made in compliance with relevant consents.
- x. GG21: A Material and Waste Management Plan (MWMP) will be developed prior to construction. The MWMP shall include but not be limited to:
  - Waste forecasts.
  - Identification of recovery routes.
  - Actual waste figures once work has begun.

Consideration will be given to the guidance in the Code of Practice developed by Contaminated Land: Applications in Real Environments (CLAIRE) “A Definition of Waste: Development Industry Code of Practice (DoWCoP)” (Ref 26). Dedicated waste management areas will be designed to sufficiently accommodate the types and volumes of waste produced and to reduce the environmental risk of storing waste on-site (covered, secured and away from drainage).

The control of earthworks and the movement of excavated materials (including any re-use of excavated materials) will be achieved under appropriate Environmental Permits, exemptions or the DoWCoP.

## Additional Mitigation Measures

- 7.6.4 Additional mitigation measures are those required to reduce likely significant adverse environmental effects which may still occur despite the inclusion of the embedded design and control measures described above.
- 7.6.5 Additional mitigation measures are not anticipated to be required in relation to Geology and Hydrogeology effects. However, this will remain under review during the completion of further assessment and development of the ES.

## 7.7 Preliminary Assessment of Effects

- 7.7.1 The following section presents the findings of the preliminary assessment of effects upon the receptors identified within the Section 5 Study Area, as a result of construction, maintenance and/or operational activities.
- 7.7.2 The preliminary assessment of effects reported below takes into account the Design and Control mitigation measures, as previously described.
- 7.7.3 For a summary of the likely significant effects please refer to **Supplementary PEI Report Volume 2 Part B Chapter 13 Summary**. A summary of all non-significant effects is included within this Section in **Table 7.3**, based upon the assessment scope detailed within **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.
- 7.7.4 It is noted that this is an ongoing assessment and is subject to change due to the ongoing design development of the Project, statutory consultation feedback and further stakeholder engagement. A full assessment will be included within the ES submitted with the DCO application.

### Likely Significant Effects

#### Construction

- 7.7.5 Based upon the preliminary assessment, no significant effects are predicted upon Geology and Hydrogeology receptors within Section 5, as a result of the construction phase of the Project.

#### Operation and Maintenance

- 7.7.6 Based upon the preliminary assessment, no significant effects are predicted for Geology and Hydrogeology receptors within Section 5, as a result of the operation and maintenance phase of the Project.

### Likely Non-Significant Effects

- 7.7.7 For completeness, **Table 7.3** summarises the findings of the preliminary assessment with respect to those impacts that are not predicted to result in significant Geology and Hydrogeology effects.

Table 7.3 Preliminary summary of non-significant Geology and Hydrogeology effects – Section 5

| Receptor <sup>1</sup>                                       | Impact                                                                                                                                                                                   | Sensitivity/<br>Importance/<br>Value of<br>Receptor | Magnitude<br>of Change | Significance                 | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|------------------------|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Construction</b>                                         |                                                                                                                                                                                          |                                                     |                        |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Construction workers and adjacent land users (Human health) | Harm to human health through exposure to contamination, including dust and vapours, through disturbance of the ground during construction that is affected by pre-existing contamination | Medium (construction workers)                       | Negligible             | Negligible - not significant | <p>A number of potential contamination sources have been identified within the Section 5 Study Area with a moderate or greater contamination potential and these are summarised within <b>Supplementary PEI Report Volume 3 Part B Appendix 7A Initial Contamination Risk Classification</b>.</p> <p>The only feature classified as having greater than a low contamination potential within the draft Order Limits is a historical tank, located off Hall Gate in the east of Section 5, recorded on historical mapping between the 1940's and 1970's. Current aerial imagery does not suggest a tank in this location. It is not recorded whether this was a water tank (in which case it would not present a contamination risk) or a fuel/chemical/fertiliser tank (in which case there may be a risk of residual contamination). This feature was located within an area of proposed environmental mitigation for farmland birds for this Project. No ground disturbance associated with the substations' construction, pylon</p> |

<sup>1</sup> Geological Conservation Sites have not been included as receptors within this table due to their absence within the Section 5 Study Area. Groundwater abstractions and bedrock groundwater aquifers have not been included within this table due to their absence within the Section 5 Study Area.

| Receptor <sup>1</sup> | Impact | Sensitivity/<br>Importance/<br>Value of<br>Receptor | Magnitude<br>of Change | Significance | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------|--------|-----------------------------------------------------|------------------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                       |        |                                                     |                        |              | <p>construction, or underground cables is located within 300 m of this potential contamination source. Minimal ground disturbance associated with the environmental mitigation area is anticipated in this area, not above the level associated with the current agricultural use. Therefore, it is not considered that this would present a risk to human health receptors.</p> <p>A plant nursery with above ground tanks is located directly adjacent to and outside of the draft Order Limits, in proximity to the Weston Marsh B Substation and associated construction areas. The likelihood of any contamination associated with this being present within soils that will be disturbed by the construction of the Project (i.e. on adjacent land, within the draft Order Limits), is low.</p> <p>With the use of appropriate personal protective equipment (PPE) and implementation of control measures (GH01 – pre-construction ground investigation, GH06 – which would include dust and leachate control, GH11 – protocol for unexpected contamination and GG21 – control of earthworks and materials movement) included within the Preliminary CoCP (provided in <b>Supplementary PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice</b>), the exposure pathways would be reduced/prevented such</p> |

| Receptor <sup>1</sup> | Impact                                                                                                                                                    | Sensitivity/<br>Importance/<br>Value of<br>Receptor | Magnitude<br>of Change | Significance                 | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|------------------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                       |                                                                                                                                                           |                                                     |                        |                              | that the effects on construction workers are not significant.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|                       |                                                                                                                                                           | High (adjacent land users)                          | Negligible             | Negligible – not significant | <p>The potential contamination sources within the Section 5 Study Area are summarised within <b>Supplementary PEI Report Volume 3 Part B Appendix 7A Initial Contamination Risk Classification</b>.</p> <p>With the implementation of control measures (GH01, GH06 – which would include dust and leachate control, and GH11) detailed within the Preliminary CoCP (<b>Supplementary PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice</b>), the exposure pathways would be reduced/prevented such that the effects on adjacent land users are not considered to be significant.</p> |
| Groundwater           | Deterioration in chemical quality of the groundwater through disturbance of the ground during construction that is affected by pre-existing contamination | Negligible – Tidal Flat deposits                    | Negligible             | Negligible – not significant | <p>Potential contamination sources within the Section 5 Study Area (summarised within <b>Supplementary PEI Report Volume 3 Part B Appendix 7A Initial Contamination Risk Classification</b>) have the potential to negatively affect groundwater if pre-existing contamination is mobilised during construction. The only feature within the draft Order Limits is a historical tank (it is unknown whether this relates to water or fuel/chemicals/fertiliser). However, this feature is located within a proposed environmental mitigation area, approximately 350 m southeast of the closest</p>                 |

| Receptor <sup>1</sup> | Impact | Sensitivity/<br>Importance/<br>Value of<br>Receptor | Magnitude<br>of Change | Significance | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------|--------|-----------------------------------------------------|------------------------|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                       |        |                                                     |                        |              | <p>construction area (a working area for new pylon RJ9). Minimal ground disturbance within this area is anticipated, generally not exceeding the level associated with the current agricultural land use. Therefore, disturbance of pre-existing ground contamination associated with this feature is not expected.</p> <p>Whilst located outside (adjacent to) the draft Order Limits, the plant nursery and above ground tanks are located close to areas of ground disturbance (associated with the construction of the Weston Marsh B Substation and underground cables), so may be of relevance when considering this effect. However, given the nature of the potential contamination source and likely variable permeability of the near surface geology, the risk of pre-existing contamination from this off-Site source being present within the Order Limits is relatively low.</p> <p>Whilst classified as Unproductive Strata (negligible sensitivity receptor), it is noted from BGS borehole records that the Tidal Flat deposits (which locally may contain a notable granular content) would be expected to contain shallow groundwater. This may be encountered during excavations associated with construction of the Weston Marsh B Substation, but such excavations would generally not be expected to disturb areas at risk of containing pre-existing</p> |



| Receptor <sup>1</sup> | Impact | Sensitivity/<br>Importance/<br>Value of<br>Receptor | Magnitude<br>of Change | Significance | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------|--------|-----------------------------------------------------|------------------------|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                       |        |                                                     |                        |              | <p>contamination, which would be confirmed through pre-construction ground investigation (control measure GH01) and the implementation of a protocol for unexpected contamination (control measure GH11), to ensure no significant adverse effects to groundwater.</p> <p>Piling may be required for the substation(s) and pylon foundations within Section 5, and this is the assumption for the purpose of this assessment on a worst case basis. There is potential for piling to introduce pathways for the mixing of groundwater at different levels within these Tidal Flat deposits. Control measure GH02 within the Preliminary CoCP (provided in <b>Supplementary PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice</b>) includes the use of suitable piling methods, in accordance with a foundation works risk assessment, to prevent pathway creation, if pre-existing contamination is encountered during construction.</p> <p>In summary, given the generally low risk of a contamination source, together with the implementation of control measures GH01, GH02 and GH11 within the Preliminary CoCP (<b>Supplementary PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice</b>), and the negligible sensitivity of the receptor (Unproductive Strata),</p> |

| Receptor <sup>1</sup> | Impact                                                                                                                                                                                                                                                                                                              | Sensitivity/<br>Importance/<br>Value of<br>Receptor | Magnitude<br>of Change | Significance                 | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|------------------------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                       |                                                                                                                                                                                                                                                                                                                     |                                                     |                        |                              | the effects on groundwater would not be significant.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Groundwater           | Physical effects on groundwater, such as depletion of the aquifer and increased solids/turbidity, through dewatering activities (e.g. during excavations for foundations for new structures) and changes to groundwater flows caused by construction activities and generation of solids through ground disturbance | Negligible – Tidal Flat deposits                    | Negligible             | Negligible – not significant | <p>The superficial deposits within the Section 5 Study Area are designated as Unproductive Strata (negligible sensitivity receptor). Nevertheless, the Tidal Flat deposits are expected to contain shallow groundwater (variable depths and extent) and limited groundwater control/pumping may be required for construction (e.g. substation, underground cables) within the superficial deposits. This has the possibility to reduce groundwater levels locally and increase suspended solids/turbidity in this negligible sensitivity receptor.</p> <p>Temporary groundwater control/pumping during excavations for the substation(s) and pylon foundations or open trenching for undergrounding would be undertaken in accordance with EA guidance (control measure GH05 within the Preliminary CoCP, provided in <b>Supplementary PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice</b>). Any effects on groundwater in the Tidal Flat deposits (negligible sensitivity receptor) would not be significant.</p> <p>As well as temporary groundwater control/pumping, the other physical effect on groundwater requiring consideration is the</p> |

| Receptor <sup>1</sup> | Impact                                                                                                                                                                                                                                | Sensitivity/<br>Importance/<br>Value of<br>Receptor | Magnitude<br>of Change | Significance                 | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                       |                                                                                                                                                                                                                                       |                                                     |                        |                              | generation of solids by physical disturbance of the ground during construction. With the implementation of control measures (GH02, GH09 – controls for undergrounding through horizontal directional drilling, and GG21) in the Preliminary CoCP ( <b>Supplementary PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice</b> ) to ensure physical effects are appropriately minimised and controlled, these effects on groundwater would not be significant.                                                        |
| Groundwater           | Physical and chemical effects on groundwater and/or surface water as a result of the discharge of groundwater, such as increased solids/turbidity and reduction in chemical quality, arising from dewatering or surface water control | Negligible – Tidal Flat deposits                    | Negligible             | Negligible – not significant | Any discharge of water generated during construction (e.g. from pylon and substation(s) foundations excavations) to land would be of unpolluted water only and undertaken in accordance with control measure W05 (compliance with discharge conditions) within the Preliminary CoCP (provided in <b>Supplementary PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice</b> ). Discharges directly to groundwater are not anticipated. Therefore, there is not considered to be a significant effect on groundwater. |
| Soil/land quality     | Deterioration in chemical quality of the land through                                                                                                                                                                                 | Medium                                              | Negligible             | Negligible – not significant | Soil/land quality can be negatively affected by construction due to the inadvertent release of                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

| Receptor <sup>1</sup>             | Impact                                                                                                                                              | Sensitivity/<br>Importance/<br>Value of<br>Receptor | Magnitude<br>of Change | Significance                 | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|------------------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                   | release of contamination by construction activities                                                                                                 |                                                     |                        |                              | contamination and/or incorrect storage and re-use of excavated soils.<br><br>With the implementation of control measures (GH03 – adequate training of workers in managing hazardous substances, GH04 - appropriate storage of chemicals and health and safety measures for construction sites, GH06, GH09 and GG21) within the Preliminary CoCP (provided in <b>Supplementary PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice</b> ), the effects on soil/land quality are not significant.                                                                       |
| Groundwater                       | Deterioration in chemical quality of the groundwater through release of contamination by construction activities (e.g. loss of fuels to an aquifer) | Negligible – Tidal Flat deposits                    | Negligible             | Negligible – not significant | The superficial deposits across the Section 5 Study Area are designated by the EA as Unproductive Strata (negligible sensitivity receptor), but nevertheless are expected to contain shallow groundwater of variable extent and depth. With the implementation of control measures (GH03, GH04, GH06, GH09 and GG21) within the Preliminary CoCP (provided in <b>Supplementary PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice</b> ), releases of contamination should be adequately reduced/prevented such that the effects on groundwater are not significant. |
| Adjacent land users, construction | Explosion or asphyxiation as a result of ingress                                                                                                    | High                                                | Negligible             | Negligible – not significant | No specific sources of ground gas or potential ground gas-generating materials were identified within the Section 5 Study Area immediately                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

| Receptor <sup>1</sup>        | Impact                                                                               | Sensitivity/<br>Importance/<br>Value of<br>Receptor | Magnitude<br>of Change | Significance | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------------------|--------------------------------------------------------------------------------------|-----------------------------------------------------|------------------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| workers<br>(Human<br>health) | and accumulation<br>of ground gas<br>within buildings or<br>other confined<br>spaces |                                                     |                        |              | <p>adjacent to construction areas and new infrastructure. Several localised areas of Made Ground were identified within the west of the Section 5 Study Area, with the closest area of the draft Order Limits associated with a new area of environmental mitigation, not construction for new infrastructure. These Made Ground deposits are greater than 1.5 km south west of construction areas which may include enclosed spaces, including a construction compound and the New Weston Marsh B Substation. This is considered a sufficient distance so as not to pose a risk of ground gas generation to the Project.</p> <p>Should ground investigations undertaken prior to construction (control measure GH01 within the Preliminary CoCP, provided in <b>Supplementary PEI Report Volume 3 Part B Appendix 5A Preliminary Code of Construction Practice</b>) identify the presence of hazardous ground gases, the effect would be mitigated through the use of personal protective equipment (PPE) and appropriate health and safety compliance (control measure GH03 within the Preliminary CoCP (<b>Supplementary PEI Report Volume 3 Part B Appendix 5A Preliminary Code of Construction Practice</b>), an FWRA (control measure GH02), and suitable construction at any temporary structures to prevent accumulation of ground</p> |

| Receptor <sup>1</sup> | Impact                                                                                                    | Sensitivity/<br>Importance/<br>Value of<br>Receptor | Magnitude<br>of Change | Significance                 | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------|------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                       |                                                                                                           |                                                     |                        |                              | <p>gas. Therefore, there is not considered to be a significant effect on construction workers.</p> <p>The FWRA (within control measure GH02 (as provided in <b>Supplementary PEI Report Volume 3 Part B Appendix 5A Preliminary Code of Construction Practice</b>) will consider and provide suitable controls for the risk of piling activities causing lateral migration of ground gas if disturbed during construction, to ensure that there are no risks to occupants/users of nearby buildings.</p>                                                                                                                                                                                                                                                                                                                                  |
| Structures            | Explosion as a result of ingress and accumulation of ground gas within buildings or other confined spaces | Medium                                              | Negligible             | Negligible – not significant | <p>As detailed above, no specific sources of ground gas or potential ground gas-generating material were identified within the assessment of baseline conditions for the Section 5 Study Area. The exception to this is localised areas of Made Ground within the west of the Section 5 Study Area, adjacent to a new environmental mitigation area but sufficient distance from any construction areas likely to include enclosed spaces. Therefore, these deposits are not considered to present a risk to structures.</p> <p>Should ground investigations undertaken prior to construction (control measure GH01 within the Preliminary CoCP, provided in <b>Supplementary PEI Report Volume 3 Part B Appendix 5A Preliminary Code of Construction Practice</b>) identify the presence of hazardous ground gases or materials with</p> |

| Receptor <sup>1</sup>                                                                           | Impact                                                                                                                                                 | Sensitivity/<br>Importance/<br>Value of<br>Receptor                  | Magnitude<br>of Change | Significance                 | Rationale                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|------------------------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                 |                                                                                                                                                        |                                                                      |                        |                              | the potential to generate these (e.g. Made Ground or natural materials with degradable content), suitable construction of any temporary structures (i.e. construction compounds) will prevent ground gas migration towards adjacent structures, as such, the pathways would be identified and mitigated such that the effects on structures are not significant.                     |
| Adjacent land users, construction workers (Human health)<br>Structures                          | Unstable ground and damage to buildings or property through disturbance of unstable ground by construction activities                                  | High (Human health)<br><br>Medium (Structures)                       | Negligible             | Negligible – not significant | Based on the mapped geology and currently available information from the BGS geohazards data set, it is considered that natural geohazards can be mitigated through suitable engineering design (in accordance with standard good practice) such that adverse effects should not occur. As such, there is not considered to be a significant effect.                                 |
| Soil/land quality<br><br>Adjacent land users, construction workers (Human health)<br>Structures | Ground stability issues through dissolution of soluble rocks, due to changed patterns of groundwater flow/discharges caused by construction activities | High (Human health)<br><br>Medium (Structures and soil/land quality) | Negligible             | Negligible – not significant | The BGS records the bedrock within the Section 5 Study Area as comprising mudstone of the Oxford Clay Formation and mudstone and siltstone of the West Walton Formation. These strata are not considered to be soluble rocks and are not liable to dissolution through changes in groundwater flow or discharges from construction. Therefore, there is no possibility of an effect. |



| Receptor <sup>1</sup>               | Impact                                                                                                                                                                                                                | Sensitivity/<br>Importance/<br>Value of<br>Receptor | Magnitude<br>of Change | Significance                 | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|------------------------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Operation and Maintenance</b>    |                                                                                                                                                                                                                       |                                                     |                        |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Future land users<br>(Human health) | Harm to health of the substation(s) operatives due to explosions or asphyxiation as a result of ingress and accumulation of ground gas within structures, through manual access required to operate the substation(s) | High (Human health)                                 | Negligible             | Negligible – not significant | <p>Localised Made Ground deposits are located within the west of the Section 5 Study Area, located west of a proposed environmental mitigation area and over 1.5 km south west of the New Weston Marsh B Substation. These deposits are considered to be located at a sufficient distance so as not to pose a risk to future land users including workers in enclosed spaces.</p> <p>No specific sources of ground gas or ground gas generating potential were identified within the initial contamination risk assessment (provided in <b>Supplementary PEI Report Volume 3 Part B Appendix 7A Initial Contamination Risk Classification</b>). However, the Tidal Flat deposits may include variable content of organic material which can degrade and produce ground gases.</p> <p>Should ground investigations undertaken prior to construction (control measure GH01 within the Preliminary CoCP, provided in <b>Supplementary PEI Report Volume 3 Part B Appendix 5A Preliminary Code of Construction Practice</b>) identify the presence of hazardous ground gases or materials with the potential to generate these (e.g. Made Ground or natural materials with degradable content), the substations would be designed to</p> |
| Structures                          |                                                                                                                                                                                                                       | Medium (Structures)                                 |                        |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

| Receptor <sup>1</sup>                  | Impact                                                                                                                                         | Sensitivity/<br>Importance/<br>Value of<br>Receptor | Magnitude<br>of Change | Significance                 | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|------------------------|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                        |                                                                                                                                                |                                                     |                        |                              | incorporate appropriate gas protection (if required). Therefore, there is not considered to be a significant effect.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Groundwater                            | Changes to infiltration and corresponding effects on groundwater levels as a result of the presence of new structures and impermeable surfaces | Negligible – Tidal Flat deposits                    | Minor                  | Negligible – not significant | The construction of the new Weston Marsh Substations A and B within Section 5 will introduce new impermeable surfacing and engineered drainage. Whilst the impermeable surfacing and drainage will affect run-off and recharge to the Tidal Flat superficial deposits within the draft Order Limits, this would not be expected to substantively deplete shallow groundwater levels in the area or cause significant effects, given the negligible sensitivity of the receptor and wider recharge capacity in the area surrounding the substation site. It would also not be expected to substantively increase shallow groundwater levels, given that these already appear to be shallow and that the drainage approach will be an engineering design compliant with relevant flood risk requirements. Therefore, there is not considered to be a significant effect. |
| Future land users, adjacent land users | Harm to human health through exposure to contamination, including dust and vapours through disturbance of pre-                                 | Medium                                              | Negligible             | Negligible – not significant | No specific potential contamination sources have been identified within the draft Order Limits with a moderate or greater contamination potential in the initial contamination risk assessment (provided within <b>Supplementary PEI Report Volume 3 Part B Appendix 7A Initial Contamination Risk Classification</b> ),                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

| Receptor <sup>1</sup> | Impact                                                                                                                                                                                                                                | Sensitivity/<br>Importance/<br>Value of<br>Receptor | Magnitude<br>of Change | Significance                 | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                       | existing contamination (Disturbance of pre-existing contamination may occur through infrequent maintenance or repair activities requiring excavations for inspection/access to utilities, below ground infrastructure or foundations) |                                                     |                        |                              | <p>with the exception of a historical tank in a location approximately 350 m southeast from any proposed new permanent infrastructure (pylon RJ6).</p> <p>It is considered that the degree of ground disturbance associated with maintenance activities would be no greater than that associated with construction, which have been determined not to be significant for Section 5. There is also a minimal risk of encountering unexpected contamination during the maintenance phase, as this would already be known and understood from the construction phase.</p> <p>It is considered that, with suitable health and safety measures, any risks to human health would be suitably mitigated. Therefore, the effects on human health are not significant.</p> |
| Groundwater           | Deterioration in chemical quality of the groundwater through disturbance of pre-existing contamination (Disturbance of pre-existing contamination may occur through                                                                   | Negligible – Tidal Flat deposits                    | Negligible             | Negligible – not significant | No specific potential contamination sources have been identified within the draft Order Limits with a moderate or greater contamination potential in the initial contamination risk assessment (provided within <b>Supplementary PEI Report Volume 3 Part B Appendix 7A Initial Contamination Risk Classification</b> ), with the exception of a historical tank located approximately 350 m southeast from any proposed new permanent infrastructure (pylon RJ6).                                                                                                                                                                                                                                                                                                |

| Receptor <sup>1</sup> | Impact                                                                                                                                            | Sensitivity/<br>Importance/<br>Value of<br>Receptor | Magnitude<br>of Change | Significance | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|------------------------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                       | infrequent maintenance or repair activities requiring excavations for inspection/access to utilities, below ground infrastructure or foundations) |                                                     |                        |              | Maintenance activities are also typically much less intrusive than construction activities and any resulting effects therefore would be smaller than during the construction phase, where these effects were determined to be negligible (not significant). There is also a minimal risk of encountering unexpected contamination during the maintenance phase, as this would be known and understood from the construction phase. Therefore, there is not considered to be a significant effect. |

## **7.8 Monitoring**

- 7.8.1 As no significant effects have been identified within this assessment, it is not considered necessary to undertake any monitoring prior to and within the construction phase for assurance purposes within the Section 5 Study Area.

# References

- Ref 1 National Grid Electricity Transmission (2025). Grimsby to Walpole Preliminary Environmental Information Report [online]. Available at: <https://www.nationalgrid.com/the-great-grid-upgrade/grimsby-to-walpole/document-library#4257225834-3023854277> [Accessed 12 September 2025].
- Ref 2 South East Lincolnshire (2019). South East Lincolnshire Local Plan 2011 – 2036. Available at: <https://southeastlincslocalplan.org/article/20102/Adopted-Plan> [Accessed 12 January 2025].
- Ref 3 Greater Lincolnshire Nature Partnership (2021). Geodiversity Strategy 2022 – 26. Available at: <https://glnp.org.uk/images/uploads/achieving-more/GeoStrat%202021.pdf> [Accessed 12 January 2025].
- Ref 4 Lincolnshire County Council (2017). Lincolnshire Minerals and Waste Local Plan. Available at: <https://www.lincolnshire.gov.uk/directory-record/61697/minerals-and-waste-local-plan-core-strategy-and-development-management-policies> [Accessed 12 January 2025].
- Ref 5 The Planning Inspectorate (2024). Scoping Opinion: Proposed Grimsby to Walpole Project [online]. Available at: <https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN020036-000109-Scoping%20Opinion%202017%20EIA%20Regs.pdf> . [Accessed 18 October 2024].
- Ref 6 National Grid Electricity Transmission (2024). Grimsby to Walpole Environmental Impact Assessment Scoping Report [online]. Available at: <https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN020036-000004-EN020036%20-%20Scoping%20Report%20Volume%201%20Main%20Report.pdf>. [Accessed 18 October 2024].
- Ref 7 National Grid (2025). Stage 1 Consultation Feedback Report [online]. Available at: <https://www.nationalgrid.com/document/560496/download> [Accessed 02 October 2025].
- Ref 8 Environment Agency (2023). Land Contamination Risk Management (LCRM).
- Ref 9 Environment Agency (2024). Groundwater protection guidance. Available at: <https://www.gov.uk/government/collections/groundwater-protection>. [Accessed 09 January 2025].
- Ref 10 CIRIA (2001). CIRIA Publication 552 Contaminated Land Risk Assessment: A Guide to Good Practice.
- Ref 11 National Library of Scotland (2024). Side by side geo-referenced map viewer. Available at: <https://maps.nls.uk/geo/explore/side-by-side/#zoom=16.1&lat=52.03983&lon=-1.12861&layers=10&right=ESRIWorld>. Accessed 09 January 2025.
- Ref 12 UK Health Security Agency (2024). UK maps of Radon. Available at: <https://www.ukradon.org/information/ukmaps>. [Accessed 09 January 2025].
- Ref 13 British Geological Survey (2024). GeoIndex. Available at: <https://mapapps2.bgs.ac.uk/geoindex/home.htm>. [Accessed 09 January 2025].

- Ref 14 Department for Environment, Food and Rural Affairs (2024). MAGIC Interactive Map. Available at: <https://magic.defra.gov.uk/home.htm>. [Accessed 09 January 2025].
- Ref 15 Environment Agency (2024). Source Protection Zones Dataset. Available at: <https://www.data.gov.uk/dataset/09889a48-0439-4bbe-8f2a-87bba26fbbf5/source-protection-zones-merged>. [Accessed 09 January 2025].
- Ref 16 Environment Agency (2024). Catchment Data Explorer Database. Available at: <https://environment.data.gov.uk/catchment-planning/>. [Accessed 09 January 2025].
- Ref 17 Zetica (2024). Unexploded Ordnance Risk Mapping. Available at: <https://zeticauxo.com/guidance/risk-maps/>. [Accessed 09 January 2025].
- Ref 18 Environment Agency (2024). Saltmarsh Extent and Zonation Dataset. Available at: <https://www.data.gov.uk/dataset/0e9982d3-1fef-47de-9af0-4b1398330d88/saltmarsh-extent-zonation>. [Accessed 09 January 2025].
- Ref 19 The Environmental Protection Act (1990), Chapter 43.
- Ref 20 National Grid. The Holford Rules: Guidelines on Overhead Line Routeing. [online] Available at: <https://www.nationalgrid.com/sites/default/files/documents/13795-The%20Holford%20Rules.pdf> [Accessed 20 September 2024]
- Ref 21 National Grid (no date) Horlock Rules [online] Available at: <https://www.nationalgrid.com/sites/default/files/documents/13796-The%20Horlock%20Rules.pdf> [Accessed 13 March 2025]
- Ref 22 National Grid Electricity Transmission (2024). Grimsby to Walpole Corridor Preliminary Routeing and Siting Study [online]. Available at: <https://www.nationalgrid.com/document/352621/download> [Accessed 12 April 2024].
- Ref 23 CL:AIRE (2025). Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention.
- Ref 24 Environment Agency (2024). Guidance on Pollution prevention for businesses. Available at: Pollution prevention for businesses - GOV.UK. [Accessed 12 November 2024].
- Ref 25 Department for Environment, Food and Rural Affairs (2006). Code of practice for using plant protection products.
- Ref 26 Contaminated Land: Applications in Real Environments (CL:AIRE), (2011). The Definition of Waste: Development Industry Code of Practice.
- Ref 27 National Grid (2025). Stage 1 Consultation Feedback Report. Available at: <https://www.nationalgrid.com/document/560496/download>. [Accessed 09 September 2025].



# 8. Agriculture and Soils

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## 8. Agriculture and Soils

### 8.1 Introduction

- 8.1.1 This chapter presents the Supplementary Preliminary Environmental Information (PEI) in relation to the Agriculture and Soils assessment for the New Weston Marsh Substations A and B (Section 5) (previously the Refined Weston Marsh Substation Siting Zone) of the Grimsby to Walpole Project (the Project).
- 8.1.2 The preliminary assessment of Section 5 reported within this chapter presents an update to the previously published June 2025 Report (Ref 1), which formed part of the Stage 2 Consultation completed between 11 June 2025 and 6 August 2025. This update reflects the fact that since the launch of the Stage 2 Consultation, further design development has been completed to confirm the requirement for two substations within Section 5, the preferred location of the new Weston Marsh Substation A and new Weston Marsh Substation B and the associated overhead line and underground cable connections. The draft Order Limits for Section 5 have also now been defined, whereas the June 2025 PEI Report was based upon a wider 'Refined Weston Marsh Substation Siting Zone' which covered a greater total area than the Section 5 draft Order Limits.
- 8.1.3 Following the publication of the June 2025 PEI Report, minor updates have been made to the Baseline Conditions (section 8.5), Design, Control and Additional Mitigation (section 8.6) and Preliminary Assessment of Effects (section 8.7) of the Agriculture and Soils chapter to reflect the defined Section draft Order Limits and the increased design definition for those elements of the Project within Section 5.
- 8.1.4 Specifically, the chapter includes the following sections:
- i. An introduction to the topic (section 8.1);
  - ii. Identification of key local and regional policy relevant to the assessment (section 8.2). A full overview of the legislation and national, regional onshore and marine planning policy context that applies to the Project is presented within the **Supplementary PEI Report Volume 2 Part A Chapter 2 Legislative, Regulatory and Planning Policy Context** and supporting appendices;
  - iii. A summary of the assessment scoping process and the subsequent scope of the Agriculture and Soils assessment (section 8.3). Further detail is provided within the **Supplementary PEI Report Volume 3 Part A Appendix 4A Planning Inspectorate Scoping Opinion Responses**;
  - iv. A high-level summary of the methodology of the Agriculture and Soils assessment within Section 5 (section 8.4). A detailed description of the assessment methods and scope, applicable to the whole Project, is contained in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**;
  - v. A description of the environmental baseline within the Section 5 Study Area relevant to the Agriculture and Soils assessment, updated since publication of

the June 2025 PEI Report based upon the Section 5 draft Order Limits (section 8.5);

- vi. A description of mitigation measures included for the purposes of the Agriculture and Soils assessment reported within the Supplementary PEI Report (section 8.6). Further information regarding design development can be found in **Supplementary PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered** and the **Grimsby to Walpole Section 5 Design Development Report**;
- vii. The likely significant and non-significant Agriculture and Soils effects arising during construction and operation of the Project within Section 5, based upon the assessment completed to date (section 8.7); and
- viii. An outline of the likely monitoring requirements in relation to Agriculture and Soils (section 8.8).

8.1.5 Further supporting information is set out in Table 8.1 below, including supporting figures and technical appendices.

Table 8.1 Supporting documentation

| Supporting Information                                                                                    | Description                                                                                                                                                                                                                                               |
|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Topic Specific Supporting Documentation</b>                                                            |                                                                                                                                                                                                                                                           |
| Supplementary PEI Report Volume 2 Part B Figures                                                          | <p>Figure 8.1 National Soil Map</p> <p>Figure 8.2 Provisional Agricultural Land Classification</p> <p>Figure 8.3 Detailed Agricultural Land Classification</p> <p>Figure 8.4 Woodland and Forestry Schemes</p> <p>Figure 8.5 Agri-Environment Schemes</p> |
| <b>Project Specific Supporting Documentation</b>                                                          |                                                                                                                                                                                                                                                           |
| Supplementary PEI Report Volume 2 Part B Chapter 1 Overview of the Section and Description of the Project | A summary of the works within Section 5, including the permanent infrastructure, temporary construction works, and operational activities.                                                                                                                |
| Supplementary PEI Report Volume 3 Part A Appendix 2A Key Legislation                                      | A list of identified environmental legislation considered relevant to the Project, which will be updated and amended as required to inform the Environmental Statement (ES).                                                                              |
| Supplementary PEI Report Volume 3 Part A Appendix 2B National and Regional Planning Policy                | A list of national and regional policies generally applicable to the assessment principles which underpin the June 2025 PEI Report, Supplementary PEI Report and ES.                                                                                      |
| Supplementary PEI Report Volume 3 Part A Appendix 2C Local Plan Policy                                    | An outline of the potentially relevant local planning policy allocations affecting Section 5 of the Project.                                                                                                                                              |

| Supporting Information                                                                                      | Description                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Supplementary PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered</b>                      | A summary of the main alternatives considered in relation to Section 5 of the Project during the design development process, including the main reasons for selecting the chosen option.                                                                |
| <b>Supplementary PEI Report Volume 2 Part A Chapter 4 Approach to Preliminary Environmental Information</b> | Sets out the Environmental Impact Assessment (EIA) approach and general methodology that has been used in developing the Supplementary PEI Report for Section 5 of the Project.                                                                         |
| <b>Supplementary PEI Report Volume 2 Part A Chapter 5 Project Description</b>                               | An overarching description of the Project and its key components, including updated design and construction information relating to Section 5.                                                                                                          |
| <b>Supplementary PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice</b>       | Sets out control and management measures that will be undertaken during construction of the Project if granted consent. The final Code of Construction Practice (CoCP) will be submitted in support of the Development Consent Order (DCO) application. |

- 8.1.6 There are also interrelationships between the potential effects on Agriculture and Soils and other environmental topics. Therefore, reference should also be made to the following chapters within **Supplementary PEI Report Volume 2 Part B** and **Part C**:
- i. **Supplementary PEI Report Volume 2 Part B Chapter 2 Landscape** should be consulted in relation to the landscape setting (for example topography) which can influence land use in any given location.
  - ii. **Supplementary PEI Report Volume 2 Part B Chapter 4 Ecology and Biodiversity** should be consulted in relation to the ecology receptors and biodiversity value which can, in part, be influenced by the presence of Agri-environment and Woodland and Forestry Schemes and which may, in turn, be relevant to soil ecosystem services (such as potential for soil carbon sequestration associated with some habitat types).
  - iii. **Supplementary PEI Report Volume 2 Part B Chapter 5 Water Environment** should be consulted in relation to the details of the water environment which interacts with the soil, for example in relation the land drainage, infiltration rates, erosion risk and flood risk.
  - iv. **Supplementary PEI Report Volume 2 Part B Chapter 7 Geology and Hydrogeology** should be consulted in relation to geology present within the Section and how the underlaying geology influences soil characteristics and how soil characteristics may influence groundwater recharge.

- v. **Supplementary PEI Report Volume 2 Part B Chapter 13 Summary** provides a concise, consolidated summary of the likely significant effects reported for all topics, based upon the preliminary assessment.
- vi. **Supplementary PEI Report Volume 2 Route-wide Chapter 8 Agriculture and Soils (route-wide summary)** should be consulted in relation to the impacts on Agriculture and Soil receptors across the entire Project and any significant effects.
- vii. **Supplementary PEI Report Volume 2 Part C Route-wide Chapter 10 Cumulative Effects** reports those intra-project effects which could potentially act in combination to result in cumulative environmental effects. It also identifies a shortlist of other Committed Developments with which there may be potential for cumulative effects, and the relevant environmental topics for such effects (inter-project). The full cumulative effects assessment will be reported within the ES.

## 8.2 Legislation and Policy Framework

- 8.2.1 Legislation and national policy relevant to the Project and this chapter is described in **Supplementary PEI Report Volume 2 Part A Chapter 2 Legislative, Regulatory and Planning Policy** and supporting appendices, detail of which is set out in Table 8.1.

### Regional and Local Policy

- 8.2.2 Regional and local plans or policies relevant to this assessment are as follows.
  - i. South East Lincolnshire Council (2019). South East Lincolnshire Local Plan 2011 – 2036 (Ref 2):
    - Policy 31 – Climate Change and Renewable and Low Carbon Energy: this requires projects to not create significant harm in relation to agricultural land take and the wider natural environment (which includes soils).

## 8.3 Scope of Assessment

- 8.3.1 The scope of the assessment has been informed by the Scoping Opinion (Ref 3) provided by the Planning Inspectorate in September 2024 on behalf of the Secretary of State, following the submission of the EIA Scoping Report (Ref 4). The scope has also been informed through consultation and engagement with relevant consultees. A summary of the Scoping Opinion together with a response against each point of relevance to the Agriculture and Soils chapter is provided in **Supplementary PEI Report Volume 3 Part A Appendix 4A Planning Inspectorate Scoping Opinion Responses**. A summary of the stakeholder engagement undertaken to date is provided in **Supplementary PEI Report Volume 3 Part A Appendix 4D Summary of Stakeholder Engagement**.
- 8.3.2 Non-statutory consultation feedback was discussed within the Grimsby to Walpole Stage 1 Consultation Feedback Report (Ref 5). Stage 2 Consultation Feedback relevant to Section 5 is discussed within the **Grimsby to Walpole Section 5 Consultation Feedback Report**.
- 8.3.3 The scope of the construction, and operation and maintenance assessment covers the following receptor groups:

- i. Agricultural Land Classification (ALC), including Best and Most Versatile (BMV) land;
- ii. Soil function; and
- iii. Agricultural landholdings.

## 8.4 Assessment Methodology

- 8.4.1 The assessment scope, methodology, relevant guidance, key assumptions and limitations for the Agriculture and Soils assessment are set out in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**. This includes a description of how receptor sensitivity, magnitude of impact and significance of effects are all described and assigned to the assessment. A summary of the key components is outlined below.
- 8.4.2 This preliminary assessment presented is supported by an initial collation and review of available baseline data. The data sources used to develop the baseline conditions are set out in section 8.5.
- 8.4.3 To fully inform the assessment of Agriculture and Soils, a detailed ALC and soil survey is being undertaken from January 2025 to early 2026 to determine the sensitivities of soils and the grades of agricultural land within Section 5. The information from the detailed ALC and soil survey was not available for this preliminary assessment but will inform the assessment presented in the ES. The survey and assessment will be undertaken in accordance with the Soil Survey Field Handbook (Ref 6) and the ALC guidelines (Ref 7). It will characterise soil properties based on an examination of soil profiles, from which agricultural land grade as well as soil resilience can be calculated and assessed. An Agriculture and Soils survey strategy document is provided within Annex II to the **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.
- 8.4.4 The assessment presented in this PEI Report is based on publicly available Provisional ALC data, and detailed data (where available). The Provisional ALC mapping does not differentiate between Grade 3a (BMV) and Grade 3b (non-BMV); as such a worst-case approach has been taken for the assessment presented, with all land provisionally mapped as Grade 1, 2 and 3 being considered to comprise BMV land. The ES submitted with the DCO application will include detailed ALC survey data that will show the split between Grade 3a and 3b land. This information will further refine the assessment as presented in this Chapter for the ES. A Detailed ALC Survey Report will be included as an appendix within the ES.
- 8.4.5 To inform the assessment of impacts on farm holdings, broad data on agricultural landholdings will be collected through on-going discussions by the Project's Lands Team with landowner/occupiers or land agents. A preliminary overview of landowner/occupier information has been used to inform the preliminary assessment. This does not, for the Supplementary PEI Report, include an assessment of individual landholdings in terms of viability (such as disruption or proportion of landholding taken temporarily or permanently). An assessment will be presented in the ES based on the level of further information gained and with a focus on the permanent impacts and on any land uses which may be considered more sensitive (such as orchards, high value cropping systems or livery stables). The assessment in relation to landholdings takes account of the framework associated with financial



compensation for disruption and temporary/permanent loss of land (in accordance with the compensation code) which would include consideration of any active agri-environment and/or forestry/woodland schemes.

- 8.4.6 Land taken temporarily during construction, for example for construction compounds, would be reinstated following completion of construction activities. Land taken permanently during construction, for example for pylon foundations, would not be available for on-going agricultural use. Temporary and permanent impacts associated with land being taken are therefore addressed as part of the construction phase as the land is taken at that point in the Project.
- 8.4.7 Maintenance or repair works which would result in disturbance to soils during the operation of the Project (for example creation of temporary access routes and contractor compounds) would be undertaken in accordance with good practice soil handling methods. As these are likely to be small-scale and temporary, no likely significant effects on agricultural land during operational, maintenance or repair activities are predicted. Whilst operational impacts are proposed to be scoped out of the assessment, the Scoping Opinion (Ref 3) requested further detail on the location and extent of access tracks and compounds for maintenance activities to demonstrate the limited extent/duration. Further information on the scale and duration of likely standard operational activities which could affect Agriculture and Soils will be provided in the ES.

## Assessment Assumptions and Limitations

- 8.4.8 All general assumptions and limitations for the topic are listed within **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.
- 8.4.9 The following assumption and limitation is specific to the Agriculture and Soils of Section 5.
- 8.4.10 It should be noted that while all land in Section 5 is provisionally mapped as ALC Grade 1 land, the land grades will be confirmed by detailed surveys and the final magnitude of effects will be presented based on the survey information and the detailed design. As BMV land comprises ALC Grades 1, 2 and 3a land, and provisional mapping has identified none of the lower grades within this Section, it is considered likely that predominantly BMV land will be affected within Section 5. Furthermore, provisional ALC mapping is at a scale of 1:250,000 and does not split Grade 3 into Grades 3a and 3b, which is critical for assessing impacts on BMV land. As such, for the purpose of the preliminary assessment all provisional ALC Grade 1, 2 and 3 land will be considered BMV land.
- 8.4.11 The key parameters and assumptions which inform the assessment will be reviewed based on the design presented in the DCO application and, where required, updated, or refined, for the ES. The ES will present the final key limitations and assumptions applicable to the full assessment, particularly drawing attention to any areas that may have changed from that presented in this preliminary assessment.

## 8.5 Baseline Conditions

### Study Area

- 8.5.1 The Study Area for the assessment of Agriculture and Soils comprises the draft Order Limits within Section 5, as agreed with the Scoping Opinion 8.8.2(Ref 3). The assessment is confined to within this boundary as no land will be affected outside of this.

### Data Collection

- 8.5.2 The following data has been used to inform the baseline conditions:
- i. British Geological Survey (BGS) Geology Viewer (Ref 8);
  - ii. Ordnance Survey (OS) mapping and aerial photography (Ref 9);
  - iii. Department for Environment, Food and Rural Affairs (DEFRA) Agricultural Land Classification – Provisional (England), provided through MAGIC (Multi-Agency Geographic Information for the Countryside) (Ref 10);
  - iv. Department for Environment, Food and Rural Affairs (DEFRA) Post-1988 Agricultural Land Classification (England), provided through MAGIC (Multi-Agency Geographic Information for the Countryside) (Ref 10);
  - v. National Soil Association Map of East Midlands and Eastern England and soil data from National Soils Resources Institute at Cranfield university (NSRI) (Ref 11);
  - vi. Likelihood of BMV Agricultural Land map (Ref 12);
  - vii. Relevant Agriculture and Soils data from other projects which overlap with the draft Order Limits); and
  - viii. Climate data sets for ALC assessment (Ref 13).

### Existing Baseline

- 8.5.3 The following section outlines the Agriculture and Soils baseline. The baseline section should be read in conjunction with the following supporting Figures as found within **Supplementary PEI Report Volume 2**:
- i. **Supplementary PEI Report Volume 2 Part B Figure 8.1 National Soil Map;**
  - ii. **Supplementary PEI Report Volume 2 Part B Figure 8.2 Provisional Agricultural Land Classification;**
  - iii. **Supplementary PEI Report Volume 2 Part B Figure 8.3 Detailed Agricultural Land Classification;**
  - iv. **Supplementary PEI Report Volume 2 Part B Figure 8.4 Woodland and Forestry Schemes; and**
  - v. **Supplementary PEI Report Volume 2 Part B Figure 8.5 Agri-environment Schemes.**

## Geology

- 8.5.4 Geology plays a crucial role in shaping the soil types and characteristics as the parent material from which the soils are formed. Available geological mapping shows that the underlying bedrock geology present within Section 5 is the Oxford Clay Formation (mudstone). This is a sedimentary bedrock formed (between 166.1 and 157.3 million years ago) during the Jurassic period.
- 8.5.5 Clay and silt tidal flat deposits form the superficial drift present, which are sedimentary superficial deposits formed during the Quaternary period (between 11.8 thousand years ago and the present). The superficial deposit is found across the whole of Section 5.

## Soils

- 8.5.6 The Soil Associations describe the different types of soil found within the UK. Available national soil survey mapping data indicates that the Soil Association present within Section 5 (as shown in **Supplementary PEI Report Volume 2 Part B Figure 8.1 National Soil Map**) is the Wisbech Association.
- 8.5.7 The Wisbech Association comprises deep stoneless calcareous coarse silty soils. Groundwater is usually controlled by ditches or pumps as the land is flat with low ridges. There is a risk of wind erosion locally associated with these soils. They are seasonally waterlogged and affected by a shallow fluctuating groundwater-table. These soils are developed mainly within or over permeable material and have prominently mottled or greyish coloured horizons within 40 cm depth. The Wisbech Association is found across the entire section.
- 8.5.8 The soils in Section 5 will be providing a range of soil functions, and as such are considered to have a range of sensitivities from very high to medium.

## Agricultural Land Classification

- 8.5.9 ALC is a classification system used to assess the quality of agricultural land within England and Wales. The Provisional ALC mapping shows that Section 5 comprises Grade 1 land (excellent quality agricultural land). This is shown in **Supplementary PEI Report Volume 2 Part B Figure 8.2 Provisional Agricultural Land Classification**. This would be considered a receptor of very high sensitivity.
- 8.5.10 Please note limitations associated with using provisional ALC mapping, as described in paragraph 8.4.10.
- 8.5.11 There is no pre-existing detailed ALC survey data available for Section 5.
- 8.5.12 Detailed ALC information is only available where a detailed ALC survey has previously been conducted and accepted by Natural England.

## Woodland and Forestry Scheme

- 8.5.13 Woodland and Forestry Schemes are government provided incentives that reward landowners for the creation and management of woodlands. The three Woodland Grant Schemes (WGSs) operated June 1988 – June 1991 (WGS1), June 1991 – September 1994 (WGS2), and October 1994 – June 2004 (WGS3). There is a WGS3 area which crosses Section 5, west of Crown Farm (as shown on **Supplementary PEI Report Volume 2 Part B Figure 8.4 Woodland and Forestry Schemes**).

## Agri-Environment Schemes

- 8.5.14 Agri-environment Schemes comprise government funding to farmers and land managers to support activities which improve the local environment. There are different levels of Environmental Stewardship schemes which have increasing complexity and land management requirements but also therefore have greater environmental benefits. A Countryside Stewardship (Middle Tier) Scheme is found at Crown Farm and has a small intersection with Section 5 as shown on **Supplementary PEI Report Volume 2 Part Figure 8.5 Agri Environment Schemes**.

## Land Use

- 8.5.15 Aerial imagery and OS mapping indicate that the agricultural land use within Section 5 is predominantly arable, with some grassland and woodland areas. Field boundaries are lined with hedges, trees and roads.

## Agricultural Landholdings

- 8.5.16 There are 29 landholdings identified within Section 5. Land use is predominantly arable with small sections of woodland and grassland. Given the predominant land use this receptor is considered to have a low sensitivity.

## Future Baseline

- 8.5.17 The future baseline relates to known or foreseeable changes to the current baseline in the future, against which the effects of the Project during construction and operation are assessed. Specifically, it accounts for anticipated changes including: those caused by changing climatic conditions, policy, legislation, advances in technology and by other confirmed development projects which will be complete prior to the construction of the Project.
- 8.5.18 At this preliminary stage, a full assessment of the implications of any confirmed development projects with regard to future baseline conditions has not been undertaken. A list of the currently known developments which are anticipated to be included within the future baseline scenario is provided within **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope Annex A Developments for Consideration Within the Future Baseline**. This will be reviewed and updated as appropriate during development of the ES, as with other information which informs assessment of the future baseline.
- 8.5.19 It is considered that the baseline conditions for soils and ALC grades will remain unchanged from those described in the baseline during the construction period of the Project. While there may be potential changes in relation to climate change, including greater rainfall intensity and frequency of droughts, that could affect soil conditions, land grade, and farming practices, it is likely that these would only become apparent over longer time frames.
- 8.5.20 There could potentially be future changes to land management practices and business approaches across the landowners/land managers irrespective of whether this Project goes ahead; these cannot be known or assessed currently as any future changes would be driven by third parties.

- 8.5.21 The baseline details as presented above are not anticipated to change in the absence of the Project.

## 8.6 Design, Control and Additional Mitigation Measures

### Design Mitigation Measures

- 8.6.1 The Project is being designed to avoid sensitive receptors as far as practicable. This is in accordance with the 'Holford Rules' (Ref 14) applicable to routing of new overhead lines and the 'Horlock Rules' (Ref 15) which apply to the design and siting of substations. These approaches are explained in further detail within the Corridor Preliminary Routeing and Siting Study (CPRSS) (Ref 16) and **Supplementary PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered**. Principles include, but are not limited to, rationalising the design to minimise the land take required, seeking to avoid areas of highest amenity, cultural or scientific value, taking advantage of natural screening provided by existing landform and features (e.g. woodland) and keeping visual, noise and other environmental effects to a minimum.
- 8.6.2 Following selection of the preferred route corridor, environmental specialists have been integral to ongoing design refinement of works within Section 5. This has further contributed to the avoidance or reduction of the potential environmental impacts of the Project. For example, the Project design has been and will continue to be rationalised to minimise the extent of land take required to construction, maintain and operate the proposed assets and position infrastructure (such as pylons and access routes) as close as is practicable to field boundaries to minimise impacts to agricultural operations.

### Control Mitigation Measures

#### Construction

- 8.6.3 A Preliminary Outline Code of Construction Practice (CoCP) is provided in **Supplementary PEI Report Volume 3 Appendix 5A Preliminary CoCP**. The control measures included within the Preliminary CoCP relevant to the Agriculture and Soils assessment of Section 5 include are the same as those presented in the June 2025 PEI Report Volume 2 Part C Chapter 8 Agriculture and Soils (Ref 1) and include:
- i. GG01: The Project will be compliant with all relevant legislation, consents and permits.
  - ii. GG02: The Project will be designed to comply with existing National Grid standards and the guidelines and policies detailed in NPS-EN5 including the International Commission on Non-Ionizing Radiation Protection guidelines for electric and magnetic fields (EMFs) and associated precautionary policy.
  - iii. GG05: A record of condition will be carried out (photographic and descriptive) of the working areas that may be affected by the construction activities, prior to works commencing. This record will be available for comparison following reinstatement after the works have been completed to ensure that the standard of reinstatement at least meets that recorded in the pre-condition survey.

- iv. GG08: Land used temporarily will be reinstated where practicable to its pre-construction condition (including ALC grade) and use. Hedgerows, fences, and walls (including associated earthworks and boundary features) will be reinstated to a similar style and quality to those that were removed, in consultation with the landowner.
- v. GG11: Any activity carried out or equipment located within a construction compound that may produce a noticeable nuisance, including but not limited to dust, noise, vibration and lighting, will be located away from sensitive receptors such as residential properties or ecological sites where practicable.
- vi. GG19: Earthworks and stockpiled soil will be managed as per the Soil Management Plan (SMP).
- vii. AS01: Where land is being returned to agricultural use, the appropriate soil conditions (for example through the replacement of stripped layers and the removal of any compaction) will be recreated. This will be achieved to a depth of 1.2 m (or the maximum natural soil depth if this is shallower).
- viii. AS02: The intention is to maintain access where possible; this may have to be done using localised diversions/restrictions. Although not envisaged at this stage it may be that temporarily access isn't maintained but, in all instances, those impacted will be consulted on the proposals. This may require signed diversions or temporary restrictions to access. The means of access to affected properties, facilities and land parcels will be communicated to affected parties during the pre-construction period. with any changes communicated in advance of the change being implemented. Where field-to-field access points require alteration as a result of construction, alternative field access will be provided in consultation with the landowner/occupier.
- ix. AS03: Existing water supplies for livestock will be identified pre-construction. Where supplies will be lost or access compromised by construction works, temporary alternative supplies will be provided. Water supplies will be reinstated following construction.
- x. AS04: A scheme of pre-construction land drainage will be designed with the intent of maintaining the efficiency of the existing land drainage system and to assist in maintaining the integrity of the working area during construction. The Project may include a system of 'cut-off' drains which feed into a new header drain and the Project will also take into account surface water runoff measures.
- xi. AS05: Should animal bones be discovered during construction, which may indicate a potential burial site, works will cease, and advice will be sought from the Animal Health Regional Office on how to proceed, relevant to the origin and age of the materials found.
- xii. AS06: All movement of plant and vehicles between fields will cease in the event of a notification by the Department for Environment, Food and Rural Affairs (Defra) of a disease outbreak in the vicinity of the site that requires the cessation of activities. Advice will be sought from Defra in order to develop suitable working methods required to reduce the biosecurity risk associated with the continuation of works.
- xiii. AS07: Stone pads or alternatives such as soil stabilisation will be installed in areas where heavy equipment, such as cranes and piling rigs, and access routes are to be used. The stone pads will provide stable working areas and will reduce



disturbance to the ground. The stone pad area will be stripped of the topsoil, which will be stored and reinstated in accordance with the soil management measures.

- xiv. AS08: Soil management measures will be set out in the SMP. The SMP will include, but not be limited to the following:
- details of the soil resources present;
  - roles and responsibilities (and required competencies and training);
  - how topsoil and subsoil will be stripped and stockpiled;
  - suitable conditions for when handling soil will be undertaken, for example avoiding handling of waterlogged soil;
  - indicative soil storage locations;
  - how soil stockpiles will be designed taking into consideration site conditions and the nature/composition of the soil;
  - specific measures for managing sensitive soils;
  - suitable protective surfacing where soil stripping can be avoided, based on sensitivity of the environment and proposed works;
  - approach to reinstating soil that has been compacted, where required;
  - details of measures required for soil restoration; and
  - requirements for monitoring.

## Additional Mitigation Measures

- 8.6.4 Additional mitigation measures are those required to reduce likely significant adverse environmental effects which may still occur despite the inclusion of the embedded design and control measures described above.
- 8.6.5 Proposed overhead line works would result in the loss of woodland which has been identified as a WGS3 site (paragraph 8.5.13). Mitigation strategies will be addressed as part of the ES. It is likely that this will include financial compensation relating to the terms of the WGS.
- 8.6.6 Additional mitigation measures in relation to Agriculture and Soil effects will remain under review during the completion of further assessment and development of the ES.

## 8.7 Preliminary Assessment of Effects

- 8.7.1 The following section presents the findings of the preliminary assessment of effects upon the receptors, identified within the Study Area, as a result of construction, operational and/or maintenance activities within Section 5.
- 8.7.2 The preliminary assessment of effects reported below takes into account the Design and Control mitigation measures previously described.
- 8.7.3 For a summary of the likely significant effects please refer to **Supplementary PEI Report Volume 2 Part B Chapter 13 Summary**. A supplementary summary of all



non-significant effects is also included within this section in Table 8.2, based upon the assessment scope detailed in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.

- 8.7.4 It is noted that this is an ongoing assessment and is subject to change due to the ongoing design development of the Project, statutory consultation feedback and further stakeholder engagement. A full assessment will be included within the ES submitted with the DCO application.

## Likely Significant Effects

### Construction

#### Agricultural Land Classification

- 8.7.5 To undertake this assessment, publicly available Provisional ALC data has been used to determine the likely presence of BMV. Land provisionally mapped as Grade 3 has been assumed to comprise BMV land. This approach has been taken at PEI Report stage as currently detailed ALC surveys have not been undertaken. The ES submitted with the DCO application will include detailed ALC survey data that will show the split between Grade 3a and Grade 3b land.
- 8.7.6 During construction there would be a potential loss of BMV land (defined as ALC Grades 1, 2 and 3a) from agricultural productivity.
- 8.7.7 For Section 5 it is assumed that all land within the draft Order Limits may be temporarily impacted and temporarily removed from agricultural production during the construction phase.
- 8.7.8 The agricultural land required in Section 5 is provisionally mapped as Grade 1, and as such is considered likely to comprise BMV land. Grade 1 BMV land is considered to have a very high sensitivity.
- 8.7.9 The total extent of land required during construction would be 362.6 ha. Of this, 255.7 ha would be reinstated to its preconstruction condition and grade; the impacts of the temporary land take would therefore comprise an impact of small magnitude which would be a moderate adverse effect and likely significant (following the assessment criteria set out in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**). The land required includes all agricultural land needed for the construction of the proposed Project infrastructure including, substations, pylons, permanent access roads and temporary land requirements.
- 8.7.10 Of the land required during construction, 106.9 ha would be required for permanent infrastructure (including substations, pylon footings and foundations). The permanent loss of this land (assumed to be BMV land) would be of a large magnitude and a major adverse effect which is considered significant.
- 8.7.11 Lincolnshire County is mapped as comprising 94.5 % BMV land. Given the abundance of BMV land within the County and the extent of Provisional Grade 1 land at and around the proposed substation location, opportunities for the preferential use of lower grade land will be very limited. The permanent loss of Provisional Grade 1 land, to facilitate the construction and operation of the substation(s), would result in a permanent significant adverse effect.

## Soil Function

- 8.7.12 There would be disturbance to soils from the soil stripping required for pylon construction, access routes, and areas required temporarily (such as construction compounds and haul roads).
- 8.7.13 The soil within Section 5 is mapped as belonging to the Wisbech Association. Soils in this Association are categorised as being high sensitivity and having a low resilience to structural damage. The stripping and stockpiling of soil resources would have a temporary effect on the soil ecosystem services. This could include affecting soil hydrology as well as a soil's natural carbon storage ability. The implementation of effective soil handling, storage and reinstatement measures, which will be detailed in an Outline SMP (submitted as part of the DCO application), would therefore be critical in ensuring minimisation of effects on these functions and the successful restoration.
- 8.7.14 For Section 5, it is assumed that all land within the draft Order Limits will be temporarily impacted by construction activities involving soil handling or trafficking, with soils temporarily affected reinstated to their pre-construction condition. The magnitude of the impact on soil quality and ecosystem function as a result of temporary disturbance is assessed as being small; however, due to the spectrum of soil functions likely to be present within the draft Order Limits for Section 5, this would result in a range of major, moderate or minor adverse effects. Major and moderate effects are considered significant.
- 8.7.15 The permanent loss of the 106.9 ha soil would affect the associated soil ecosystem services. However, where practicable, all surplus soil resources would be reused within the Project where, depending on the proposed land use, some ecosystem services will be retained, restored or potentially enhanced. Until it can be confirmed how practicable it will be to re-use the soil resources it is considered that this would result in an impact of large magnitude, which would be considered a major adverse effect on soil function, which is considered significant.
- 8.7.16 The land grades and soil types (including peat if present) affected permanently will be confirmed following surveys and will be fully assessed in the ES submitted with the DCO application.

## Operation and Maintenance

- 8.7.17 Based upon the preliminary assessment, no likely significant effects are expected to occur on Agriculture and Soil receptors during the operation and maintenance phase of the Project in Section 5. Further discussion is provided in the following sections in relation to the predicted non-significant effects of the Project.
- 8.7.18 During the operation of the Project, land taken temporarily by the Project will have been reinstated and returned to agricultural use, whilst land taken permanently would no longer be for agricultural use and any likely significant effects accounted for during the construction phase assessment.

## Likely Non-Significant Effects

- 8.7.19 For completeness, Table 8.2 summarises the findings of the preliminary assessment with respect to those impacts that are not predicted to result in significant Agriculture and Soils effects.

Table 8.2 Preliminary summary of likely non-significant Agriculture and Soils effects – Section 5

| Source                                                                                  | Receptor                         | Impact                                                                                                             | Sensitivity/<br>Importance/<br>Value of<br>Receptor | Magnitude of<br>Change | Significance           | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------------------------------------------------------------------------|----------------------------------|--------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|------------------------|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Construction Phase</b>                                                               |                                  |                                                                                                                    |                                                     |                        |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Construction on agricultural land in use as part of an agricultural business            | Agricultural Landholdings        | Temporary loss of productive land / revenue from Woodland Grant Scheme                                             | Low                                                 | Medium                 | Likely not significant | Land use is predominantly arable, and so of low sensitivity. Land required temporarily would be reinstated to its pre-construction condition and impacts on individual agricultural businesses (including any repayments associated with the Woodland Grant Scheme) would be dealt with through financial compensation in accordance with the compensation code (which would include consideration of any active agri-environment and/or forestry/woodland schemes).                                   |
| <b>Operational and Maintenance Phases</b>                                               |                                  |                                                                                                                    |                                                     |                        |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Any operational activity on agricultural land for operational and maintenance purposes. | Agricultural Land Classification | Loss of BMV land from agricultural production due to activities required for operational and maintenance purposes. | Very high                                           | Low/negligible         | Likely not significant | Maintenance or repair works which would result in disturbance to BMV land during the operation of the Project (such as creation of haul roads, use of trackway or creation of compounds) would be undertaken in accordance with good practice soil handling methods which would be set out in a Soil Management Plan for the works. As these are likely to be small-scale and temporary, no likely significant effects on BMV land during operational, maintenance or repair activities are predicted. |
| Impacts on soil function due to any                                                     | Soil Function                    | Disturbance to soils and loss of                                                                                   | Moderate                                            | Low/negligible         | Likely not significant | Maintenance or repair works which would result in disturbance to soils during the operation of the Project (such as creation of haul roads, use of                                                                                                                                                                                                                                                                                                                                                     |

| Source                                                                                                    | Receptor                  | Impact                                                                                                 | Sensitivity/<br>Importance/<br>Value of<br>Receptor | Magnitude of<br>Change | Significance           | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------------------------------------------------------------------|---------------------------|--------------------------------------------------------------------------------------------------------|-----------------------------------------------------|------------------------|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| activities required for operational and maintenance purposes.                                             |                           | function due to activities required for operational and maintenance purposes.                          |                                                     |                        |                        | trackway or creation of compounds) would be undertaken in accordance with good practice soil handling methods which would be set out in a Soil Management Plan for the works. As these are likely to be small-scale and temporary, no likely significant effects on soil function during operational, maintenance or repair activities are predicted.                                                                                                                                                                                                                                                                                                                                                                                                              |
| Impacts on agricultural business due to any activities required for operational and maintenance purposes. | Agricultural Landholdings | Temporary loss of productive land due to activities required for operational and maintenance purposes. | Low/negligible                                      | Low/negligible         | Likely not significant | Land use is predominantly arable, and so of low sensitivity. Land required temporarily would be reinstated to its pre-construction condition and impacts on individual agricultural businesses would be dealt with through financial compensation in accordance with the compensation code (which would include consideration of any active agri-environment and/or forestry/woodland schemes). The overhead line will not result in any further permanent impacts in relation to on-going agricultural activities above and beyond the permanent effects assessed during the construction phase, and any maintenance or repair works are likely to be small-scale and temporary, with works undertaken in accordance with good practice at the time of the works. |

## **8.8 Monitoring**

- 8.8.1 Monitoring of soil handling, storage and reinstatement activities will be required during construction, and full details of what would be monitored, and the roles and responsibilities associated with the monitoring, will be set out in the Outline SMP (submitted as part of the DCO application).
- 8.8.2 Monitoring may be required during the aftercare period. The Outline SMP will set out the commitments associated with the aftercare period, with full details confirmed prior to the end of construction and prior to any land hand back.

# References

- Ref 1 National Grid Electricity Transmission (2025). Grimsby to Walpole Preliminary Environmental Information Report [online]. Available at: <https://www.nationalgrid.com/the-great-grid-upgrade/grimsby-to-walpole/document-library#4257225834-3023854277> [Accessed 12 September 2025].
- Ref 2 South East Lincolnshire Council (2019). South East Lincolnshire Local Plan 2011 – 2036. Available at: <https://southeastlincslocalplan.org/article/20102/Adopted-Plan> [Accessed 12 January 2025].
- Ref 3 The Planning Inspectorate (2024). Scoping Opinion: Proposed Grimsby to Walpole Project [online]. Available at: <https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN020036-000109-Scoping%20Opinion%202017%20EIA%20Regs.pdf> [Accessed 14 April 2025].
- Ref 4 National Grid Electricity Transmission (2024). Grimsby to Walpole Environmental Impact Assessment Scoping Report [online]. Available at: <https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN020036-000004-EN020036%20-%20Scoping%20Report%20Volume%201%20Main%20Report.pdf> [Accessed 14 April 2025].
- Ref 5 National Grid (2025). Stage 1 Consultation Feedback Report. Available at: <https://www.nationalgrid.com/document/560496/download>. [Accessed 09 September 2025].
- Ref 6 Hodgson, J.M. (2022). Soil Survey Field Handbook: Describing and Sampling Soil Profiles. Cranfield: Cranfield University.
- Ref 7 MAFF (1988). Agricultural Land Classification of England and Wales: Revised criteria for grading the quality of agricultural land (ALC011) [online]. Available at: <https://publications.naturalengland.org.uk/publication/6257050620264448>. [Accessed 29 April 2024].
- Ref 8 British Geological Survey, BGS Geology Viewer [online]. Available at: <https://www.bgs.ac.uk/map-viewers/bgs-geology-viewer/> [Accessed 3 May 2024].
- Ref 9 Google Earth (2024). Ordnance Survey Mapping and Aerial Photography [online]. Available at: <https://www.earth.google.com> [Accessed 29 April 2024].
- Ref 10 Defra, Magic Map Application [online]. Available at: <https://magic.defra.gov.uk/MagicMap.aspx> [Accessed 29 April 2024].
- Ref 11 Cranfield University (2024). Soils and their use in East Midlands and East England.
- Ref 12 Natural England (2017). Likelihood of Best and Most Versatile (BMV) Agricultural Land – Strategic scale map East Midlands and Eastern region (ALC019). Available at: Natural England Access to Evidence - Likelihood of Best and Most Versatile Agricultural Land [Accessed 29 April 2024].
- Ref 13 The Met Office (1989). Climatological Data for Agricultural Land Classification.

- Ref 14 National Grid (no date). Holford Rules [online]. Available at: <https://www.nationalgrid.com/sites/default/files/documents/13795-The%20Holford%20Rules.pdf>. [Accessed 30 August 2024].
- Ref 15 National Grid (no date). Horlock Rules [online]. Available at: <https://www.nationalgrid.com/sites/default/files/documents/13796-The%20Horlock%20Rules.pdf>. [Accessed 30 August 2024].
- Ref 16 Grimsby to Walpole Corridor Preliminary Routeing and Siting Study. January 2024 [online]. Available at: <https://www.nationalgrid.com/document/352621/download> [Accessed 18 September 2024].



# 9. Traffic and Movement

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# 9. Traffic and Movement

## 9.1 Introduction

- 9.1.1 This chapter presents the Supplementary Preliminary Environmental Information (PEI) in relation to the Traffic and Movement assessment for the New Weston Marsh Substations A and B Section (Section 5) of the Grimsby to Walpole Project (the Project).
- 9.1.2 The preliminary assessment of Section 5 reported within this chapter presents an update to the previously published June 2025 PEI Report (Ref 1), which formed part of the Stage 2 Consultation completed between 11 June and 6 August 2025. This update reflects the fact that since the launch of the Stage 2 Consultation, further design development has been completed, to confirm the requirement for two substations within Section 5, the preferred location of the new Weston Marsh Substation A and new Weston Marsh Substation B and the associated overhead line and underground cable connections. The draft Order Limits for Section 5 have also now been defined, whereas the June 2025 PEI Report was based upon a wider 'Refined Weston Marsh Substation Siting Zone' which covered a greater total area than the Section 5 draft Order Limits.
- 9.1.3 Due to the conservative assumptions adopted within the June 2025 PEI Report, there are no changes to the preliminary Traffic and Movement Assessment, which is again reported within this supplementary PEI Report to provide stakeholders with a complete suite of information to inform their consultation responses. This is given that the preliminary effects assessed at this stage are primarily informed by the assumed construction traffic volumes and routes, rather than the extents of the draft Order Limits and the details of the substation and connection designs. Given that the June 2025 PEI Report construction and operational traffic projections were based upon reasonable worst case assumptions, including the presence of up to two substations within Section 5, the projected volumes of construction and operational traffic have not been updated as a result of the further design development.
- 9.1.4 Construction and operational traffic projections will however be reviewed and updated as required based upon the Development Consent Order (DCO) scheme design. This updated data will inform the complete assessment to be reported within the Environmental Statement (ES).
- 9.1.5 Specifically, the chapter includes the following sections:
- i. An introduction to the topic (section 9.1);
  - ii. Identification of key local and regional policy relevant to the assessment (section 9.2). A full overview of the legislation and national, regional onshore and marine planning policy context that applies to the Project is presented in the **Supplementary PEI Report Volume 2 Part A Chapter 2 Legislative, Regulatory and Planning Policy Context** and supporting appendices;
  - iii. A summary of the assessment scoping process and the subsequent scope of the Traffic and Movement assessment (section 9.3). Further detail is provided within

## Supplementary PEI Report Volume 3 Part A Appendix 4A Planning Inspectorate Scoping Opinion Responses;

- iv. A high-level summary of the methodology of the Traffic and Movement assessment within the Section 5 (section 9.4). A detailed description of the assessment methods and scope, applicable to the whole Project, is contained in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**;
- v. A description of the environmental baseline within the Section 5 Study Area relevant to the Traffic and Movement assessment, updated since publication of the June 2025 PEI Report based upon the Section 5 draft Order Limits (section 9.5);
- vi. A description of mitigation measures included for the purposes of the Traffic and Movement assessment reported within this Supplementary PEI Report (section 9.6). Further information regarding design development can be found in **Supplementary PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered** and the **Grimsby to Walpole Design Development Report**;
- vii. The likely significant and non-significant Traffic and Movement effects arising during construction and operation of the Project within the Section 5 Study Area, based upon the assessment completed to date (section 9.7); and
- viii. An outline of the likely monitoring requirements in relation to Traffic and Movement (section 9.8).

9.1.6 Further supporting information is set out in **Table 9.1** below, including supporting figures and technical appendices.

Table 9.1 Supporting documentation

| Supporting Information                                                                    | Description                                                                                                                                                                                                                                                  |
|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Topic Specific Supporting Documentation</b>                                            |                                                                                                                                                                                                                                                              |
| Supplementary PEI Report Volume 2 Part B Figures                                          | <b>Figure 9.1 Overall Context Plan</b><br><b>Figure 9.2 Primary Access Routes and Worker Access Routes</b><br><b>Figure 9.3 Existing Public Rights of Way (PRoW)</b><br><b>Figure 9.4 Route Sensitivity</b><br><b>Figure 9.5 Preliminary Impact Analysis</b> |
| Supplementary PEI Report Volume 3 Part B Appendix 9A Traffic and Movement Baseline        | Presents baseline traffic information for key highway links including type of link, traffic flows, congestion rating, collision clusters and sensitive receptors.                                                                                            |
| Supplementary PEI Report Volume 3 Part B Appendix 9B Preliminary Construction Information | Provides preliminary construction traffic information for the substation(s), compounds and bellmouths providing access to the construction haul routes. This includes construction Heavy Goods Vehicles (HGVs) and construction staff traffic flows.         |

| Supporting Information                                                                                           | Description                                                                                                                                                                                                                                                                                                                                                            |
|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Supplementary PEI Report Volume 3 Part B Appendix 9C Future Baseline and Impact Analysis</b>                  | Presents the traffic analysis, including calculated future baseline and forecast construction traffic flows, to determine the likely percentage change in traffic flows on key highway links as a result of the Project. This is used to determine whether the impact (change) meets the threshold for more detailed assessment based on the sensitivity of the links. |
| <b>Project Supporting Documentation</b>                                                                          |                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Supplementary PEI Report Volume 2 Part B Chapter 1 Overview of the Section and Description of the Project</b> | A summary of the works within Section 5, including the permanent infrastructure, temporary construction works, and operational activities.                                                                                                                                                                                                                             |
| <b>Supplementary PEI Report Volume 3 Part A Appendix 2A Key Legislation</b>                                      | A list of identified environmental legislation considered relevant to the Project, which will be updated and amended as required to inform the ES.                                                                                                                                                                                                                     |
| <b>Supplementary PEI Report Volume 3 Part A Appendix 2B National and Regional Planning Policy</b>                | A list of national and regional policies generally applicable to the assessment principles which underpin the June 2025 PEI Report, Supplementary PEI Report and ES.                                                                                                                                                                                                   |
| <b>Supplementary PEI Report Volume 3 Part A Appendix 2C Local Plan Policy</b>                                    | An outline of the potentially relevant local planning policy allocations affecting Section 5 of the Project.                                                                                                                                                                                                                                                           |
| <b>Supplementary PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered</b>                           | A summary of the main alternatives considered during the design development process which are relevant to Section 5 of the Project, including the main reasons for selecting the chosen option.                                                                                                                                                                        |
| <b>Supplementary PEI Report Volume 2 Part A Chapter 4 Approach to Preliminary Environmental Information</b>      | Sets out the Environmental Impact Assessment (EIA) approach and general methodology that has been used in developing the Supplementary PEI Report for Section 5 of the Project.                                                                                                                                                                                        |
| <b>Supplementary PEI Report Volume 2 Part A Chapter 5 Project Description</b>                                    | An overarching description of the Project and its key components, including updated design and construction information relating to Section 5.                                                                                                                                                                                                                         |
| <b>Supplementary PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice</b>            | Sets out control and management measures that will be undertaken during construction of the Project if granted consent. The final Code of Construction Practice (CoCP) will be submitted in support of DCO application.                                                                                                                                                |

- 9.1.7 There are interrelationships between the potential effects on Traffic and Movement and other environmental topics. Therefore, please also refer to the following chapters within **Supplementary PEI Report Volume 2 Part B** and **Part C**:
- i. **Supplementary PEI Report Volume 2 Part B Chapter 10 Noise and Vibration** considers the noise and vibration impacts of changes in traffic flow on those road links utilised by traffic generated by the Project.
  - ii. **Supplementary PEI Report Volume 2 Part B Chapter 11 Socio-economics, Recreation and Tourism** considers potential in-combination effects to users of promoted/recreational routes including PRoW.
  - iii. **Supplementary PEI Report Volume 2 Part B Chapter 12 Air Quality** considers the air quality impacts of changes in traffic flow on those road links utilised by traffic generated by the Project, including vehicle emissions and dust (trackout).
  - iv. **Supplementary PEI Report Volume 2 Part B Chapter 13 Summary** provides a concise, consolidated summary of the likely significant effects reported for all topics, based upon the preliminary assessment.
  - v. **Supplementary PEI Report Volume 2 Part C Route-wide Chapter 7 Health and Wellbeing** considers potential impacts on neighbourhood quality and access to open space and health and social infrastructure, including those associated with traffic generated by the Project.
  - vi. **Supplementary PEI Report Volume 2 Part C Route-wide Chapter 8 Climate Change** considers the potential greenhouse gas emissions from traffic resulting from the Project. It should be noted that at this preliminary stage, this does not include quantitative calculations.
  - vii. **Supplementary PEI Report Volume 2 Part C Route-wide Chapter 9 Cumulative Effects** reports those intra-project effects which could potentially act in combination to result in cumulative environmental effects. It also identifies a shortlist of other Committed Developments with which there may be potential for cumulative effects, and the relevant environmental topics for such effects (inter-project). The full cumulative effects assessment will be reported within the ES.

## 9.2 Legislation and Policy Framework

### Legislation and National Policy

- 9.2.1 Legislation and national policy relevant to the Project and this chapter is described in **Supplementary PEI Report Volume 2 Part A Chapter 2 Legislative, Regulatory and Planning Policy** and supporting appendices, details of which are set out in **Table 9.1**.

### Regional and Local Policy

- 9.2.2 Regional and local plans or policies relevant to this assessment are as follows:
- i. Lincolnshire County Council's Local Transport Plan 5 (Adopted 2022) (Ref 1):
    - Aims to use the local and strategic development management processes to ensure that development is planned, delivered and managed to reduce the

need to travel and to support the delivery of sustainable transport modes. Supports the provision of improved walking, cycling and public transport services and facilities as part of new development and actively encourage innovative solutions to travel.

- ii. Central Lincolnshire Local Plan (Adopted April 2023)<sup>1</sup> (Ref 3):
  - Policy S47 Accessibility and Transport: sets out the requirements for an efficient and safe transport network, inclusive of strategic and public community transport infrastructure and services; and
  - Policy S48 Walking and Cycling Infrastructure: requires existing and new active travel infrastructure to be protected, maintained and improved.
- iii. South East Lincolnshire Local Plan 2011-2036 (Adopted March 2019) (Ref 4):
  - Policy 33 Delivering a More Sustainable Transport Network: seeks improvements to existing transport infrastructure and services and encourages the protection of existing footpaths, cycle routes and PRow from development; and
  - Policy 34 Delivering the Boston Distributor Road: Priority strategic infrastructure – development that compromises identified priority strategic infrastructure will not be permitted.
- iv. Boston Transport Strategy 2016-2036 (Ref 5):
  - The Strategy helps to address existing transport and travel issues in Boston and help support proposals for significant growth in the short, medium and long term. The Strategy includes support for development of the Boston Distributor Road.
- v. Spalding Transport Strategy 2014-2036 (Ref 6):
  - The Strategy provides an approach to the improvement and provision of transport and access for the town and surrounding area. The Strategy addresses existing issues and supports proposals for significant growth in the town in the short, medium and long term. The Strategy covers provision of improved and sustainable transport policy, services and infrastructure.

## 9.3 Scope of Assessment

- 9.3.1 The scope of the assessment has been informed by the Scoping Opinion (Ref 7) provided by the Planning Inspectorate in September 2024 on behalf of the Secretary of State, following the submission of the EIA Scoping Report (Ref 8). The scope has also been informed through consultation and engagement with relevant consultees. A summary of the Scoping Opinion together with a response against each point of relevance to the Traffic and Movement chapter is provided in **Supplementary PEI Report Volume 3 Part A Appendix 4A Planning Inspectorate Scoping Opinion Responses**. A summary of the stakeholder engagement undertaken to date is

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<sup>1</sup> Construction traffic routes anticipated to be utilised by construction traffic associated with works in Section 5 include highway links across the wider region, therefore policies set out within the Central Lincolnshire Local Plan are also considered relevant to the assessment.



provided in **Supplementary PEI Report Volume 3 Part A Appendix 4D Summary of Stakeholder Engagement**.

- 9.3.2 Non-statutory consultation feedback has been addressed within the Grimsby to Walpole Stage 1 Consultation Feedback Report (Ref 9) and the **Grimsby to Walpole Section 5 Consultation Feedback Report**.
- 9.3.3 The scope of the construction assessment considers potential effects upon a range of receptor groups in accordance with Institute of Environmental Management and Assessment (IEMA)<sup>2</sup> Guidance (Ref 10) which is based on consideration of the impacts upon the following transport infrastructure: highways (including footpaths and cycleways), railways, waterways and Public Rights of Way (PRoW) and promoted/recreational routes. The receptors assessed and potential effects considered are summarised in **Table 9.2**.

Table 9.2 Scope of Traffic and Movement assessment

| Receptor                                                     | Potential effects                                                                                                                                                                                                                                                                                                                           |
|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Highway Network (including footways and cycleways)</b>    |                                                                                                                                                                                                                                                                                                                                             |
| Road users                                                   | Effects as a result of construction traffic and road closures/diversions leading to potential severance, driver delay and highway safety effects.<br>Effects as a result of the movement of Abnormal Indivisible Loads (AIL) and hazardous loads during construction.                                                                       |
| Public transport users (bus)                                 | Effects as a result of construction traffic and road closures/diversions leading to potential journey time delays.                                                                                                                                                                                                                          |
| Pedestrians and cyclists                                     | Effects as a result of construction traffic leading to severance and pedestrian/cycle delay.<br>Effects on footway closures/diversions leading to severance and/or increased journey time.<br>Effects of general construction works leading to a decline in pedestrian and cycle amenity <sup>3</sup> and additional fear and intimidation. |
| <b>Railways</b>                                              |                                                                                                                                                                                                                                                                                                                                             |
| Railway users                                                | Effects upon users of the rail network due to potential impacts upon railway infrastructure.                                                                                                                                                                                                                                                |
| <b>Navigable Waterways</b>                                   |                                                                                                                                                                                                                                                                                                                                             |
| Waterway users                                               | Effects upon users of navigable waterways due to temporary closures leading to reduced access/increased journey time.                                                                                                                                                                                                                       |
| <b>Public Rights of Way and Promoted/Recreational Routes</b> |                                                                                                                                                                                                                                                                                                                                             |

<sup>2</sup> The Institute of Environmental Management and Assessment has recently rebranded as the Institute of Sustainability and Environmental Professional (ISEP)

<sup>3</sup> Pedestrian amenity is broadly defined as the relative pleasantness of a journey and is considered to be affected by traffic flow, composition and pavement width/separation from traffic.

| Receptor                              | Potential effects                                                                                                                                                                          |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pedestrians, Cyclists and Equestrians | Effects as a result of route closures/diversions leading to potential increased journey time.<br>Effects due to a decline in pedestrian and cycle amenity due to interaction with traffic. |

- 9.3.4 The EIA Scoping Report Traffic and Movement chapter sought to scope out effects associated with the operation of the Project, however it is noted that the Scoping Opinion received requested further information relating to operational traffic to support this position. This Supplementary PEI Report and supporting Appendices therefore provides an initial assessment of potential effects during operation of those elements of the Project in Section 5. The scope of the operational assessment also considers potential effects on users of PRoW and promoted/recreational routes, i.e. pedestrians, cyclists and equestrians.

## 9.4 Assessment Methodology

- 9.4.1 The assessment scope, methodology, relevant guidance, key assumptions and limitations for the Traffic and Movement assessment are set out in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**. This includes a description of how receptor sensitivity, magnitude of impact and significance of effects are all described and assigned to the assessment. A summary of the key components is outlined below.
- 9.4.2 The IEMA Guidance (Ref 10) assesses the effect on users by assessing the transport infrastructure upon which they rely.
- 9.4.3 For users of the highway network during construction, the assessment is based on the impact criteria set out within the IEMA Guidance, which sets out two broad rules for identifying potential highway links for analysis:
- Rule 1: include highway links where traffic flows will increase by more than 30 per cent (or the number of HGVs will increase by more than 30 per cent); and
  - Rule 2: include highway links of high sensitivity where traffic flows have increased by 10 per cent or more.
- 9.4.4 Based on the IEMA Guidance, highway links have therefore been identified where traffic flows are expected to increase by 30 per cent or more, and where there are increases of 10 per cent or more in an area identified as high or very high sensitivity. Sensitive areas are those where there is a presence of sensitive receptors as defined by the IEMA Guidance, and are also defined through consideration of congestion and accident data.
- 9.4.5 To determine likely increases in traffic flows on highway links, projected volumes of construction traffic have been distributed across the highway network. Construction traffic has been assigned based upon an assessment of the connection points between the works areas and the highway network, and the most suitable/likely routes that will be used to access the draft Order Limits. This approach is based upon identification of bellmouths, Primary Access Routes and Worker Access Routes, which are defined in **Table 9.3** and described further in section 9.5 Baseline Conditions.

Table 9.3 Distribution of Project traffic – definitions

| Accesses used by Project traffic | Definition                                                                                                                                                                                                                                                                                                                              |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bellmouths                       | Access points (junctions) from the existing highway network, facilitating access to construction compounds and site haul roads.                                                                                                                                                                                                         |
| Primary Access Routes            | Identified as a series of roads and junctions between the Strategic Road Network (SRN) <sup>4</sup> and the bellmouths, suitable for access by large construction vehicles, that are planned to be used by HGVs. Identification of these routes is based on existing conditions, potential for improvements and professional judgement. |
| Worker Access Routes             | Identified as a series of additional roads and junctions which are not promoted as construction HGVs routes but which could be used by workers to travel to site. These are identified as likely routes between residential areas, key employment/skills centres and the bellmouths.                                                    |

- 9.4.6 A qualitative assessment of impacts to bus users during construction has been undertaken based on the projected increase in traffic flows as a result of the Project and potential impacts to bus services. More detailed assessment will be provided within the ES if the projected increase in traffic flows on the highway links where bus services operate exceed the IEMA Guidance screening criteria defined above.
- 9.4.7 A qualitative assessment of impacts to railway users and waterway users during construction has been undertaken based on any identified requirement to restrict access or close these routes to enable construction of the Project within Section 5. An initial assessment of sensitivity is based on consideration of the likely numbers of users of the infrastructure; for railways this is considered High as there are likely to be high numbers of passengers, for waterways this is considered Low as the number of users will likely be less. More detailed assessment, where required, will be provided in the ES following further consultation with the infrastructure operators.
- 9.4.8 A qualitative assessment of impacts to pedestrians and cyclists has been undertaken based on the projected increase in traffic flows as a result of the Project during construction, and potential impacts upon pedestrians and cyclists using the affected highway routes. More detailed assessment will be provided in the ES where the projected increase in traffic flows exceed the IEMA Guidance criteria and the impact thresholds defined with the Scoping Report or if required by the highway authority.
- 9.4.9 In addition, PRoW and promoted/recreational routes that are expected to be crossed by works within Section 5 have been identified and qualitative assessment of impacts to pedestrians, cyclists and equestrians undertaken where routes are anticipated to require temporary diversion or closure. The significance of effects on PRoW and promoted/recreational routes is determined through professional judgement based on the sensitivity (national, regional, local importance and potential usage of the routes)

<sup>4</sup> The Strategic Road Network is the national network of motorways and major A roads maintained and operated by National Highways

and magnitude of impact based on requirement for crossing, diversion or closures of routes. More details assessment will be provided within the ES where requested by the local authority.

- 9.4.10 A high-level summary of potential effects (without mitigation) is then provided within this chapter based on professional judgement and experience on other similar National Grid Electricity Transmission plc (National Grid) projects. Residual effects will be assessed and reported in the ES.
- 9.4.11 While the Scoping Report Traffic and Movement chapter sought to scope out effects associated with the operation of the Project, this Supplementary PEI assessment presents details of forecast operational traffic movements associated with infrastructure in Section 5 and provides an initial assessment of potential effects of the forecast flows on baseline flows.

## Assessment Assumptions and Limitations

- 9.4.12 All general assumptions and limitations for the topic are listed within **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.
- 9.4.13 While design development has progressed for Section 5, due to the conservative assumptions adopted within the June 2025 PEI Report, there has been no change to the forecast indicative construction traffic information that relates to HGV and workers trip generation, therefore this has not been updated as part of this Supplementary PEI Report. The previous traffic numbers presented in the June 2025 PEI Report are again presented within this report. Design development has identified more detail in relation to access points and haul roads, however, this does not change the approach from the core/local road network to the draft Order Limits. Therefore, the forecast construction traffic flows and routing set out within this Supplementary PEI Report are as previously set out in the June 2025 PEI Report.
- 9.4.14 The key parameters and assumptions which inform the assessment will be reviewed based on the design presented in the DCO application and, where required, updated or refined for the ES. The ES will present the final key limitations and assumptions used within that assessment, particularly drawing attention to any areas that may have changed from that presented in this preliminary assessment.

## 9.5 Baseline Conditions

### Study Area

- 9.5.1 The Traffic and Movement Study Area for Section 5 comprises highway links assumed to be used to provide access for construction vehicles and considers the impacts to traffic, bus routes and pedestrian/cycle routes along these highway access routes. The Study Area for Construction Traffic Routes is defined in further detail below.
- 9.5.2 The Study Area also includes pedestrian/cycle/equestrian routes and PRow networks, as well as any railways and waterways that may be crossed by the Section 5 draft Order Limits.
- 9.5.3 **Supplementary PEI Report Volume 2 Part B Figure 9.1 Overall Context Plan** provides the wider Project context showing the SRN and main A roads that provide

access to all Sections of the Project. The access routes and proposed Section 5 Study Area are shown in **Supplementary PEI Report Volume 2 Part B Figure 9.2 Primary Access Routes and Workers Access Routes**.

**Construction Traffic Routes - HGVs**

- 9.5.4
- Initial construction information (including construction traffic, compound locations, bellmouth accesses and haul routes) has been used to determine the Primary Access Routes which form the basis of the initial assessment presented in this Supplementary PEI Report. Primary Access Routes have been developed using the following criteria where possible:

  - i. Construction traffic would access site bellmouths via the Primary Access Routes along the local road network. The Primary Access Routes would then connect to an appropriate close junction with the SRN and/or classified road network. Whilst it is acknowledged that the SRN is part of the classified road network, the report makes a distinction between the two because of the capacity of the SRN to carry trunk road traffic and abnormal loads.
  - ii. From the site bellmouths, construction vehicles would be routed off the public highway along haul roads to access the construction compounds and construction areas. Haul roads will be temporary in nature and will be reinstated upon completion of the construction phase. Haul routes and permanent access roads are illustrated on **Supplementary PEI Report Volume 2 Part B Figure 1.2 Temporary and Construction Features** and **Figure 1.3 Permanent and Operational Features** respectively.
  - iii. Shorter available routes between the SRN and classified road network and site access bellmouths have been selected where possible, balancing distance and the suitability of links to accommodate construction traffic.
  - iv. Existing known highway constraints, such as road geometry, height and weight restrictions, junction arrangements and other physical constraints have been avoided where possible.
  - v. Settlements and sensitive locations such as schools or hospitals have been avoided where possible to reduce potential effects on receptors.
- 9.5.5
- Table 9.4** provides a summary of the SRN and classified road network that would be used by construction traffic accessing areas within the Section 5 draft Order Limits, and their strategic connections for delivery of materials/equipment.

**Table 9.4 Construction traffic routes – SRN connections**

| Strategic/classified road network | SRN Connections                 |
|-----------------------------------|---------------------------------|
| A17                               | North and west to A15 and A1(M) |
| A47                               | West to A1(M) and M1            |

- 9.5.6
- Primary Access Routes are formed of one or more roads within the road network between the SRN/classified road network and the site access bellmouths. The Primary Access Routes are made up of Core Routes (CR series), which are the main A roads providing connections across the wider Study Area, and Local Links (LK

series) which are roads providing local access from the Core Routes to the individual bellmouth accesses.

- 9.5.7 These are summarised in **Table 9.5** and presented on **Supplementary PEI Report Volume 2 Part B Figure 9.2 Primary Access Routes and Worker Access Routes**. Further details of the roads forming the Primary Access Routes are presented in **Supplementary PEI Report Volume 3 Part B Appendix 9A Traffic and Movement Baseline**.

**Table 9.5** Primary Access Routes for HGVs

| <b>Access</b>                            | <b>Core Routes forming Primary Access Routes</b>      | <b>Local Links forming Primary Access Routes</b>                      |
|------------------------------------------|-------------------------------------------------------|-----------------------------------------------------------------------|
| Weston Marsh substation A and compound   | CR15 A17 / CR14 A17 / CR11 A16 or CR27 A47 / CR12 A16 | LK79 A151 / LK86 A151 / LK87 A151 / LK66 Stone Gate / LK65 Marsh Road |
| Weston Marsh substation B and compound   | CR15 A17 / CR14 A17 / CR11 A16 or CR27 A47 / CR12 A16 | LK79 A151 / LK86 A151 / LK87 A151 / LK66 Stone Gate / LK65 Marsh Road |
| Bellmouth accesses to pylons 2WS006-10   | CR15 A17 / CR14 A17 / CR11 A16 or CR27 A47 / CR12 A16 | LK79 A151 / LK86 A151 / LK87 A151 / LK66 Stone Gate                   |
| Bellmouth accesses to pylons RJ4 to RJ15 | CR15 A17 / CR14 A17 / CR11 A16 or CR27 A47 / CR12 A16 | LK79 A151 / LK86 A151 / LK87 A151 / LK66 Stone Gate                   |
| Bellmouth access to pylons RJ15 to RJ18  | CR15 A17 / CR14 A17 / CR11 A16 or CR27 A47 / CR12 A16 | LK79 A151 / LK86 A151                                                 |

- 9.5.8 As part of the ongoing design review process, access to Weston Marsh Substation A for HGVs via LK65 Marsh Road is currently under consideration as there is an opportunity for vehicles to turn off LK66 Stone Gate and use the haul road that runs alongside pylons RJ4-11. This would remove HGV traffic from LK65 Marsh Road and potentially reduce the requirement for mitigation works along this route. At this stage, the viability of use of the haul road is yet to be confirmed, this Supplementary PEI Report considers all HGV movements along LK65 Marsh Road.

### **Construction Traffic Routes – Worker Access Routes**

- 9.5.9 In addition to the Primary Access Routes, construction workers cars/light goods vehicles (LGVs) are also likely to use the wider highway network, including various links which are not planned to be used by HGVs to access the site. Therefore, additional access routes have been identified that construction workers are expected to use (W series), which provide access from local urban areas where workers are assumed to live.
- 9.5.10 **Table 9.6** summarises the main construction Worker Access Routes relevant to Section 5. These are presented on **Supplementary PEI Report Volume 2 Part B Figure 9.2 Primary Access Routes and Worker Access Routes**.



Table 9.6 Worker Access Routes – Additional Highways for Construction Workers

| Access Ref                             | Roads forming Worker Access Routes                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Weston Marsh Substations and compounds | CR6 (A16), CR7 (A16), CR8 (A16), CR9 (A16), CR10 (A16), CR13 (A47), CR22 (A17), CR23 (A1101), CR28 (A17), LK71 (B1165), LK90 (B1165), W40 (Marsh Road), W41 (A151), W42 (A151), W43 (East Gate), W44 (A1175), W45 (Eaugate Bank/Randall Bank), W46 (A52), W47 (Quadrang Road), W48 (A151), W49 (A151), W50 (A17), W51 (A17), W60 (Fulney Drove), W61 (Eye Road), W62 (A1139), W63 (A1101), W64 (A1101) |

## Data Collection

- 9.5.11 The following data has been used to inform the baseline conditions:
- highway network – Ordnance Survey open map (Ref 11), Google Maps (Ref 12), OpenStreetBrowser (Ref 13);
  - bus route information – local bus operators, traveline.info (Ref 14), Google Maps (Ref 12);
  - rail information – National Rail (Ref 15), Google Maps (Ref 12);
  - waterways – Environment Agency, Navigation Authority and The Inland Waterways Association (Ref 16);
  - designated non-motorised user routes for pedestrians, cyclists and equestrians and PRoW – Sustrans (Ref 17) Local Authority Definitive/PRoW map(s);
  - other promoted/recreational routes for pedestrians obtained from the Long Distance Walkers Association and through stakeholder engagement undertaken to date;
  - Annual Average Daily Traffic (AADT) flows obtained from the Department for Transport (DfT) traffic count data (Ref 18);
  - traffic count data from surveys undertaken for the Project – the surveys record road users, pedestrians, cyclists and equestrians as required with Automatic Traffic Count (ATC) data/PRoW count data collected in August 2024 and October 2024;
  - Traffic Regulation Orders restricting movement and constraints such as height and weight restrictions as viewed on Google Maps;
  - Personal Injury Collision (PIC) DfT accident data over a five year period (Ref 19);
  - Traffic growth factors have been obtained from the Trip End Model Presentation Program (TEMPPro)/National Trip End Model; and
  - Identification of pedestrian, cycle and horse-riding infrastructure provision along the Primary Access Routes, obtained from Google Maps imagery of the highway network.
- 9.5.12 The following data was not available at the time of writing this Supplementary PEI Report but will be included within the ES:



- i. traffic and PRow user survey data has been obtained for August 2024 and October 2024, additional surveys will be undertaken in 2025/2026 to understand baseline conditions;
- i. traffic information on other developments (committed) within the Study Area received from relevant planning authorities;
- ii. committed transport schemes along and in vicinity of the Primary Access Routes; and
- iii. construction and operational traffic flows for Eastern Green Link 3 and 4 projects for cumulative sensitivity testing.

### Existing Baseline

- 9.5.13
- The following section outlines the Traffic and Movement baseline. The baseline section should be read in conjunction with the following supporting Figures and Appendices as found within **Supplementary PEI Report Volume 2** and **Volume 3** respectively:
- i. **Supplementary PEI Report Volume 2 Part B Figure 9.1 Overall Context Plan;**
  - ii. **Supplementary PEI Report Volume 2 Part B Figure 9.2 Primary Access Routes and Worker Access Routes;**
  - iii. **Supplementary PEI Report Volume 2 Part B Figure 9.3 Existing Public Rights of Way (PROW);**
  - iv. **Supplementary PEI Report Volume 2 Part B Figure 9.4 Route Sensitivity; and**
  - v. **Supplementary PEI Report Volume 3 Part B Appendix 9A Traffic and Movement Baseline.**

### Highway Network

- 9.5.14
- Links forming Primary Access Routes and Worker Access Routes and the description of the road network along each route can be found within **Supplementary PEI Report Volume 3 Part B Appendix 9A Traffic and Movement Baseline.**
- 9.5.15
- Table 9.7** provides a description of each link which forms part of the Primary Access Routes and Worker Access Routes within the Section 5 Study Area, including the type of carriageway, character, speed limits, highway constraints, presence of street lighting, bus routes, on-carriageway parking, and pedestrian, equestrian and cycle provision. These highway links are presented on **Supplementary PEI Report Volume 2 Part B Figure 9.2 Primary Access Routes and Worker Access Routes.**

Table 9.7 Highway network – links

| Route Ref | Highway Link | Description                                                                                                                                                                                                                                                                                            |
|-----------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CR9       | A16          | Generally wide single carriageway, predominantly rural, 50mph / 60mph speed limit, no street lighting or footways. Some small residential areas (Sibsey, Littlemoor, Stickney, East Keal, Spilsby), with 30/40mph, street lighting and footways in these areas. Crosses rail line at level crossing in |

| Route Ref | Highway Link | Description                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|           |              | High Ferry. Southern section passes through central Boston where John Adams Way is dual carriageway with 40mph speed limit, footways and street lighting                                                                                                                                                                                                                                                                       |
| CR10      | A16          | Generally wide single carriageway, predominantly rural, 60mph speed limit, no street lighting or footways, speed limit reduces and street lighting provided through Kirton and southern Boston where 40mph applies and some sections of footway and segregated cycleways are provided                                                                                                                                          |
| CR11      | A16          | Wide single carriageway, rural area, national speed limit applies (60mph), no footways or street lighting                                                                                                                                                                                                                                                                                                                      |
| CR12      | A16          | Wide single carriageway, generally national speed limit (60mph), generally no street lighting except at junctions, no footways                                                                                                                                                                                                                                                                                                 |
| CR13      | A47          | Wide single carriageway / dual carriageway road, national speed limit (60/70mph), generally no street lighting except at junctions, no footways                                                                                                                                                                                                                                                                                |
| CR14      | A17          | Wide single carriageway with localised widening at junctions and some sections of dual carriageway, predominantly rural, national speed limit, no street lighting, except at junctions, no footways                                                                                                                                                                                                                            |
| CR15      | A17          | Dual carriageway, generally rural route, national speed limit (70mph), no footways or street lighting to the north and east of Sleaford. Narrows to wide single carriageway 3km east of Sleaford, national speed limit (60mph), no footways or street lighting, localised widening and lighting at some junctions. Speed limit reduces to 50mph with narrow footway, refuge crossings at East Heckington and Swineshead Bridge |
| CR22      | A17          | Wide single carriageway with some short sections of dual carriageway, national speed limit (60/70mph), no footways, generally no street lighting except at junctions                                                                                                                                                                                                                                                           |
| CR23      | A1101        | Single carriageway, national speed limit, no lighting or footways                                                                                                                                                                                                                                                                                                                                                              |
| CR27      | A47          | Dual carriageway road, national speed limit (70mph), street lighting, no footways                                                                                                                                                                                                                                                                                                                                              |
| CR28      | A17          | Wide single carriageway with some short sections of dual carriageway at junctions, national speed limit (60mph), no footways, generally no street lighting except at junctions                                                                                                                                                                                                                                                 |
| LK65      | Marsh Road   | Narrow single carriageway, national speed limit (60mph), no footways or street lighting                                                                                                                                                                                                                                                                                                                                        |
| LK66      | Stone Gate   | Narrow single carriageway, national speed limit (60mph), no footways or street lighting, except at southern end at junction with A151                                                                                                                                                                                                                                                                                          |

| Route Ref | Highway Link                  | Description                                                                                                                                                                                  |
|-----------|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LK71      | B1165 Ravens Bank             | Single carriageway, generally national speed limit (60mph), no footways or street lighting                                                                                                   |
| LK79      | A151                          | Wide single carriageway, 40mph speed limit, narrow shared footway/cycleway, bus stops on street, street lighting western end                                                                 |
| LK86      | A151                          | Wide single carriageway, national speed limit (60mph), no footways or street lighting                                                                                                        |
| LK87      | A151                          | Wide single carriageway, national speed limit (60mph), no footways or street lighting                                                                                                        |
| LK90      | B1165 Ravens Bank             | Single carriageway, generally national speed limit (60mph), no footways or street lighting                                                                                                   |
| W40       | Marsh Road                    | Narrow single carriageway, 60mph speed limit, no footways or street lighting, road narrows and low bridge (4.1m) under A16                                                                   |
| W41       | A151                          | Wide single carriageway, 30/50mph speed limit through urban areas, 60mph speed limit in rural area, footways and street lighting generally provided, bus route with on carriageway bus stops |
| W42       | A151                          | Wide single carriageway, 50/60mph speed limit, footways and street lighting generally provided in Holbeach but not on rural stretch to the north, bus route with on carriageway bus stops    |
| W43       | East Gate                     | Narrow single carriageway, 60mph speed limit, no footways or street lighting                                                                                                                 |
| W44       | A1175 Littleworth Drove       | Wide single carriageway, 50/60mph speed limit, street lighting and narrow footway on one side, bus route                                                                                     |
| W45       | Eaugate Bank / Randall Bank   | Narrow single carriageway, 60mph speed limit, no footways or street lighting                                                                                                                 |
| W46       | A52                           | Wide single carriageway, 60mph limit, no footways or street lighting                                                                                                                         |
| W47       | Quadrang Road                 | Wide single carriageway, 30mph speed limit, footways, street lighting and bus route in Donington, Quadrang and Gosberton, 50mph speed limit in rural areas, no footways or street lighting   |
| W48       | A151 Bourne Road/ Dozens Bank | Wide single carriageway, 60mph speed limit, no street lighting or footways                                                                                                                   |
| W49       | A151 Bourne Road              | Wide single carriageway through urban area, 40mph speed limit in semi-rural area and 30mph speed limit within the urban conurbation of Spalding, street lighting and footways                |
| W50       | A17                           | Wide single carriageway, 60mph speed limit, no footways, no street lighting except at junctions near Sutton Bridge                                                                           |

| Route Ref | Highway Link                   | Description                                                                                                                                                |
|-----------|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| W51       | A17                            | Wide single carriageway, 60mph speed limit, no footways or street lighting                                                                                 |
| W60       | Fulney Drove                   | Single carriageway, 60mph speed limit, no footways or street lighting                                                                                      |
| W61       | Eye Road                       | Wide single carriageway, 60mph speed limit, narrow footway                                                                                                 |
| W62       | A1139<br>Frank Perkins Parkway | Dual carriageway, 70mph speed limit, no street lighting or footways                                                                                        |
| W63       | A1101 Sutton Road              | Wide single carriageway, 50mph speed limit, no street lighting or footways                                                                                 |
| W64       | A1101 Churchill Road           | Wide single carriageway / dual carriageway in parts, urban route, 30/40mph speed limit, street lighting and footways, bus route with bus stops on carriage |

9.5.16 For the Supplementary PEI Report no assessment of junction impacts along the Primary Access Routes and Worker Access Routes has been undertaken. However, the baseline review of link congestion and accident data provided in **Supplementary PEI Report Volume 3 Part B Appendix 9A Traffic and Movement Baseline** does consider junctions as part of the route sensitivity. More detailed assessment of junction operation will be undertaken as required and presented with the Transport Assessment and ES to be submitted with the DCO application.

9.5.17 In addition to the Primary Access Routes and Worker Access Routes, there are roads located on the local highway network where a crossover point is proposed to be provided. This allows construction vehicles to cross over the road (likely via a priority crossing arrangement) and progress along the proposed haul roads. Construction traffic will not access the local highway at these points, therefore these roads have not been assessed within this Supplementary PEI Report. These cross over points are listed within **Supplementary PEI Report Volume 3 Part B Appendix 9A Traffic and Movement Baseline**.

#### Traffic Flows

9.5.18 Where available, baseline traffic flows are taken from the DfT's traffic counters for road links forming the Primary Access Routes and Worker Access Routes. The DfT traffic counter sites are shown on **Supplementary PEI Report Volume 2 Part B Figure 9.2 Primary Access Routes and Worker Access Routes**.

9.5.19 Traffic surveys were undertaken in August and October 2024 on links that do not have available or recent DfT counts. The location of the traffic surveys completed to date are also shown on **Supplementary PEI Report Volume 2 Part B Figure 9.2 Primary Access Routes and Worker Access Routes**. Further traffic surveys were undertaken in October/November 2025 and are anticipated to be completed in Spring 2026. The results of these supplementary surveys and those completed to date will inform the assessment reported within the ES.

- 9.5.20 Appropriate growth factors derived from the DfT's Trip End Model Presentation Program (TEMPPro), which is used for viewing the National Trip End Model information, have been applied to the count data where required to present all traffic data for a consistent 2024 Base Year.
- 9.5.21 Baseline traffic flows on road links forming the Primary Access Routes and Worker Access Routes where surveys have been undertaken are presented in **Supplementary PEI Report Volume 3 Part B 9B Traffic and Movement Baseline**. All traffic data is presented as Annual Average Daily Traffic (AADT) flows for all traffic and for HGVs.
- 9.5.22 In addition, a congestion rating is set out within **Supplementary PEI Report Volume 3 Part B Appendix 9A Traffic and Movement Baseline** and presented on **Supplementary PEI Report Volume 2 Part B Figure 9.4 Route Sensitivity**. This is based on a review of google traffic flow categories for typical weekday peak hours; coloured grading of fast to slow represented as green = 0, orange = 1, red = 2, dark red = 3. Congestion along the whole link has been considered and where congestion varies along the link or over different time periods a judgement has been made for the overall link rating.

#### Collision Data

- 9.5.23 Personal injury collision (PIC) data has been obtained from DfT Road Safety Data for the roads along the Primary Access Routes and Worker Access Routes. The latest five-year PIC data (2019-2023) is presented on **Supplementary PEI Report Volume 2 Part B Figure 9.4 Route Sensitivity**.
- 9.5.24 A collision cluster has been determined by the following criteria:
- i. a location where there are nine or more injury collisions occurring within a junction or a 100 m stretch; and
  - ii. a location with four or more fatal and/or serious collisions happening either within a junction or within a 100 m stretch.
- 9.5.25 From the collision data analysis, collision clusters have been identified at the following locations:
- i. At the A1121 / B1192 Langrick Road / Station Road junction to the west of Boston;
  - ii. At the A52 / A1121 Roundabout to west of Boston;
  - iii. At the A16 / South Square / South End, A16 / High Street and A16 / A52 junctions in Boston;
  - iv. At the A16 / B1397 and A16 / B1192 roundabouts in southern Boston;
  - v. At the A16 / A17 roundabout (Sutterton roundabout);
  - vi. At the A47 / A1101 roundabout (Elm Road Junction);
  - vii. At the A15 / A47 roundabout to the north of Peterborough; and
  - viii. At the Frank Perkins Parkway / Eye Road / A15 roundabout to the east of Peterborough.

## Highway Link Sensitivity

- 9.5.26 Sensitive receptors include users of highway links including drivers, walkers, cyclists, horse riders and public transport passengers. Sensitive areas comprise urban areas where there are likely to be more people (including vulnerable users, younger, older, socially disadvantaged people) and include residential properties, retail areas, schools and hospitals.
- 9.5.27 Receptor/area sensitivity has been assigned to all assessed highway links which constitute the Primary Access Routes and Workers Access Routes for Section 5. The sensitivity level follows IEMA guidance and is categorised as Negligible, Low, Medium, High and Very High. Sensitivity of a link has been determined based on the identified receptors which are present, alongside the assessment of each highway link's congestion rating and any associated collision clusters. Further detail is included in **Supplementary PEI Report Volume 3 Part A Appendix 4B EIA Assessment Methodologies and Scope**.
- 9.5.28 A description, location, and the sensitivity level within the Section 5 Study Area are summarised in **Table 9.8** below and **Supplementary PEI Report Volume 3 Part B Appendix 9A Traffic and Movement Baseline** and presented on **Supplementary PEI Report Volume 2 Part B Figure 9.4 Route Sensitivity**.

Table 9.8 Highway link sensitivity

| Route Ref | Highway Link | Description                                                                                                                                                                                                                                                                                                                                                                                                  | Sensitivity Level |
|-----------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| CR9       | A16          | Route passes through some small settlements to north - residential and commercial properties with some frontages / direct accesses. Schools in Sibsey and Stickney. Sections of footway, bus route. To the south of the route, through central Boston - residential and commercial properties with some frontages / direct accesses. Hospital to north of Boston. Footway adjacent to carriageway, bus route | High              |
| CR10      | A16          | Few properties through rural area. Some residential and commercial properties in Boston though generally not with direct frontages / accesses, some segregated footway/cycleways, some footways adjacent to the carriageway and pedestrian crossings                                                                                                                                                         | Medium            |
| CR11      | A16          | A few commercial properties along this link                                                                                                                                                                                                                                                                                                                                                                  | Low               |
| CR12      | A16          | Very occasional properties along this link                                                                                                                                                                                                                                                                                                                                                                   | Low               |
| CR13      | A47          | A few residential and commercial properties along this link                                                                                                                                                                                                                                                                                                                                                  | Low               |
| CR14      | A17          | A few commercial and residential properties along this link                                                                                                                                                                                                                                                                                                                                                  | Low               |
| CR15      | A17          | A few residential and commercial properties along this link                                                                                                                                                                                                                                                                                                                                                  | Low               |



| Route Ref | Highway Link                  | Description                                                                                                           | Sensitivity Level |
|-----------|-------------------------------|-----------------------------------------------------------------------------------------------------------------------|-------------------|
| CR22      | A17                           | Very occasional properties along this link                                                                            | Low               |
| CR23      | A1101                         | A few residential and commercial properties along this link                                                           | Low               |
| CR27      | A47                           | No receptors identified along this link                                                                               | Negligible        |
| CR28      | A17                           | No receptors identified along this link                                                                               | Negligible        |
| LK65      | Marsh Road                    | A few residential and commercial properties along this link                                                           | Low               |
| LK66      | Stone Gate                    | A few residential and commercial properties along this link                                                           | Low               |
| LK71      | B1165 Ravens Bank             | Very occasional properties along this link                                                                            | Low               |
| LK79      | A151                          | A few, generally commercial properties, on street bus stops, segregated pedestrian/cycleway adjacent to carriageway   | Medium            |
| LK86      | A151                          | No receptors identified along this link                                                                               | Negligible        |
| LK87      | A151                          | No receptors identified along this link                                                                               | Negligible        |
| LK90      | B1165 Ravens Bank             | A few residential properties, short section of PRow runs along the road                                               | Low               |
| W40       | Marsh Road                    | A few residential properties along this link                                                                          | Low               |
| W41       | A151                          | Residential and commercial properties, bus route                                                                      | Medium            |
| W42       | A151                          | A few residential and commercial properties, bus route                                                                | Low               |
| W43       | East Gate                     | A few residential properties along this link                                                                          | Low               |
| W44       | A1175 Littleworth Drove       | A few residential properties along this link                                                                          | Low               |
| W45       | Eaugate Bank / Randall Bank   | Occasional residential properties along this link                                                                     | Low               |
| W46       | A52                           | Occasional residential properties along this link                                                                     | Low               |
| W47       | Quadring Road                 | Residential and commercial properties, driveways and some on street parking, bus route in urban areas, primary school | High              |
| W48       | A151 Bourne Road/ Dozens Bank | A few residential properties along this link                                                                          | Low               |



| Route Ref | Highway Link                | Description                                                                                                  | Sensitivity Level |
|-----------|-----------------------------|--------------------------------------------------------------------------------------------------------------|-------------------|
| W49       | A151 Bourne Road            | Multiple residential and commercial properties in Spalding, direct accesses and on street parking, bus route | High              |
| W50       | A17                         | A few commercial properties in Sutton Bridge                                                                 | Low               |
| W51       | A17                         | Bus stops with laybys and footway connection to Sutton Bridge                                                | Low               |
| W60       | Fulney Drove                | A few residential and commercial properties along this link                                                  | Low               |
| W61       | Eye Road                    | Some commercial properties along this link                                                                   | Low               |
| W62       | A1139 Frank Perkins Parkway | No receptors identified along this link                                                                      | Negligible        |
| W63       | A1101 Sutton Road           | Some commercial properties along this link                                                                   | Low               |
| W64       | A1101 Churchill Road        | Busy urban area, residential and commercial properties, bus route in Wisbech                                 | High              |

### Bus Routes

- 9.5.29 Bus services run along some roads forming the Primary Access Routes and Worker Access Routes for Section 5. A number of services run through central Boston and Spalding providing access to a range of local and regional destinations. In the immediate vicinity of the Section 5 draft Order Limits, Service 505 provides approximately two services per hour between Kings Lynn/Sutton Bridge and Spalding. Bus stops are located on the A151 and in Weston to the south of the Section 5 draft Order Limits.

### Railway Infrastructure

- 9.5.30 The nearest rail station is at Spalding, which is a stop for regular services to Peterborough, Lincoln, Newark Northgate and Doncaster. Spalding Railway Station is some distance from the Section 5 draft Order Limits, approximately 7.5km to the south west of the new Weston Marsh Substation A and 5.5km to the south west of the new Weston Marsh Substation B. The Primary Access Routes for construction HGV traffic do not pass the station, although some construction workers cars/LGVs may travel through central Spalding close to the Station. No rail lines are crossed by the Section 5 draft Order Limits.

### Waterways

- 9.5.31 The Section 5 draft Order Limits cross the River Welland, a navigable waterway, to the north east of Spalding.

- 9.5.32 A number of becks, dykes, and land drains are crossed by the Section 5 draft Order Limits, however these watercourses are not navigable waterways and are therefore not considered further within this preliminary Transport and Movement assessment.

### Public Rights of Way and Promoted/Recreational Routes

- 9.5.33 PRowS and promoted/recreational routes potentially affected by the proposed works within the Section 5 draft Order Limits are summarised in **Table 9.9** below and presented on **Supplementary PEI Report Volume 2 Part B Figure 9.3 Existing Public Rights of Way (PRow)**. 'P' series references have been applied to each PRow which is crossed by the draft Order Limits for ease of reference.
- 9.5.34 The sensitivity of the PRowS and promoted/recreational routes has been considered and is summarised in **Table 9.9**. The assignment of sensitivity considers potentially highly used routes and routes that have extensive connectivity and/or social significance, such as long distance trails, recreational circular routes or Local Authority promoted routes. For the purposes of this Supplementary PEI Report, the sensitivity assessment is subjective. Further detail, including surveyed usage, will be determined in consultation with the local highway authority and provided within the ES. The sensitivity of routes along the highway are included within the highway link sensitivity at **Table 9.8**.
- 9.5.35 The Section 5 draft Order Limits cross The MacMillan Way long distance walking route adjacent to the River Welland.
- 9.5.36 Further details of promoted/recreational routes are included within **Supplementary PEI Report Volume 2 Part B Section 5 Chapter 11 Socio-economics, Recreation and Tourism** and discussions with PRow officers from all relevant Local Authorities will continue to confirm the key routes for assessment reported within the ES.

Table 9.9 Public Rights of Way and Promoted/Recreational Routes

| Ref            | Type                                          | Location                                                                                  | Sensitivity                                                |
|----------------|-----------------------------------------------|-------------------------------------------------------------------------------------------|------------------------------------------------------------|
| P115/P116/P117 | The MacMillan Way long distance walking route | Runs along the River Welland to the north east of Spalding                                | National route, medium sensitivity                         |
| P120/P136      | Bridleway                                     | Runs along the southern bank of the River Welland to the north east of Spalding           | Leisure route connecting with Spalding, low sensitivity    |
| P098/P132/P133 | Footpath                                      | Runs in an approx. east west direction connecting Moulton Seas End with the River Welland | Local route, limited connectivity and use, low sensitivity |
| P134           | Footpath                                      | Short section of footpath connecting local roads to the north of Weston                   | Local route, limited connectivity and use, low sensitivity |

## Future Baseline

- 9.5.37 The future baseline relates to known or foreseeable changes to the current baseline in the future, against which the effects of the Project during construction and operation are assessed. Specifically, it accounts for anticipated changes including those caused by changing climatic conditions, policy, legislation, advances in technology and by other confirmed development projects which will be complete prior to construction of the Project.
- 9.5.38 At this preliminary stage, a full assessment of the implications of any confirmed development projects with regard to future baseline conditions has not been undertaken. A list of the currently known developments which are anticipated to be included within the future baseline scenario is provided within **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope Annex A Developments for Consideration Within the Future Baseline**. This will be reviewed and updated as appropriate during development of the ES, as with other information which informs assessment of the future baseline.
- 9.5.39 Based on the proposed construction programme for the Project, the peak year for construction activities that would affect each road link comprising the Primary Access Routes and Workers Access Routes has been identified as 2031. The future baseline traffic along these road links has been calculated by applying an appropriate growth factor derived from DfT's Trip End Model Presentation Program (TEMPro) to the 2024 Baseline traffic flows. These flows are summarised in **Supplementary PEI Report Volume 3 Part B Appendix 9C Future Baseline and Impact Analysis**.
- 9.5.40 A review of all committed developments will be undertaken for the assessment to be presented within the ES. This will identify any other developments anticipated to be operational prior to construction of the Project commencing, that could generate additional traffic along the identified construction traffic routes.
- 9.5.41 Based upon available information, existing public transport and cycle infrastructure are likely to remain unchanged in the future baseline assessment years.

## 9.6 Design, Control and Mitigation Measures

### Design Mitigation Measures

- 9.6.1 The Project is being designed to avoid sensitive receptors as far as practicable. This is in accordance with the 'Holford Rules' (Ref 20) applicable to routing of new overhead line and the 'Horlock Rules' (Ref 21) which apply to design and siting of substations. These approaches are explained in further detail within the Corridor Preliminary Routeing and Siting Study (CPRSS) (Ref 22) and **Supplementary PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered**. Principles include, but are not limited to, seeking to avoid areas of highest amenity, cultural or scientific value, taking advantage of natural screening provided by existing landform and features (e.g. woodland) and keeping visual, noise and other environmental effects to a minimum.
- 9.6.2 Following selection of the preferred route corridor, environmental specialists have been integral to ongoing design refinement of works within Section 5. This has and will continue to contribute to the avoidance or reduction of the potential

environmental impacts of the Project as the design is finalised. Specific examples relevant to the Traffic and Movement assessment include:

- i. Construction traffic would be routed along classified roads as far as possible, and haul roads would be used to minimise construction vehicle movements on local roads where the impact of the forecast traffic movement is deemed to be unacceptable.
- ii. Primary Access Routes and Worker routes will be further discussed and determined with Local Highway Authority input with a view of utilising the classified road network and SRN as much as practicably possible. Where narrow roads form part of the Primary Access Routes (i.e. closer to bellmouths), areas of temporary highway improvement works (e.g. road widening and creation of passing places) will be considered for implementation to maintain a safe operational highway.
- iii. Where further assessment identifies the need for off-site road and junction improvements (i.e. mitigation works), these will be designed in collaboration with the local highway authorities to maintain a safe and operational highway network. Any improvements will be set out in the Transport Assessment (TA) and ES.
- iv. Construction traffic crossing of rail lines or navigable waterways will be avoided or use existing vehicle crossings where possible to minimise the impact on railway and waterway users.
- v. Where road closures are required, the period of the closure would be kept to a minimum and diversions would be via the most appropriate alternative route. Access to properties would be maintained at all times. Any route diversions or closures will be discussed with the Local Highway Authority.
- vi. PRoW users are unlikely to be significantly affected during the delivery of the Project. PRoWs will only be closed or diverted on safety grounds to protect PRoW users or workers. Haul roads crossing PRoWs will be designed such that the PRoW remains open by default and passing construction traffic affords priority of movement to PRoW users. In the locality of PRoW crossing points, the haul road will be fenced and gated to prevent PRoW users and animals from straying into a construction site.
- vii. Where more than one PRoW crosses the haul road in close proximity to another, local diversions will be required to merge PRoWs routes across a single passing point to reduce the likelihood of pedestrian-vehicular conflict (including equestrians and horses).
- viii. PRoWs will be closed when necessary on safety grounds. This is likely to be over a couple of months during the overhead line stringing works. Where PRoW closures are required, the period of the closure would be kept to a minimum, and a diversion provided where necessary and practicable. Any route diversions or closures will be discussed with the local authority.

## Control Mitigation Measures

### Construction

- 9.6.3 A Preliminary Code of Construction Practice (CoCP) is provided in **Supplementary PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice**. The control measures included within the Preliminary CoCP relevant to the Traffic and Movement assessment of Section 5 are the same as those presented in the June 2025 PEIR Report Volume 2 Part C Chapter 9 Traffic and Movement (Ref 1) and include:
- i. GG06: A Construction Environmental Management Plan (CEMP), a Landscape and Ecological Management Plan (LEMP), a Materials and Waste Management Plan (MWMP) and a Construction Traffic Management Plan (CTMP), Emergency Action Plan, Public Rights of Way Management Strategy (PRoWMP), Overarching Written Scheme of Investigation (WSI), Biodiversity Management Plan, Noise and Vibration Management Plan, Pollution Prevention Plan, Foundation Works Risk Assessment, Carbon efficiency Plan, Dust Management Plan (DMP), Drainage Management Plan (DrMP) along with a Soil Management Plan (SMP) will be produced prior to construction. These are collectively referred to as ‘the environmental control Plans.’
  - ii. GG12: Appropriate site layout and housekeeping measures will be implemented by the contractor(s) at all construction sites. This will include but not be limited to: preventing pests and vermin control and treating any infestation promptly, including arrangements for the proper storage and disposal of waste produced on site;
    - inspecting and collecting any waste or litter found on site;
    - locating or designing site offices and welfare facilities to limit the overlooking of residential properties;
    - locating designated smoking/vaping areas to avoid nuisance to neighbours;
    - managing staff/vehicles entering or leaving site, especially at the beginning and end of the working day; and
    - managing potential off-site contractor and visitor parking.
  - iii. GG13: Vehicles will be correctly maintained and operated in accordance with manufacturer’s recommendations and in a responsible manner. All plant and vehicles will be required to switch off their engines when not in use and when it is safe to do so. Electric, or other low carbon plant and equipment should be used where available and where practicable.
  - iv. GG14: Materials and equipment will not be moved or handled unnecessarily. When loading and unloading materials from vehicles, including excavated materials, drop heights will be limited.
  - v. TT01: The contractor(s) will implement a monitoring and reporting system to check compliance with the measures set out within the CTMP.
  - vi. TT02: All affected Public Rights of Way (PRoWs) will be identified, and any potential permanent or temporary closures detailed in the DCO. All designated PRoWs crossing the working area will be managed with access only closed for periods while construction activities occur. Any required diversions will be clearly

marked at both ends with signage explaining the diversion, the duration of the diversion and a contact number for any concerns and will be subject to a Public Rights of Way Management Plan (PRoWMP). PRoWs crossing the working areas will be managed in discussion with the relevant local authorities and potential temporary closures applied for discussed with the relevant local authority. Access disruption would be reduced as reasonably practicable while construction activities occur.

- vii. TT03: The CTMP will set out measures to reduce route and journey mileage to and from and around site, and prevent nuisance to the residents, businesses and the wider community caused by parking, vehicle movements and access restrictions. It will also provide suitable control for the means of access and egress to the public highway and set out measures for the maintenance and upkeep of the public highway. The plan will also identify access for emergency vehicles. It will also set out measures to reduce safety risks through construction vehicle and driver quality standards and measures to manage AIL's.
- viii. W04: Where watercourses are to be crossed by construction traffic, measures to be applied include the use of temporary culverts or temporary spanned bridges. Once the temporary culvert is installed, the area above the temporary culvert will be backfilled and a suitable surface finish established to permit the passage of plant, equipment, materials, and people. Temporary culverts will be sized to reflect the span width and the estimated flow characteristics of the watercourse under peak flow conditions and kept free from debris. Where used, temporary bridges will be designed specifically to consider the span length and the weight and size of plant and equipment that will cross the bridge.
- ix. AS03: Access to and from residential, commercial, community and agricultural land uses will be maintained throughout the construction period or as agreed through the landowner discussions. This may require signed diversions or temporary restrictions to access. The means of access to affected properties, facilities and land parcels will be communicated to affected parties at the start of the Project, with any changes communicated in advance of the change being implemented. Where field-to-field access points require alteration as a result of construction, alternative field access will be provided in consultation with the landowner/occupier.

9.6.4 The CTMP referred to in measures GG06, TT01 and TT03 above will include, but not be limited to:

- i. measures to reduce route and journey mileage to and from and around site, and prevent nuisance to the residents, businesses and the wider community caused by parking, vehicle movements and access restrictions;
- ii. measures for the maintenance and upkeep of the public highway;
- iii. identification of access routes for emergency vehicles;
- iv. measures to reduce safety risks through construction vehicle and driver quality standards; and
- v. measures to manage AIL's.



## Additional Mitigation Measures

- 9.6.5 Additional mitigation measures are those required to reduce likely significant adverse environmental effects which may still occur despite the inclusion of the embedded design and control measures described above.
- 9.6.6 Additional mitigation measures are not anticipated to be required in relation to Traffic and Movement effects. However, this will remain under review during the completion of further assessment and development of the ES.

## 9.7 Preliminary Assessment of Effects

- 9.7.1 The following section presents the findings of the
- 9.7.2 For a summary of the likely significant effects please refer to **Supplementary PEI Report Volume 2 Part B Chapter 13 Summary**. A supplementary summary of all non-significant effects is also included within this Section in **Table 9.11** based upon the assessment scope detailed in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.
- 9.7.3 It is noted that this is an ongoing assessment and is subject to change due to the ongoing design development of the Project, statutory consultation feedback and further stakeholder engagement. A full assessment will be included within the ES submitted with the DCO application.

## Likely Significant Effects

### Construction

#### Highway Network

- 9.7.4 The primary Traffic and Movement effects on users of the highway network will be as a result of an increase in traffic flows on those roads used by vehicles associated with the Project. An assessment has been undertaken to calculate the percentage increases in total and HGV AADT flows due to construction traffic using the local road network. This is based upon projected changes relative to a future baseline.
- 9.7.5 Traffic and Movement effects associated with the construction phase on receptors relate to the change in traffic flow and the sensitivity of highway links. **Supplementary PEI Report Volume 3 Part B Appendix 9C Future Baseline and Impact Analysis** sets out the predicted increase in traffic on the local road network for each Primary Access Route and Worker Access Routes used by construction traffic. These increases have then been assessed against the assigned sensitivity of each road link.
- 9.7.6 Within this Supplementary PEI Report the assessment identifies highway links where an increase in baseline traffic flows due to construction traffic exceeds 10 percent for sensitive roads and 30 percent for non-sensitive roads, in accordance with the IEMA Guidance thresholds. On these links there is potential for negative effects on receptors and users of the highway network that may lead to potential significant effects. Therefore, these links have been identified for further consideration within the TA and ES. **Supplementary PEI Report Volume 3 Part B Figure 9.5 Preliminary**



**Impact Analysis** shows the location of highway links that are below or above the IEMA thresholds.

- 9.7.7 At this stage of assessment, baseline data for some of the identified construction traffic access routes is not currently available (from either DfT counts or 2024 traffic surveys). For these routes, a qualitative analysis has been undertaken to consider whether the volume of projected construction traffic is likely to be significant, given the type of road and type of construction vehicles (HGVs or Workers cars/vans). These links will be considered further within the TA and ES if the total number of all construction vehicles exceeds 50 per day or the number of HGVs exceeds 20 per day.
- 9.7.8 The receptors/users on the highway links exceeding the appropriate sensitivity threshold for potential significant effects are summarised in **Table 9.10**. At this preliminary stage of the assessment, significant effects upon users of these highway links cannot be ruled out. However, no detailed assessment, in terms of severance, delay (junction assessment), highway safety and fear and intimidation, has yet been undertaken to determine the magnitude of impacts upon these road links. As such, an assessment of the scale of effects upon the receptors identified in **Table 9.10** has not yet been completed.
- 9.7.9 Following further assessment of the projected increases in traffic flow upon severance, congestion (potentially resulting in increases in journey time and driver delay), highway safety and fear and intimidation, the subsequent effects upon users of the highway network as a result of the Project will be reported in the ES.

**Table 9.10 Preliminary assessment of effects upon users of highway links – Section 5**

| Receptor                                                     | Potential Significant Effects                                                                                                                                    | Link Reference                                                                                                                         |
|--------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| Drivers (all vehicles including HGVs and Emergency Services) | Severance, changes in journey time, driver delay and highway safety effects due to increased traffic                                                             | CR6 (A16), CR7 (A16), CR8 (A16), CR9 (A16), LK65 (Marsh Road), LK66 (Stone Gate), LK87 (A151), W40 (Marsh Road), W42 (A151), W50 (A17) |
| Bus passengers                                               | Potential for delay due to congestion as a result of increased traffic                                                                                           | CR9 (A16), W42 (A151)                                                                                                                  |
| Pedestrians and cyclists                                     | Potential for severance, delay, increased journey time, decline in amenity, additional fear and intimidation and safety effects as a result of increased traffic | CR9 (A16)                                                                                                                              |

- 9.7.10 In addition, the draft Order Limits shows an access to the haul route taken directly from an existing junction with the A151 on to Runway. Runway is a private road serving commercial/industrial premises with localised widening to accommodate HGVs. Further discussion with the landowner is required to agree this access route, potential effects and any requirement for mitigation. This will be presented with the TA and ES.

## Operation and Maintenance

- 9.7.11 Based upon the preliminary assessment, no significant effects upon Traffic and Movement receptors within the Section 5 Study Area are predicted during operation and maintenance of the Project. Further discussion is provided in the following sections in relation to the predicted non-significant effects of the Project.

## Likely Non-Significant Effects

- 9.7.12 For completeness, **Table 9.11** summarises the findings of the preliminary assessment with respect to those impacts that are not predicted to result in significant Traffic and Movement effects.

## Construction

### Highway Network

- 9.7.13 **Table 9.11** identifies the highway links that form part of the Primary Access Route and Worker Access Route network where construction traffic impacts are below the assessment thresholds and are therefore not likely to have significant effects on users/receptors on these highway links. It is not currently anticipated that these links will be subject to further assessments within the ES, subject to further screening of final construction traffic projections and discussions with the Local Highway Authority. **Supplementary PEI Report Volume 3 Part B Figure 9.5 Preliminary Impact Analysis** shows the location of highway links that are below or above the IEMA thresholds.

### Public Rights of Way and Promoted/Recreational Routes

- 9.7.14 From an accessibility and connectivity perspective, PRoW and promoted/recreational route users are unlikely to be significantly affected during the delivery of the Project. Routes will remain open by default during the construction phase, both during and outside of working hours. Where feasible, there will be a break in the haul road so that the route is not impacted. Where required, haul road crossings are designed such that pedestrian/cycle/equestrian users are afforded priority of movement.
- 9.7.15 Where more than one route crosses the haul road within close proximity of each other, these will be merged to provide a single passing point to reduce the likelihood of conflict with vehicular traffic.
- 9.7.16 PRoWs are anticipated to be closed/diverted for short periods when necessary on safety grounds. This is likely to be during the overhead line stringing works. Routes would be reopened at the earliest opportunity following completion of these works.
- 9.7.17 Therefore, the PRoW and promoted/recreational routes within the Section 5 draft Order Limits where impacts of the Project are not likely to result in significant effects upon users of the routes listed below and summarised in **Table 9.11**.
- i. P115/P116/P117 (Macmillan Way) long distance walking route – short diversion of P115 to connect to P117 to avoid scaffolding;
  - ii. P120/P136 bridleway - there is a break in the haul route, where the overhead line crosses the river, route not impacted;
  - iii. P098/P132/P133 footpath – managed crossing of low sensitivity route; and

- iv. P134 footpath – managed crossing of low sensitivity route.

### **Operation and Maintenance**

- 9.7.18 The Scoping Report Traffic and Movement chapter sought to scope out effects associated with the operation of the Project. The Scoping Opinion received requested further information relating to operational traffic. This Supplementary PEI assessment therefore presents details of forecast operational traffic movements and provides an initial assessment of potential effects.
- 9.7.19 The operational traffic flows of the Weston Marsh Substation(s) are anticipated to comprise vehicles associated with routine visits and fault maintenance only. It is anticipated that there will be two visits per month by two people for each substation.
- 9.7.20 With regards to operational visits for the overhead line, based upon existing precedent and National Grid estimates, typical routine maintenance vehicle movements would comprise up to two vehicle trips per permanent pylon, per year (i.e. one arrival and departure respectively). The movement itself could comprise a light goods vehicle access via the permanent access route. There could also be a drone or helicopter survey taken from the air, taking off from a nearby vantage point. 14 new pylons are to be provided within Section 5 therefore the total number of vehicles will be 28 per year and is considered negligible and will not impact operation of the highway network.
- 9.7.21 Whilst there may be occasional variation in traffic flows associated with maintenance or refurbishment as required, the projected volume of traffic is predicted to be low.
- 9.7.22 On the basis of the information provided, operational/maintenance traffic will not have material impact on traffic flows and no likely significant effects on users of highway links are expected.
- 9.7.23 Operational traffic flows will be very occasional therefore no impact to users of bus services is expected. No railway lines are crossed as part of Section 5 overhead line, therefore impact to rail users is not expected. No likely significant effects on public transport users are expected.
- 9.7.24 No navigable waterways are impacted by operation of Section 5 of the Project, therefore no likely significant effects are expected.
- 9.7.25 PRow and promoted/recreational routes crossed and/or diverted during construction will be reinstated, therefore no PRow or promoted/recreational routes are permanently affected by Section 5, therefore no significant effects are expected.

Table 9.11 Preliminary Summary of non-significant Traffic and Movement effects – Section 5

| Receptor                                                                                                                                              | Impact                                                                                                                                                                              | Sensitivity               | Magnitude of Change                | Significance of Effect | Rationale                                                                                                                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|------------------------------------|------------------------|----------------------------------------------------------------------------------------------------------------------------|
| <b>Construction</b>                                                                                                                                   |                                                                                                                                                                                     |                           |                                    |                        |                                                                                                                            |
| <b>Highway Network</b>                                                                                                                                |                                                                                                                                                                                     |                           |                                    |                        |                                                                                                                            |
| Road users of highway links CR10, CR11, CR12, CR13, CR14, CR15, CR22, CR23, CR27, CR28, LK79, LK86, LK90, W41, W44, W46, W37, W48, W51, W61, W62, W63 | Increased traffic due to construction of the Project, potentially resulting in severance, changes in journey time, driver delay and highway safety effects upon road users.         | Negligible / Low / Medium | <30%                               | Low – not significant  | The percentage increase in traffic flows as a result of the Project does not meet IEMA thresholds for significant effects. |
| Road users of highway links W47 and W64                                                                                                               | Increased traffic due to construction of the Project, potentially resulting in severance, changes in journey time, driver delay and highway safety effects upon road users.         | High                      | <10%                               | Low – not significant  | The percentage increase in traffic flows as a result of the Project does not meet IEMA thresholds for significant effects. |
| Road users of highway link LK71, W43, W45, W49, W60,                                                                                                  | Increased traffic due to construction of the Project, potentially resulting in severance, changes in journey time, driver delay and highway safety effects due to increased traffic | High                      | No. of construction HGVs <20 daily | Low – not significant  | The volume of projected HGVs movements is low across the day and unlikely to result in significant effects.                |

| Receptor                                                                       | Impact                                                                                                                                                           | Sensitivity               | Magnitude of Change                   | Significance of Effect | Rationale                                                                                                                                                                                                           |
|--------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|---------------------------------------|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bus passengers in services on highway links LK79 (A151), W41 (A151), W51 (A17) | Increased traffic due to construction of the Project, potentially resulting in delay due to congestion on bus routes.                                            | Negligible / Low / Medium | <30% change in traffic flow           | Low – not significant  | The percentage increase in traffic flows as a result of the Project does not meet IEMA thresholds and is unlikely to impact bus movements such that there would be a significant effect upon users of bus services. |
| Bus passengers in services on highway links W47 (Quadring Road), W64 (A1101)   | Increased traffic due to construction of the Project, potentially resulting in delay due to congestion on bus routes.                                            | High                      | <10% change in traffic flow           | Low – not significant  | The percentage increase in traffic flows as a result of the Project does not meet IEMA thresholds and is unlikely to impact bus movements such that there would be a significant effect upon users of bus services. |
| Bus passengers in services on highway link W49 (A151)                          | Increased traffic due to construction of the Project, potentially resulting in delay due to congestion on bus routes.                                            | High                      | No. of construction HGVs <20 daily    | Low – not significant  | The volume of projected HGVs is low across the day and unlikely to impact bus movements.                                                                                                                            |
| Pedestrians and Cyclists on links CR10, LK79, W47, W64                         | Potential for severance, delay, increased journey time, decline in amenity, additional fear and intimidation and safety effects as a result of increased traffic | Low to High               | Varies (<30%, <10% or <20 HGVs daily) | Low – not significant  | The volume of construction traffic does not meet IEMA thresholds or considered low (on routes without baseline data) such that it is unlikely to impact                                                             |

| Receptor                                                      | Impact                                                                                                                                                            | Sensitivity | Magnitude of Change | Significance of Effect       | Rationale                                                                                                                                                     |
|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---------------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                               |                                                                                                                                                                   |             |                     |                              | pedestrian and cycle movements                                                                                                                                |
| All road users                                                | Movement of Abnormal Indivisible Loads during construction potentially resulting in severance, changes in journey time, delay and safety effects upon road users. | Low to High | No change           | Negligible – not significant | It is not anticipated that there will be any Abnormal Indivisible Loads required for construction of Section 5 therefore no significant effects are expected. |
| All road users                                                | Movement of Hazardous Loads during construction potentially resulting in safety effects upon road users.                                                          | Low to High | No change           | Negligible – not significant | It is not anticipated that there will be any Hazardous Loads required for construction of Section 5 therefore no significant effects are expected.            |
| <b>Railway Infrastructure</b>                                 |                                                                                                                                                                   |             |                     |                              |                                                                                                                                                               |
| Railway users                                                 | Potential for disruption of the railway network and/or operational safety                                                                                         | High        | Negligible          | Negligible – not significant | No railway lines are crossed by the Section 5 draft Order Limits. Therefore, no likely significant effects on railway users are expected.                     |
| <b>Waterways</b>                                              |                                                                                                                                                                   |             |                     |                              |                                                                                                                                                               |
| Waterway Users – including leisure users of the River Welland | Temporary closure of waterways to facilitate overhead line stringing works, resulting in                                                                          | Low         | Negligible          | Negligible – not significant | The Section 5 overhead line will cross over the River Welland, however, any construction haul road                                                            |

| Receptor                                                                                                          | Impact                                                                                                                                                                                                    | Sensitivity  | Magnitude of Change | Significance of Effect       | Rationale                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                   | potential delay, amenity effects upon users.                                                                                                                                                              |              |                     |                              | will not traverse the navigable waterway. Temporary overnight closures will be implemented to facilitate stringing of overhead line. National Grid will seek agreement with the relevant stakeholders prior to temporary closures. The planned works are unlikely to result in significant effects upon waterway users as the work will be undertaken outside of peak operational times to minimise impact. |
| <b>Public Rights of Way and Promoted/Recreational Routes</b>                                                      |                                                                                                                                                                                                           |              |                     |                              |                                                                                                                                                                                                                                                                                                                                                                                                             |
| Pedestrians, cyclists and equestrians on links P115/P116/P117 (MacMillan Way), P120/P136, P098/P132/P133 and P134 | Potential for severance, delay, increased journey time, decline in amenity, additional fear and intimidation and safety effects as a result of temporary route closures/diversions to enable construction | Low / Medium | No change           | Negligible – not significant | The haul route crossings of the PRowWs would be managed and temporary closures for stringing will be short term so no significant effects are expected.                                                                                                                                                                                                                                                     |



## Operation

|                                                                                         |                                                                                                                                                                   |                     |                                                                                         |                              |                                                                                                                                                    |
|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-----------------------------------------------------------------------------------------|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| Road users, public transport users, pedestrians, cyclists and equestrians of all routes | Operational traffic resulting in potential for severance, delay, increased journey time, decline in amenity, additional fear and intimidation and safety effects. | Negligible – Medium | 2 visits per month to substation(s) and 1 visit per year for each pylon for maintenance | Negligible – not significant | The volume of traffic associated with operation and maintenance is very low and will not result in significant effects upon users of highway links |
| Railway users                                                                           | Potential to delay due closure of rail lines                                                                                                                      | High                | No impact                                                                               | Negligible – not significant | Rail lines will not be closed during operation                                                                                                     |
| Waterway users                                                                          | Potential to delay due closure of waterways                                                                                                                       | Low                 | No impact                                                                               | Negligible – not significant | Waterways will not be closed during operation                                                                                                      |
| Pedestrians, cyclists and equestrians on PRow                                           | Potential for severance, delay, increased journey time, decline in amenity, additional fear and intimidation and safety effects                                   | Low / Medium        | No impact                                                                               | Negligible – not significant | PRow will be reinstated and not impacted by operation of the Substation(s) and overhead line                                                       |

## **9.8 Monitoring**

- 9.8.1 As set out within the Preliminary CoCP, the Contractor will implement a CTMP, which will detail the environmental and control measures in relation to the traffic generated during construction of the Project.
- 9.8.2 This will include undertaking of dilapidation surveys prior to the start of the relevant phase of construction and identification of any remedial works required to access routes.
- 9.8.3 The contractor will also implement a monitoring and reporting system to check compliance with the measures set out within the CTMP, as per measure TT01 of the Preliminary CoCP.
- 9.8.4 Otherwise, no monitoring relevant to the Traffic and Movement assessment and reported impacts and effects is proposed during operation and maintenance of the Project within the Section 5 Study Area.

# References

- Ref 1 National Grid Electricity Transmission (2025). Grimsby to Walpole Preliminary Environmental Information Report [online]. Available at: <https://www.nationalgrid.com/the-great-grid-upgrade/grimsby-to-walpole/document-library#4257225834-3023854277> [Accessed 12 September 2025].
- Ref 2 Lincolnshire County Council (2022) Local Transport Plan 5 [online]. Available at: <https://www.lincolnshire.gov.uk/downloads/file/7200/local-transport-plan-5> [Accessed 21 October 2024].
- Ref 3 Central Lincolnshire Joint Strategic Planning Committee (2023) Central Lincolnshire Local Plan (Adopted April 2023). [online] Available at: <https://www.n-kesteven.gov.uk/sites/default/files/2023-04/Local%20Plan%20for%20adoption%20Approved%20by%20Committee.pdf> [Accessed 29 May 2024].
- Ref 4 Lincolnshire County Council, Boston Borough Council, and South Holland District Council (2019) South East Lincolnshire Local Plan 2011-2036 (Adopted March 2019). [online] Available at: <https://www.southeastlincslocalplan.org/wp-content/uploads/2019/02/Local-Plan-text-March-2019.pdf> [Accessed 29 May 2024].
- Ref 5 Lincolnshire County Council (2016) Boston Transport Strategy 2016-2036. [online] Available at: <https://www.lincolnshire.gov.uk/downloads/file/1877/boston-transport-strategy-2016-2036> [Accessed 29 May 2024].
- Ref 6 Lincolnshire County Council (2014) Spalding Transport Strategy 2014-2036. [online] Available at: <https://www.lincolnshire.gov.uk/downloads/file/1938/spalding-transport-strategy> [Accessed 29 May 2024].
- Ref 7 The Planning Inspectorate (2024). Scoping Opinion: Proposed Grimsby to Walpole Project [online]. Available at: <https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN020036-000109-Scoping%20Opinion%202017%20EIA%20Regs.pdf> [Accessed 21 October 2024].
- Ref 8 National Grid Electricity Transmission (2024). Grimsby to Walpole Environmental Impact Assessment Scoping Report [online]. Available at: <https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN020036-000004-EN020036%20-%20Scoping%20Report%20Volume%201%20Main%20Report.pdf> [Accessed 21 October 2024].
- Ref 9 National Grid Electricity Transmission (2025). Grimsby to Walpole Stage 1 Consultation Feedback Report [online]. Available at: <https://www.nationalgrid.com/document/560496/download> [Accessed 12 September 2025].
- Ref 10 Institute of Environmental Management and Assessment (2023). Environmental Assessment of Traffic and Movement [online]. Available at: <https://www.iema.net/media/5mrmquib/iema-report-environmental-assessment-of-traffic-and-movement-rev07-july-2023.pdf> [Accessed 21 October 2024].
- Ref 11 Ordnance Survey (2024). OS OpenMap [online]. Available at: <https://www.ordnancesurvey.co.uk> [Accessed 21 October 2024].

- Ref 12 Google (2024). Google maps [online]. Available at: <https://www.google.com/maps> [Accessed 21 October 2024].
- Ref 13 OpenStreetBrowser (no date). OpenStreetMap [online]. Available at <https://openstreetbrowser.org/> [accessed 28 October 2024].
- Ref 14 Mapway Ltd (no date). Home. Traveline.info. [online]. Available at: <https://www.traveline.info/> [Accessed 21 October 2024].
- Ref 15 National Rail (2024). National Rail Enquiries - Official source for UK train times and timetables [online]. Available at: <https://www.nationalrail.co.uk/> [Accessed 21 October 2024].
- Ref 16 Inland Waterways Association (no date). Map of Inland Waterways [online]. Available at: <https://www.waterways.org.uk/waterways/uk-canal-map> [Accessed 28 October 2024]
- Ref 17 Sustrans (no date). Sustrans homepage [online]. Available at: <https://www.sustrans.org.uk/> [Accessed 21 October 2024].
- Ref 18 Roadtraffic.dft.gov.uk. (no date). Map Road traffic statistics - Road traffic statistics [online]. Available at: <https://roadtraffic.dft.gov.uk/> [Accessed 21 October 2024].
- Ref 19 Department for Transport (2024). Road Safety Data [online]. Available at: <https://www.data.gov.uk/dataset/cb7ae6f0-4be6-4935-9277-47e5ce24a11f/road-safety-data> [Accessed 18 October 2024].
- Ref 20 National Grid. The Holford Rules: Guidelines on Overhead Line Routeing. [online] Available at: <https://www.nationalgrid.com/sites/default/files/documents/13795-The%20Holford%20Rules.pdf> [Accessed 20 September 2024].
- Ref 21 National Grid. NGC Substations and the Environment: Guidelines on Siting and Design. [online] Available at: <https://www.nationalgrid.com/sites/default/files/documents/13796-The%20Horlock%20Rules.pdf> [Accessed 20 September 2024].
- Ref 22 National Grid Electricity Transmission (2024). Grimsby to Walpole Corridor Preliminary Routeing and Siting Study [online]. Available at: <https://www.nationalgrid.com/document/352621/download> [Accessed 12 April 2024].

# 10. Noise and Vibration

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# 10. Noise and Vibration

## 10.1 Introduction

- 10.1.1 This chapter presents the Supplementary Preliminary Environmental Information (PEI) in relation to the assessment of Noise and Vibration on noise sensitive receptors (NSR) for the New Weston Marsh Substations A and B Section (Section 5) of the Grimsby to Walpole Project (the Project).
- 10.1.2 The preliminary assessment of Section 5 reported within this chapter presents an update to the previously published June 2025 PEI Report (Ref 1), which formed part of the Stage 2 Consultation completed between 11 June and 6 August 2025. This update reflects the fact that since the launch of the Stage 2 consultation, further design development work has been completed to confirm the requirement for two substations within Section 5, the preferred locations of the new Weston Marsh Substation A and new Weston Marsh Substation B and the associated overhead line and underground cable connections. The draft Order Limits for Section 5 have also now been defined, whereas the June 2025 PEI Report was based upon a wider 'Refined Weston Marsh Substation Siting Zone' which covered a greater total area than the Section 5 draft Order Limits.
- 10.1.3 Updates to the assessment are primarily limited to the Preliminary Assessment of Effects (section 10.7), following the completion of quantitative construction and operational noise modelling. This was not previously undertaken in support the June 2025 PEI Report as at the time of its publication, the design information available for Section 5 was not as detailed as that produced for other sections of the Project. The additional design information now available has facilitated an updated assessment of Section 5 equivalent to that previously completed for all other sections of the Project.
- 10.1.4 Predicted construction traffic noise impacts and effects are however unchanged from the June 2025 PEI Report. This is given that the preliminary effects assessed at this stage are primarily informed by the assumed construction traffic volumes and routes, rather than the extents of the draft Order Limits and the details of the substation and connection designs. Given that the June 2025 PEI Report construction and operational traffic projections were based upon reasonable worst case assumptions, including the presence of up to two substations within Section 5, the projected volumes of construction and operational traffic have not been updated as a result of the further design development. Traffic projections will however be reviewed and updated as required based upon the Development Consent Order (DCO) scheme design. This updated data will inform the complete assessment to be reported within the Environmental Statement (ES).
- 10.1.5 The chapter includes the following sections:
- i. An introduction to the topic (section 10.1);
  - ii. Identification of key local and regional policy relevant to the assessment (section 10.2). A full overview of the legislation and national, regional onshore and marine planning policy context that applies to the Project is presented in the **Supplementary PEI Report Volume 2 Part A Chapter 2 Legislative, Regulatory and Planning Policy Context** and supporting appendices;



- iii. A summary of the assessment scoping process and subsequent scope of the Noise and Vibration assessment (section 10.3). Further detail is provided within **Supplementary PEI Report Volume 3 Part A Appendix 4A Planning Inspectorate Scoping Opinion Responses**;
  - iv. A high-level summary of the methodology of the Noise and Vibration assessment of Section 5 (section 10.4). A detailed description of the assessment methods and scope, applicable to the whole Project, is contained in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**;
  - v. A description of the environmental baseline within the Section 5 Study Area relevant to the Noise and Vibration assessment, updated since publication of the June 2025 PEI Report based upon the Section 5 draft Order Limits (section 10.5);
  - vi. A description of mitigation measures included for the purposes of the Noise and Vibration assessment reported within this Supplementary PEI Report (section 10.6). Further information regarding design development can be found in **Supplementary PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered** and the **Supplementary Design Development Report for Section 5**;
  - vii. The likely significant and non-significant Noise and Vibration effects arising during construction and operation of the Project within the Section 5 Study Area, based upon the assessment completed to date (section 10.7); and
  - viii. An outline of the likely monitoring requirements in relation to Noise and Vibration (section 10.8).
- 10.1.6 Further supporting information is set out in **Table 10.1** below, including supporting figures and technical appendices.

Table 10.1 Supporting documentation

| Supporting Information                                                                                       | Description                                                                                                                                                                                                                                      |
|--------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Topic Specific Supporting Documentation</b>                                                               |                                                                                                                                                                                                                                                  |
| <b>Supplementary PEI Report Volume 2 Part B Section 5 Figures</b>                                            | <b>Figure 10.1 Noise and Vibration Study Area</b><br><b>Figure 10.2 Noise and Vibration Baseline</b><br><b>Figure 10.3 Initial Construction Noise Assessment Outputs</b><br><b>Figure 10.4 Initial Construction Vibration Assessment Outputs</b> |
| <b>Supplementary PEI Report Volume 3 Part B Section 5 Appendix 10A Construction Noise and Vibration Data</b> | Includes information and data used within the assessment of noise and vibration effects from construction activities at noise and vibration sensitive receptors.                                                                                 |
| <b>Supplementary PEI Report Volume 3 Part B Section 5 Appendix 10B Construction Traffic Noise Assessment</b> | Includes the assessment of construction traffic noise on construction traffic routes within Section 5.                                                                                                                                           |

| Supporting Information                                                                                           | Description                                                                                                                                                                                                                 |
|------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Project Supporting Documentation</b>                                                                          |                                                                                                                                                                                                                             |
| <b>Supplementary PEI Report Volume 2 Part B Chapter 1 Overview of the Section and Description of the Project</b> | A summary of the works within Section 5, including the permanent infrastructure, temporary construction works, and operational activities.                                                                                  |
| <b>Supplementary PEI Report Volume 3 Part A Appendix 2A Key Legislation</b>                                      | A list of identified environmental legislation considered relevant to the Project, which will be updated and amended as required to inform the ES.                                                                          |
| <b>Supplementary PEI Report Volume 3 Part A Appendix 2B National and Regional Planning Policy</b>                | A list of national and regional policies generally applicable to the assessment principles which underpin the June 2025 PEI Report, Supplementary PEI Report and ES.                                                        |
| <b>Supplementary PEI Report Volume 3 Part A Appendix 2C Local Plan Policy</b>                                    | An outline of the potentially relevant local planning policy allocations affecting Section 5 of the Project.                                                                                                                |
| <b>Supplementary PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered</b>                           | A summary of the main alternatives considered during the design development process which are relevant to Section 5 of the Project, including the main reasons for selecting the chosen option.                             |
| <b>Supplementary PEI Report Volume 2 Part A Chapter 4 Approach to Preliminary Environmental Information</b>      | Sets out the Environmental Impact Assessment (EIA) approach and general methodology that has been used in developing the Supplementary PEI Report for Section 5 of the Project.                                             |
| <b>Supplementary PEI Report Volume 2 Part A Chapter 5 Project Description</b>                                    | An overarching description of the Project and its key components, including updated design and construction information relating to Section 5.                                                                              |
| <b>Supplementary PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice</b>            | Sets out control and management measures that will be undertaken during construction of the Project if granted consent. The final Code of Construction Practice (CoCP) will be submitted in support of the DCO application. |

- 10.1.7 There are interrelationships between the potential Noise and Vibration effects and other environmental topics. Therefore, please also refer to the following chapters within the **Supplementary PEI Report Volume 2 Part B and Part C**:
- i. **Supplementary PEI Report Volume 2 Part B Chapter 4 Ecology and Biodiversity** assesses the effects of the Project upon ecological receptors within the Section 5 Study Area, including those resulting from noise and vibration.

- ii. **Supplementary PEI Report Volume 2 Part B Chapter 5 Historic Environment** assesses the impacts of the Project upon heritage assets within the Section 5 Study Area, including the potential effects of vibration.
- iii. **Supplementary PEI Report Volume 2 Part B Chapter 9 Traffic and Transport** assesses the potential change in traffic movements during construction and operation within the Section 5 Study Area, which are relevant to the assessment of noise effects associated with changes in traffic flow.
- iv. **Supplementary PEI Report Volume 2 Part B Chapter 11 Socio-economics, recreation and tourism** assesses potential effects upon recreational areas within the Section 5 Study Area that could be affected by noise and vibration and thus suffer a reduction in amenity value.
- v. **Supplementary PEI Report Volume 2 Part B Chapter 13 Summary** provides a concise, consolidated summary of the likely significant effects reported for all topics, based upon the preliminary assessment of effects.
- vi. **Supplementary PEI Report Volume 2 Part C Route-wide Chapter 7 Health and Wellbeing** assesses the potential effects of noise and vibration generated by the Project upon health and wellbeing.
- vii. **Supplementary PEI Report Volume 2 Part C Route-wide Chapter 9 Cumulative Effects** reports those intra-project effects which could potentially act in combination to result in cumulative environmental effects. It also identifies an updated shortlist of other Committed Developments with which there may be potential for cumulative effects, and the relevant environmental topics for such effects (inter-project). The full cumulative effects assessment will be reported within the ES.

## 10.2 Legislation and Policy Framework

- 10.2.1 Legislation and national policy relevant to the Project and this chapter are described in **Supplementary PEI Report Volume 2 Part A Chapter 2 Legislative, Regulatory and Planning Policy Context** and supporting appendices, the details of which are set out in **Table 10.1**.

### Regional and Local Policy

- 10.2.2 Regional and local plans or policies relevant to this assessment are as follows.
- i. South East Lincolnshire Local Plan 2011-2036 (Combined Boston Borough Council, South Holland District Council Local Plan) (Ref 2):
    - Policy 2 - Development Management: which sets out sustainable development considerations against which planning applications are determined by the local planning authority, including impacts upon neighbouring land uses by reason of noise.
    - Policy 30 - Pollution: which stipulates that development will not be permitted where it would lead to unacceptable adverse impacts due to noise, including vibration.
    - Policy 31 - Climate Change and Renewable and Low Carbon Energy: in relation to the development of renewable energy facilities and associated

infrastructure, development will be permitted provided that there would be no significant harm to residential amenity in respect to noise, vibration and other factors.

## 10.3 Scope of Assessment

- 10.3.1 The scope of the assessment has been informed by the Scoping Opinion (Ref 3) provided by the Planning Inspectorate in September 2024 on behalf of the Secretary of State, following the submission of the EIA Scoping Report (Ref 4). A summary of the Scoping Opinion together with a response against each point of relevance to the Noise and Vibration chapter is provided in **Supplementary PEI Report Volume 3 Part A Appendix 4A Planning Inspectorate Scoping Opinion Responses**.
- 10.3.2 Non-statutory consultation feedback was discussed within the Grimsby to Walpole Stage 1 Consultation Feedback Report (Ref 5). Stage 2 Consultation Feedback relevant to Section 5 is discussed within the **Grimsby to Walpole Section 5 Consultation Feedback Report**.
- 10.3.3 The scope of the Noise and Vibration assessment within Section 5 includes consideration of effects upon NSRs due to:
- i. construction noise;
  - ii. construction vibration on people within buildings;
  - iii. construction vibration on buildings and structures;
  - iv. construction traffic noise; and
  - v. noise and vibration from substantial maintenance activities, such as conductor replacement.
- 10.3.4 Noise generating equipment (such as transformers) are not proposed within the New Weston Marsh Substation A or New Weston Marsh Substation B. Additionally, based upon the low noise conductor system proposed, noise associated with the operation of permanent infrastructure is scoped out of the assessment of Noise and Vibration effects within this Section.
- 10.3.5 As set out in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**, the scope of the assessment excludes:
- i. construction traffic vibration;
  - ii. operational noise impacts from auxiliary plant (e.g. back-up generators and switchgear) within proposed new substations;
  - iii. operational noise impacts from typical maintenance activities due to their infrequent and localised nature; and
  - iv. operational noise from proposed overhead lines, on the basis that a low noise conductor system is proposed. Further information regarding the scoping out of overhead line noise is provided in paragraph 10.6.3.
- 10.3.6 As set out in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**, noise effects associated with typical maintenance activities are also scoped out, based upon the infrequent and localised nature of typical activities.

## 10.4 Assessment Methodology

- 10.4.1 The assessment scope, methodology, relevant guidance, key assumptions and limitations for the Noise and Vibration assessment are set out in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**. This includes a description of how receptor sensitivity, magnitude of impact and significance of effects are all described and assigned to the assessment. A summary of the key components are outlined below.
- 10.4.2 Construction Noise and Vibration has been assessed in accordance with the methodology described in British Standard (BS) 5228-1:2009+A1:2014 Code of practice for Noise and Vibration control on construction and open sites – Part 1: Noise (BS 5228-1) (Ref 6), and Part 2: Vibration (BS 5228-2) (Ref 7), respectively. The assessment Study Area for construction noise is 300 m from the proposed works, based on guidance from BS 5228-1. The assessment Study Area for construction vibration is 100 m from the proposed works, based on guidance from BS 5228-2.
- 10.4.3 Construction traffic noise has been predicted in accordance with the methodology described in Calculation of Road Traffic Noise (CRTN) (Ref 8) and assessed in accordance with the methodology described in the Design Manual for Roads and Bridges LA 111 Noise and vibration (DMRB LA 111) (Ref 9).
- 10.4.4 Other applicable guidance has also been used to inform the assessments, where appropriate. These are detailed in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.

### Assessment Assumptions and Limitations

- 10.4.5 All general assumptions and limitations for the topic are listed within **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**. There are no additional limitations and assumptions that have been identified which are specific to the assessment of Section 5.
- 10.4.6 The key parameters and assumptions which inform the assessment will be reviewed based on the design presented in the DCO application and, where required, updated, or refined, for the ES. The ES will present the final key limitations and assumptions used within that assessment, particularly drawing attention to any areas that may have changed from that presented in this preliminary assessment.

## 10.5 Baseline Conditions

### Study Area

- 10.5.1 The Study Area for the assessment of the Noise and Vibration baseline is illustrated in **Supplementary PEI Report Volume 2 Part B Section 5 Figure 10.1 Noise and Vibration Study Area**. The baseline Study Area includes an additional 1 km buffer from the Section 5 draft Order Limits.

### Data Collection

- 10.5.2 The following data has been used to inform the baseline conditions:



- i. Ordnance Survey (OS) AddressBase Plus data, as presented within PEI Report Volume 2 Part B Section 5 Figure 10.1 Noise and Vibration Study Area;
- ii. Department for Environment, Food and Rural Affairs (Defra) strategic noise mapping, presented as noise contours within **Supplementary PEI Report Volume 2 Part B Section 5 Figure 10.2 Noise and Vibration Baseline**. This represents the daytime ambient noise levels from road and rail sources and Noise Important Areas (NIAs); and
- iii. current OS mapping.

## Existing Baseline

- 10.5.3 The following section outlines the Noise and Vibration baseline for the Section 5 Study Area. The baseline section should be read in conjunction with the following supporting Figures and Appendices as found within **Supplementary PEI Report Volume 2**:
- i. **Supplementary PEI Report Volume 2 Part B Section 5 Figure 10.1 Noise and Vibration Study Area**; and
  - ii. **Supplementary PEI Report Volume 2 Part B Section 5 Figure 10.2 Noise and Vibration Baseline**.
- 10.5.4 The proposed substations, new overhead line and cable route within Section 5 are located within a predominantly rural area, largely avoiding settlements and residential areas. The majority of assessed NSRs within the Study Area are therefore isolated dwellings and farms and small settlements, however, the Section 5 draft Order Limits are located in proximity to several villages and built-up areas. These include:
- i. Surfleet Seas End, approximately 700m west of the Section 5 draft Order Limits;
  - ii. Spalding, approximately 1km west of the Section 5 draft Order Limits; and
  - iii. Weston, approximately 160m southeast of the Section 5 draft Order Limits.
- 10.5.5 **Supplementary PEI Report Volume 2 Part B Section 5 Figure 10.1 Noise and Vibration Study Area** also shows NSR locations, including residential and non-residential receptors.
- 10.5.6 The baseline noise environment is expected to vary around the Section 5 Study Area depending on the nature of the area. For example, close to noise sources, such as roads and in built up areas, ambient noise levels are expected to be higher. Further away from roads and in rural areas which cover most of the Section 5 Study Area, ambient and background noise levels would be expected to be lower. Daytime noise level contours from existing road and railway sources are presented in **Supplementary PEI Report Volume 2 Part B Section 5 Figure 10.2 Noise and Vibration Baseline**, showing how existing noise levels vary. Areas outside of the contours are generally considered to have low ambient and background noise levels. Areas where the road and rail contours overlap are considered to experience noise effects from both sources.
- 10.5.7 NIAs are determined via strategic noise maps and highlight the residential areas experiencing the highest 1 per cent of noise levels from road and rail sources in England and are shown in **Supplementary PEI Report Volume 2 Part B Section 5 Figure 10.2 Noise and Vibration Baseline**. There are no NIAs close to the Section 5 draft Order Limits.

- 10.5.8 The main sources of environmental noise within the Section 5 Study Area include the A16 approximately 0.5 to 1.5 km west of the Section 5 draft Order Limits, and the A151 immediately to the south of the Section 5 draft Order Limits, as well as traffic on local roads. In terms of industrial sources, the main source of noise is likely to be agricultural activity.
- 10.5.9 Acceptable levels of vibration during construction are higher than those that would be acceptable during normal conditions, because it is accepted that temporary vibration impacts may be an unavoidable by-product of development. It is assumed that existing vibration levels at NSRs within the Study Area are negligible compared to the construction vibration threshold values, as described in **Supplementary PEI Report Volume 2 Part A Chapter 4 Approach to Preliminary Environmental Information**. Construction vibration impacts are therefore assessed against fixed thresholds, rather than relative thresholds informed by an assessment of the baseline.

## Future Baseline

- 10.5.10 The future baseline relates to known or foreseeable changes to the current baseline in the future, against which the effects of the Project during construction and operation are assessed. Specifically, it accounts for anticipated changes including those caused by changing climatic conditions, policy, legislation, advances in technology and by other confirmed development projects which will be complete prior to construction of the Project.
- 10.5.11 At this preliminary stage, a full assessment of the implications of any confirmed development projects with regard to future baseline conditions has not been undertaken. A list of the currently known developments which are anticipated to be included within the future baseline scenario is provided within **Supplementary PEI - Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope Annex A Developments for Consideration Within the Future Baseline**. This will be reviewed and updated as appropriate during development of the ES, as with other information which informs assessment of the future baseline.
- 10.5.12 At this preliminary stage, no significant changes to the future Noise and Vibration baseline that would affect the assessment are anticipated. This is owing to the largely rural and agricultural nature of the Section 5 Study Area. This will remain under review during development of the ES and further consideration of any appropriate changes to the assumed future baseline characterised within this PEI Report.

## 10.6 Design, Control and Additional Mitigation Measures

### Design Mitigation Measures

- 10.6.1 The Project is being designed to avoid sensitive receptors as far as practicable. This is in accordance with the 'Holford Rules' (Ref 10) applicable to routing of new overhead lines and the 'Horlock Rules' (Ref 11), which apply to the design and siting of substations. These approaches are explained in further detail within the Corridor Preliminary Routeing and Siting Study (CPRSS) (Ref 12) and **Supplementary PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered**. Principles include, but are not limited to, seeking to avoid areas of highest amenity, cultural or scientific value, taking advantage of natural screening provided by existing landform



and features (e.g. woodland) and keeping visual, noise and other environmental effects to a minimum.

- 10.6.2 The proposed overhead line system is a 'Triple Araucaria' conductor bundle on standard lattice pylons. Noise from high voltage overhead lines is primarily due to a phenomenon called corona discharge. Overhead line noise is generated when the conductor surface voltage gradient (electric stress, or  $E_{max}$  expressed in kilovolts per centimetre (kV/cm)) exceeds the inception level for corona discharge activity which is released as acoustic energy and radiates into the air as sound. In UK conditions the corona inception level is regarded to occur when electric stress is in the range 17 to 20kV/cm. Whilst most high voltage overhead lines are designed to operate below this level, those that operate close to this may produce audible noise when enhancement of conductor surface electric stress occurs due to rainfall (wet noise) or the presence of conductor surface contamination (dry noise). Overhead lines that operate significantly below the corona inception level are much less likely to produce audible noise. 'Triple Araucaria' is regarded as practically quiet during both dry and wet weather conditions as it typically operates with an electrical stress below the inception level for corona discharge. Operational noise from the proposed overhead line would therefore not lead to significant adverse effects at nearby NSR, even if directly underneath the line. This supports the rationale for scoping operational noise out of the assessment.
- 10.6.3 In addition, pylon fittings, such as insulators, dampers, spacers, and clamps, are designed and procured in accordance with a series of National Grid Technical Specifications and must be type registered (rigorously tested) to ensure the fitting conforms to National Grid standards. These design, testing, and procurement processes reduce the potential for audible noise and tones to occur from all types of fittings, including insulators. Where noise does occur, it is likely to be localised and of short duration. If this is due to a fault, action can be taken to rectify it. Where noise from fittings does occur which results in a complaint, appropriate action can be taken to seek to remedy the cause of the noise where practicable, usually through cleaning or replacing the relevant fitting.

## Control Mitigation Measures

### Construction

- 10.6.4 A Preliminary Code of Construction Practice (CoCP) is provided in **Supplementary PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice**. The control measures included within the Preliminary CoCP relevant to the Noise and Vibration assessment of Section 5 are the same as those presented in June 2025 PEI Report Volume 2 Part B Section 5 Chapter 10 Noise and Vibration (Ref 13) and include:
- i. GG01: The Project will be compliant with all relevant legislation, consents and permits.
  - ii. GG03: Suitably experienced Environmental Advisers will be appointed for the duration of the construction phase. In addition, qualified and experienced EnvCoW(s) will be available during the construction phase to advise, supervise and report on the delivery of the mitigation methods and controls outlined in the Management Plans. The EnvCoW(s) will monitor that the works proceed in accordance with relevant environmental DCO requirements and adhere to the required good practice and mitigation measures. The EnvCoW(s) will be

- supported as necessary by appropriate specialists, including ecologists and arboriculturists, soils and land drainage experts.
- iii. GG04: Construction workers will undergo training to increase their awareness of environmental issues as applicable to their role on the Project. Topics will include where appropriate:
- pollution prevention and pollution incident response;
  - dust management and control measures;
  - location and protection of sensitive environmental sites and features;
  - adherence to protected environmental areas around sensitive features;
  - working hours and Noise and Vibration reduction measures;
  - working with potentially contaminated materials;
  - waste management and storage;
  - flood risk response actions;
  - agreed traffic routes, access points, etc.;
  - soil management; and
  - drainage management.
- iv. GG06: A Construction Environmental Management Plan (CEMP), a Landscape and Ecological Management Plan (LEMP), a Materials and Waste Management Plan (MWMP) and a Construction Traffic Management Plan (CTMP), Emergency Action Plan, Public Rights of Way Management Plan (PRoWMP), Overarching Written Scheme of Investigation (WSI), Biodiversity Management Plan, Noise and Vibration Management Plan, Pollution Prevention Plan, Foundation Works Risk Assessment, Carbon efficiency Plan, Dust Management Plan (DMP), Drainage Management Plan (DrMP) along with a Soil Management Plan (SMP) will be produced prior to construction. These are collectively referred to as 'the environmental control Plans.'
- v. GG07: The CEMP will set out site specific measures and construction methodologies to avoid or reduce potential effects of the Project on the environment during construction. The contractor(s) shall undertake regular site inspections to check conformance to the Management Plans.
- vi. GG10: The name and contact details for the Project will be displayed at the entrance to all compounds. This will include an emergency number.
- vii. GG11: Any activity carried out or equipment located within a construction compound that may produce a noticeable nuisance, including but not limited to dust, noise, vibration and lighting, will be located away from sensitive receptors such as residential properties or ecological sites where practicable.
- viii. GG13: Vehicles will be correctly maintained and operated in accordance with manufacturer's recommendations and in a responsible manner. All plant and vehicles will be required to switch off their engines when not in use and when it is safe to do so. Electric, or other low carbon plant and equipment should be used where available and where practicable.

- ix. GG14: Materials and equipment will not be moved or handled unnecessarily. When loading and unloading materials from vehicles, including excavated materials, drop heights will be limited.
- x. GG24: Working areas will be appropriately fenced. The type of fencing installed will depend on the area to be fenced and will take into consideration the level of security required in relation to the surrounding land and public access, rural or urban environment and arable or stock farming. For some locations the fence used may also serve to provide acoustic and visual screening of the work sites and reduce the potential for disturbance of users in the surrounding areas. Fencing will be regularly inspected and maintained and removed as part of the demobilisation unless otherwise specified.
- xi. GG25: Members of the community and local businesses will be kept informed regularly of the works through active community liaison and groups with local membership. This will include notification of noisy activities, heavy traffic periods and start and end dates of key phasing. A contact number will be provided which members of the public can use to raise any concerns or complaints about the Project. All construction related complaints will be logged in a complaints register, together with a record of the responses given and actions taken.
- xii. TT03: The CTMP will set out measures to reduce route and journey mileage to and from and around site, and prevent nuisance to the residents, businesses and the wider community caused by parking, vehicle movements and access restrictions. It will also provide suitable control for the means of access and egress to the public highway and set out measures for the maintenance and upkeep of the public highway. The plan will also identify access for emergency vehicles. It will also set out measures to reduce safety risks through construction vehicle and driver quality standards and measures to manage abnormal loads.
- xiii. NV01: Construction working will be undertaken within the agreed working hours set out within the DCO unless the works are under an exception to the set working hours in which case they will be carried out in a manner that minimises Noise and Vibration at all times. Best practicable means (BPM) to reduce construction noise will be set out within the CEMP.
- xiv. NV02: BPM measures, as defined by The Control of Pollution Act 1974 and detailed in BS 5228-1:2009+A1:2014 Code of practice for Noise and Vibration control on construction and open sites – Part 1: Noise, and Part 2: Vibration, will be identified within the CoCP and may include consideration of construction plant and methods, siting semi-static equipment as far as reasonably practicable away from sensitive areas, screening, enclosures, and temporal restrictions.
- xv. NV03: The contractor will conduct detailed construction Noise and Vibration assessments to determine whether there are likely to be any new or different significant adverse effects at Noise and Vibration sensitive receptors (NSR) and therefore whether additional measures, including site-specific BPM, may be required.

### **Control of Pollution Act 1974**

- 10.6.5 The Control of Pollution Act 1974 (CoPA) (Ref 14) sets out the framework for the legislative control of construction Noise and Vibration on any given site. It also sets out the principle of best practicable means (BPM) (as defined in Section 72 of the Act) and how that should be applied to construction activity noise. BS 5228-1 and BS

5228-2 gained Approved Code of Practice status in England under the powers conferred by sections 71(1)(b), (2) and (3) of CoPA 1974, as enacted under The Control of Noise (Code of Practice for Construction and Open Sites) (England) Order 2015 (Ref 15). Compliance with the best practice noise and vibration mitigation requirements stated within BS 5228-1 and BS 5228-2 became a statutory obligation under the Act.

- 10.6.6 Section 61 of the CoPA states that consent may be sought from the relevant local authorities prior to the construction works commencing. If prior consent is sought, the relevant local authorities will need to be provided with information about the proposed construction works and how construction noise will be managed, including the use of BPM.

## Additional Mitigation Measures

- 10.6.7 Additional mitigation measures are those required to reduce likely significant adverse environmental effects which may still occur despite the inclusion of the embedded design and control measures described above.
- 10.6.8 Additional mitigation measures are not anticipated to be required in relation to Noise and Vibration effects. However, this will remain under review during the completion of further assessment and development of the ES.

## 10.7 Preliminary Assessment of Effects

- 10.7.1 The following section presents the findings of the preliminary assessment of effects upon the receptors, identified within the Section 5 Study Area, as a result of construction, maintenance and/or operational activities.
- 10.7.2 The preliminary assessment of effects reported below takes into account the Design and Control Measures previously described. No additional mitigation measures have been assumed within the preliminary assessment of effects reported in the following sections.
- 10.7.3 For a summary of the likely significant effects please refer to **Supplementary PEI Report Volume 2 Part B Chapter 13 Summary**. A supplementary summary of all non-significant effects is also included within this section in **Table 10.4**, based upon the assessment scope detailed in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.
- 10.7.4 Where it has been concluded that effects are not significant, but may still be considered notable from a stakeholder perspective, a more detailed explanation is provided in support of the summaries included within **Table 10.4**. Examples include consideration of receptors of particularly high sensitivity or effects which have been identified of interest during previous consultation and engagement.
- 10.7.5 It is noted that this is an ongoing assessment and is subject to change due to the ongoing design development of the Project, statutory consultation feedback and further stakeholder engagement. A full assessment will be included within the ES submitted with the DCO application.

## Likely Significant Effects

### Construction

- 10.7.6 Based upon the preliminary assessment, no significant effects have been identified due to construction noise and vibration, assuming the implementation of the embedded measures set out in section 10.6. The assessment is discussed in further detail below.

### Operation

- 10.7.7 No significant effects have been identified due to noise and vibration during operation and maintenance of the Project in Section 5. The assessment is discussed in further detail below in relation to likely non-significant effects.

## Non-Significant Effects

### Construction

#### Construction Noise

- 10.7.8 The construction noise assessment is based on the construction noise data presented in **Supplementary PEI Report Volume 3 Part B Section 5 Appendix 10A Construction Noise and Vibration Data** for the various proposed construction activities, which in Section 5 include:
- i. Vegetation clearance and site preparation;
  - ii. Establishment of temporary access/egress to the Site and haul routes;
  - iii. Establishment and operation of construction compounds and laydown areas;
  - iv. Construction of pylon foundations and erection of pylons;
  - v. Stringing of overhead line;
  - vi. Construction of the proposed New Weston March A and Weston Marsh B substation(s);
  - vii. Ancillary works, such as drainage; and
  - viii. Removal of compounds and haul roads and site reinstatement.
- 10.7.9 Although BPM to reduce construction noise impacts would be employed by the contractor for all work areas, for the purposes of the assessment, it is assumed that no noise mitigation, such as screening, is included. This is so that potential noise 'hot-spots' can be identified which would require specific mitigation measures to avoid significant adverse effects. However, BPM to reduce construction noise impacts would be employed by the contractor for all work areas, as discussed in section 10.6 Design, Control and Additional Mitigation Measures.
- 10.7.10 The initial construction noise assessment outputs are presented in **Supplementary PEI Report Volume 2 Part B Section 5 Figure 10.3 Initial Construction Noise Assessment Outputs** and are summarised in **Table 10.2**.

Table 10.2 Summary of Section 5 construction noise assessment

| NSR Type/Sensitivity               | Total Number of NSR in Study Area | Number of NSR experiencing magnitude of impact |       |        |       |
|------------------------------------|-----------------------------------|------------------------------------------------|-------|--------|-------|
|                                    |                                   | Negligible                                     | Small | Medium | Large |
| Residential                        | 126                               | 122                                            | 26    | 5      | 1     |
| High sensitivity non-residential   | 3                                 | 3                                              | 0     | 0      | 0     |
| Medium sensitivity non-residential | 2                                 | 2                                              | 0     | 0      | 0     |
| Low sensitivity non-residential    | 6                                 | 6                                              | 0     | 0      | 0     |

- 10.7.11 The assessment indicates that the magnitude of impact from construction noise is:
- negligible or small at most residential NSR in the Section 5 Study Area; and
  - negligible at all high, medium and low sensitivity non-residential NSR in the Section 5 Study Area.
- 10.7.12 These impacts would not result in significant adverse effects, even without specific BPM mitigation measures in place.
- 10.7.13 However, there are five residential NSR potentially experiencing a medium magnitude impact, and one residential NSR potentially experiencing a large magnitude impact. These impacts could result in significant noise effects without specific mitigation in place. The construction activities causing the predicted impacts and affected receptors include those listed below:
- proposed pylon construction in the locality of pylon LW201, affecting one residential NSR: Old School House, Marsh Road, Weston, Spalding, PE12 6HQ.
  - construction of accesses at the following locations:
    - passing places on Marsh Road east of proposed pylon LW200, affecting one residential NSR: 2, School Cottages, Marsh Road, Weston, Spalding, PE12 6HQ;
    - passing places on Marsh Road west of proposed pylon 4ZM416-N, affecting one residential NSR: Pickmere, Marsh Road, Spalding, PE12 6HF;
    - passing places on Marsh Road west of proposed pylon 4ZM414-N, affecting one residential NSR: Sunnyfield, Marsh Road, Weston, Spalding, PE12 6HH; and
    - passing places on Stone Gate (at the junction of Wiseman's Gate), affecting two residential NSR: The Grange and Chestnut House, Stone Gate, Weston, Spalding, PE12 6HR.
- 10.7.14 In all cases, it is predicted that construction noise impacts would be reduced to levels which would not result in significant noise effects, through the application of BPM as



set out in the Preliminary CoCP. As such, significant adverse effects are not expected within the Section 5 Study Area.

### Construction vibration

- 10.7.15 The construction vibration assessment is based on the construction vibration data presented in in **Supplementary PEI Report Volume 3 Part B Section 5 Appendix 10A Construction Noise and Vibration Data** for the various proposed construction activities, which include:
- i. construction of access tracks (compaction);
  - ii. construction of construction compounds (compaction); and
  - iii. construction of pylon foundations (piling).

### Construction vibration on people in buildings

- 10.7.16 Although BPM to reduce construction vibration impacts would be employed by the contractor for all work areas, the assessment assumes no vibration mitigation, such as the use of alternative methods, is included. Additionally, on a precautionary basis, the assessment assumes typical worst-case methodologies, such as percussive piling for pylon foundations. As with the noise assessment, this is so that potential vibration 'hot-spots' can be identified which would require specific mitigation measures to avoid significant adverse effects.
- 10.7.17 The initial construction vibration assessment outputs are presented in **Supplementary PEI Report Volume 2 Part B Section 5 Figure 10.4 Initial Construction Vibration Assessment Outputs** and are summarised in **Table 10.3**.

Table 10.3 Summary of Section 5 construction vibration assessment

| NSR Type/Sensitivity               | Total Number of NSR in Study Area | Number of NSR experiencing magnitude of impact: |       |        |       |
|------------------------------------|-----------------------------------|-------------------------------------------------|-------|--------|-------|
|                                    |                                   | Negligible                                      | Small | Medium | Large |
| Residential                        | 24                                | 13                                              | 10    | 1      | 0     |
| High sensitivity non-residential   | 0                                 | 0                                               | 0     | 0      | 0     |
| Medium sensitivity non-residential | 1                                 | 0                                               | 1     | 0      | 0     |
| Low sensitivity non-residential    | 1                                 | 0                                               | 1     | 0      | 0     |

- 10.7.18 The assessment indicates that the magnitude of impact from construction vibration is:
- i. negligible or small at most residential NSR; and
  - ii. small at the medium and low sensitivity non-residential NSR.
- 10.7.19 These impacts would likely not result in significant adverse effects, even without specific BPM mitigation measures in place.



10.7.20 However, there is one residential NSR potentially experiencing a medium magnitude impact. In the absence of specific mitigation, this would result in a significant effect. The specific construction activity causing the predicted impacts and affected receptor are:

- i. construction of passing places on Stone Gate (at the junction of Wiseman's Gate) affecting one residential NSR: The Grange, Stone Gate, Weston, Spalding, PE12 6HR.

10.7.21 It is predicted that construction vibration impacts would be reduced through the application of BPM as set out in the Preliminary CoCP. As such, based upon the application of control mitigation measures, significant adverse effects due to construction vibration are not expected in Section 5.

#### Construction vibration on buildings and structures

10.7.22 No buildings or structures have been identified within the threshold distances of applicable construction activities where the level of construction vibration has the potential to cause damage. This will be reviewed further at ES stage and by the contractor prior to starting works.

#### Construction Traffic Noise

10.7.23 The initial construction noise assessment outputs are presented in **Supplementary PEI Report Volume 3 Part B Section 5 Appendix 10B Construction Traffic Noise Assessment**.

10.7.24 Construction traffic noise impacts have been assessed on five construction traffic road links in Section 5 where data is available. The assessment indicates that construction traffic would lead to the following impacts:

- i. no change in noise level on three road links; and
- ii. a negligible increase in noise level on two road links.

10.7.25 No medium or large magnitude construction traffic noise impacts are expected within the Section 5 Study Area. Additionally, there are no small magnitude impacts in locations which include NIAs (where a small magnitude impact may be considered significant). Therefore, there are no likely significant effects from construction traffic noise within the Section 5 Study Area, noting the limitations of the assessment at this preliminary stage.

#### Operation and Maintenance

##### Operational Maintenance Noise and Vibration

10.7.26 As noted in section 10.3, noise impacts from standard operational maintenance activities are scoped out of the assessment. However, there may be instances where more substantial activity would be required as part of maintenance, such as replacement of components of the Project, such as overhead line re-stringing. Such activities would be expected to be similar to those during the construction phase, as assessed above. As such, there are no likely significant adverse effects from noise and vibration generated during operational maintenance in Section 5, even without specific BPM mitigation measures.

- 10.7.27 For completeness, **Table 10.4** summarises the findings of the preliminary assessment with respect to those impacts that are not predicted to result in significant Noise and Vibration effects.

Table 10.4 Preliminary summary of non-significant Noise and Vibration effects – Section 5

| Receptor                                                              | Impact                     | Sensitivity/<br>Importance/<br>Value of<br>Receptor         | Magnitude of<br>Change               | Significance                                 | Rationale                                                                                                                                                                                                                                                                                |
|-----------------------------------------------------------------------|----------------------------|-------------------------------------------------------------|--------------------------------------|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Construction</b>                                                   |                            |                                                             |                                      |                                              |                                                                                                                                                                                                                                                                                          |
| All residential noise sensitive receptors (NSR) within the study area | Construction noise         | Residential                                                 | Negligible to small                  | Negligible to minor adverse. Not significant | Significant adverse effects would not be expected where BPM are applied to reduce potential impacts.                                                                                                                                                                                     |
| Non-residential NSR within the study area                             | Construction noise         | Low to high sensitivity non-residential                     | Negligible                           | Negligible adverse. Not significant          | Significant adverse effects would not be expected where BPM are applied to reduce potential impacts.                                                                                                                                                                                     |
| All NSR within study area                                             | Construction vibration     | Residential, and medium and low sensitivity non-residential | Negligible to small                  | Negligible to minor adverse. Not significant | Significant adverse effects would not be expected where BPM are applied to reduce potential impacts.                                                                                                                                                                                     |
| Buildings and structures within study area                            | Construction vibration     | Buildings and structures                                    | Below threshold for potential damage | Not significant                              | Significant adverse effects would not be expected where BPM are applied to reduce potential impacts.                                                                                                                                                                                     |
| All NSR within study area                                             | Construction traffic noise | Residential, and medium and low sensitivity non-residential | Negligible to small                  | Negligible to minor adverse. Not significant | No medium or large magnitude construction traffic noise impacts are expected in Section 5. Additionally, there are no small magnitude impacts in locations which include NIAs (where a small magnitude impact may be considered significant). Therefore, there are no likely significant |

| Receptor                  | Impact                                                                                    | Sensitivity/<br>Importance/<br>Value of<br>Receptor      | Magnitude of<br>Change | Significance                                 | Rationale                                                                                                                                                                                                                                                                                                                       |
|---------------------------|-------------------------------------------------------------------------------------------|----------------------------------------------------------|------------------------|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           |                                                                                           |                                                          |                        |                                              | effects from construction traffic noise in Section 5.                                                                                                                                                                                                                                                                           |
| <b>Operation</b>          |                                                                                           |                                                          |                        |                                              |                                                                                                                                                                                                                                                                                                                                 |
| All NSR within study area | Operational noise and vibration from substantial maintenance activities during operation. | Residential, and low to high sensitivity non-residential | Negligible to small    | Negligible to minor adverse. Not significant | Operational noise and vibration from substantial maintenance activities is expected to be similar to that during construction, and would incorporate best practicable means to reduce the effects of noise and vibration. The effects of substantial maintenance during operation are therefore expected to be not significant. |

## **10.8 Monitoring**

- 10.8.1 The following processes and monitoring will be undertaken in the management of Noise and Vibration in accordance with the Preliminary CoCP:
- i. Further detailed construction Noise and Vibration assessments will be conducted by the contractor based on their specific proposed construction methodologies prior to construction.
  - ii. Based on the findings of the contractor's detailed construction Noise and Vibration assessments, specific BPM mitigation measures will be determined to avoid significant adverse effects and reduce and minimise adverse effects.
- 10.8.2 It is anticipated that the Preliminary CoCP will be secured through DCO requirements.
- 10.8.3 If appropriate, through consultation with the local authority, the contractor may apply for prior approval under Section 61 of the CoPA (Ref 14) for certain construction activities.

# References

- Ref 1 National Grid Electricity Transmission (2025). Grimsby to Walpole Preliminary Environmental Information Report [online]. Available at: <https://www.nationalgrid.com/the-great-grid-upgrade/grimsby-to-walpole/document-library#4257225834-3023854277> [Accessed 12 September 2025].
- Ref 2 South East Lincolnshire Joint Strategic Planning Committee (2019) South East Lincolnshire Local Plan 2011-2036 [online]. Available at: <https://southeastlincslocalplan.org/media/21941/South-East-Lincolnshire-Local-Plan-2011-2036/pdf/Local-Plan-text-March-2019.pdf?m=1720710748483> [Accessed 05 September 2025].
- Ref 3 The Planning Inspectorate (2024). Scoping Opinion: Proposed Grimsby to Walpole Project [online]. Available at: <https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN020036-000109-Scoping%20Opinion%202017%20EIA%20Regs.pdf> [Accessed 05 September 2025].
- Ref 4 National Grid Electricity Transmission (2024). Grimsby to Walpole Environmental Impact Assessment Scoping Report [online]. Available at: <https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN020036-000004-EN020036%20-%20Scoping%20Report%20Volume%201%20Main%20Report.pdf> [Accessed 05 September 2025].
- Ref 5 National Grid Electricity Transmission (2025). Grimsby to Walpole Stage 1 Consultation Feedback Report [online]. Available at: <https://www.nationalgrid.com/document/560496/download> [Accessed 12 September 2025].
- Ref 6 BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 1: Noise, British Standard Institution, 2014.
- Ref 7 BS 5228-2:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration, British Standard Institution, 2014
- Ref 8 Department for Transport (1988). Calculation of Road Traffic Noise.
- Ref 9 Highways England et al. (2020). Design Manual for Roads and Bridges LA 111 Noise and vibration.
- Ref 10 National Grid. The Holford Rules: Guidelines on Overhead Line Routeing. [online] Available at: <https://www.nationalgrid.com/sites/default/files/documents/13795-The%20Holford%20Rules.pdf> [Accessed 05 September 2025].
- Ref 11 National Grid. NGC Substations and the Environment: Guidelines on Siting and Design. [online] Available at: <https://www.nationalgrid.com/sites/default/files/documents/13796-The%20Horlock%20Rules.pdf> [Accessed 05 September 2025].
- Ref 12 Grimsby to Walpole Corridor Preliminary Routeing and Siting Study. January 2024 [online]. Available at: <https://www.nationalgrid.com/document/352621/download> [Accessed 05 September 2025].

- Ref 13 National Grid Electricity Transmission (2025). Grimsby to Walpole Preliminary Environmental Information Report Volume 2 Part B Section 5 Chapter 10 Noise and Vibration [online]. Available at: <https://www.nationalgrid.com/the-great-grid-upgrade/grimsby-to-walpole/document-library#4257225834-3023854277> [Accessed 12 September 2025].
- Ref 14 Control of Pollution Act 1974 [online]. Available at: <https://www.legislation.gov.uk/ukpga/1974/40/contents> [Accessed 05 September 2025].
- Ref 15 The Control of Noise (Code of Practice for Construction and Open Sites) (England) Order 2015 [online]. Available at: <https://www.legislation.gov.uk/uksi/2015/227> [Accessed 05 September 2025].



# 11. Socio- economics, Recreation and Tourism

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# 11. Socio-economics, recreation and tourism

## 11.1 Introduction

- 11.1.1 This chapter presents the Supplementary Preliminary Environmental Information (PEI) in relation to the Socio-economic, recreation and tourism assessment for the New Weston Marsh Substations A and B Section (Section 5) of the Grimsby to Walpole Project (the Project).
- 11.1.2 The preliminary assessment of Section 5 reported within this chapter presents an update to the previously published June 2025 PEI Report (Ref 1), which formed part of the Stage 2 Consultation completed between 11 June and 6 August 2025. This update reflects the fact that since the launch of the Stage 2 consultation, further design development has been completed to confirm the requirement for two substations within Section 5, the preferred location of the new Weston Marsh Substation A and new Weston Marsh Substation B and the associated overhead line and underground cable connections. The draft Order Limits for Section 5 have also now been defined, whereas the June 2025 PEI Report was based upon a wider 'Refined Weston Marsh Substation Siting Zone' which covered a greater total area than the Section 5 draft Order Limits.
- 11.1.3 Following the publication of the June 2025 PEI Report, minor updates have been made to the Baseline Conditions (section 11.5) and Preliminary Assessment of Effect (section 11.7) sections of the socio-economics, recreation and tourism chapter to reflect the updated draft Order Limits in Section 5 and the increased design certainty now achieved in Section 5 of the Project.
- 11.1.4 Specifically, the chapter includes the following sections:
- i. An introduction to the topic (section 11.1);
  - ii. Identification of key local and regional policy relevant to the assessment (section 11.2). A full overview of the legislation and national, regional onshore and marine planning policy context that applies to the Project is presented within the **Supplementary PEI Report Volume 2 Part A Chapter 2 Legislative, Regulatory and Planning Policy Context** and supporting appendices;
  - iii. A summary of the assessment scoping process and the subsequent scope of the Socio-economics, recreation and tourism assessment (section 11.3). Further detail is provided within **Supplementary PEI Report Volume 3 Part A Appendix 4A Planning Inspectorate Scoping Opinion Responses**;
  - iv. A high-level summary of the methodology of the Socio-economics, recreation and tourism assessment within Section 5 (section 11.4). A detailed description of the assessment methods and scope, applicable to the whole Project, is contained in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**;

- v. A description of the environmental baseline within the Section 5 Study Area relevant to the Socio-economics, recreation and tourism assessment, updated since publication of the June 2025 PEI Report based upon the Section 5 draft Order Limits (section 11.5);
- vi. A description of mitigation measures included for the purposes of the Socio-economics, recreation and tourism assessment reported within this Supplementary PEI Report (section 11.6). Further information regarding design development can be found in **Supplementary PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered** and the **Supplementary Design Development Report for Section 5**;
- vii. The likely significant and non-significant Socio-economics, recreation and tourism effects arising during construction and operation of the Project within Section 5, based upon the assessment completed to date (section 11.7); and
- viii. An outline of the proposed monitoring requirements in relation to Socio-economics, recreation and tourism (section 11.8).

11.1.5 Further supporting information is set out in **Table 11.1** below, including supporting figures and technical appendices.

Table 11.1 Supporting documentation

| Supporting Information                                                                                           | Description                                                                                                                                                                                                                                                          |
|------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Topic Specific Supporting Documentation</b>                                                                   |                                                                                                                                                                                                                                                                      |
| <b>Supplementary PEI Report Volume 2 Part B Section 5 Figures</b>                                                | <b>Figure 11.1 Local Business Receptors and Community Facilities Within the Study Area</b><br><b>Figure 11.2 Development Land Allocations and Open Space Within the Study Area</b><br><b>Figure 11.3 PRow and Promoted/Recreational Routes Within the Study Area</b> |
| <b>Project Supporting Documentation</b>                                                                          |                                                                                                                                                                                                                                                                      |
| <b>Supplementary PEI Report Volume 2 Part B Chapter 1 Overview of the Section and Description of the Project</b> | A summary of the works within Section 5, including the permanent infrastructure, temporary construction works, and operational activities.                                                                                                                           |
| <b>Supplementary PEI Report Volume 3 Part A Appendix 2A Key Legislation</b>                                      | A list of identified environmental legislation considered relevant to the Project, which will be updated and amended as required to inform the Environmental Statement (ES).                                                                                         |
| <b>Supplementary PEI Report Volume 3 Part A Appendix 2B National and Regional Planning Policy</b>                | A list of national and regional policies generally applicable to the assessment principles which underpin the June 2025 PEI Report, Supplementary PEI Report and ES.                                                                                                 |

| Supporting Information                                                                                      | Description                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Supplementary PEI Report Volume 3 Part A Appendix 2C Local Plan Policy</b>                               | An outline of the potentially relevant local planning policy allocations affecting Section 5 of the Project.                                                                                                                                            |
| <b>Supplementary PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered</b>                      | A summary of the main alternatives considered during the design development process which are relevant to Section 5 of the Project, including the main reasons for selecting the chosen option.                                                         |
| <b>Supplementary PEI Report Volume 2 Part A Chapter 4 Approach to Preliminary Environmental Information</b> | Sets out the Environmental Impact Assessment (EIA) approach and general methodology that has been used in developing the Supplementary PEI Report for Section 5 of the Project.                                                                         |
| <b>Supplementary PEI Report Volume 2 Part A Chapter 5 Project Description</b>                               | An overarching description of the Project and its key components, including updated design and construction information relating to Section 5.                                                                                                          |
| <b>Supplementary PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice</b>       | Sets out control and management measures that will be undertaken during construction of the Project if granted consent. The final Code of Construction Practice (CoCP) will be submitted in support of the Development Consent Order (DCO) application. |

- 11.1.6 There are also interrelationships related to the potential effects on Socio-economics, recreation and tourism and other environmental topics. Therefore, please also refer to the following chapters within the **Supplementary PEI Report Volume 2 Part B** and **Part C**:
- i. **Supplementary PEI Report Volume 2 Part B Chapter 3 Visual**, should be consulted in relation to amenity effects on users of Public Rights of Way (PRoWs) and promoted/recreational routes.
  - ii. **Supplementary PEI Report Volume 2 Part B Chapter 8 Agriculture and Soils**, in regard to effects on agricultural landholdings.
  - iii. **Supplementary PEI Report Volume 2 Part B Chapter 9 Traffic and Movement**, should be consulted in relation to impacts on access, users of PRoWs and promoted/recreational routes.
  - iv. **Supplementary PEI Report Volume 2 Part B Chapter 10 Noise and Vibration**, should be consulted in relation to effects on noise and vibration sensitive receptors. This includes residential and community receptors, local businesses, and users of PRoWs and promoted/recreational routes.
  - v. **Supplementary PEI Report Volume 2 Part B Chapter 12 Air Quality**, should be consulted in relation to effects on residential and community receptors, and local businesses.

- vi. **Supplementary PEI Report Volume 2 Part B Chapter 13 Summary** provides a concise, consolidated summary of the likely significant effects reported for all topics, based upon the preliminary assessment.
- vii. **Supplementary PEI Report Volume 2 Part C Route-wide Assessment Chapter 6 Socio-economics, recreation and tourism**, should be consulted in relation to the assessment of impact on affected communities, the labour market and effects on tourism bedspaces, and strategic visitor attractions.
- viii. **Supplementary PEI Report Volume 2 Part C Route-wide Assessment Chapter 7 Health and Wellbeing**, should be consulted in relation to the indirect amenity effects on population and users of PRoWs and promoted/recreational routes.
- ix. **Supplementary PEI Report Volume 2 Part C Route-wide Assessment Chapter 9 Cumulative Effects** reports those intra-project effects which could potentially act in combination to result in cumulative environmental effects. It also identifies a shortlist of other Committed Developments with which there may be potential for cumulative effects, and the relevant environmental topics for such effects (inter-project). The full cumulative effects assessment will be reported within the ES.

## 11.2 Legislation and Policy Framework

- 11.2.1 Legislation and national policy relevant to the Project and this chapter is described in **Supplementary PEI Report Volume 2 Part A Chapter 2 Legislative, Regulatory and Planning Policy Context** and supporting appendices, the details of which are set out in **Table 11.1**.

### Regional and Local Policy

- 11.2.2 Regional and local plans or policies relevant to this assessment are as follows.
  - i. South East Lincolnshire Local Plan (Ref 2):
    - Policy 7 Improving South East Lincolnshire's Employment Land Portfolio – stipulates that the Council supports proposals which enhance the region's employment land portfolio to promote economic prosperity and job creation. It focuses on achieving employment targets across various employment classes within different districts;
    - Policy 8 Prestige Employment Sites – identifies employment locations within the plan area and outlines key development principles, to ensure delivery of a mix of employment opportunities that include the target sector of the tourism economy; and
    - Policy 9 Promoting a Strong Visitor Economy – sets out that the Council will support tourism in South East Lincolnshire and promote developments that enhance the local economy, communities and visitors.
  - ii. Lincolnshire Minerals and Waste Local Plan (Ref 3):
    - Lincolnshire Minerals and Waste Local Plan: Core Strategy and Development Management Policies; and Site Locations – which outlines the principles and locations for the future working of minerals and the form of waste management,

of which may affect the construction employment supply chain (availability and processing of materials and waste) and movements of construction vehicles; and

## 11.3 Scope of Assessment

- 11.3.1 The scope of the assessment has been informed by the Scoping Opinion (Ref 4) provided by the Planning Inspectorate in September 2024 on behalf of the Secretary of State, following the submission of the EIA Scoping Report (Ref 5). The scope has also been informed through consultation and engagement with relevant consultees. A summary of the Scoping Opinion together with a response against each point of relevance to the Socio-economic, recreation and tourism chapter is provided in **Supplementary PEI Report Volume 3 Part A Appendix 4A Planning Inspectorate Scoping Opinion Responses**. A summary of the stakeholder engagement undertaken to date is provided in **Supplementary PEI Report Volume 3 Part A Appendix 4D Summary of Stakeholder Engagement**.
- 11.3.2 Non-statutory consultation feedback was discussed within the Grimsby to Walpole Stage 1 Consultation Feedback Report (Ref 6). Stage 2 Consultation Feedback relevant to Section 5 is discussed within the **Grimsby to Walpole Section 5 Consultation Feedback Report**.
- 11.3.3 The scope of the construction assessment covers the following receptor groups:
- i. Local businesses;
  - ii. Development land;
  - iii. Community facilities;
  - iv. Open space;
  - v. Users of PRoWs and promoted/recreational routes; and
  - vi. Aviation.
- 11.3.4 Where effects may be felt regionally, such as those relating to the labour market (including employment, supply chain effects, training and apprenticeship opportunities, as well as any impact on tourism bedspace from the construction workforce), affected communities (local communities including populations of towns and villages) and strategic visitor attractions that are of importance to the economy during construction, this is considered in **Supplementary PEI Report Volume 2 Part C Route-Wide Chapter 6 Socio-economics, recreation and tourism**.
- 11.3.5 As outlined in the Scoping Report (Ref 5), the effects of the Project's operation and maintenance phases on the receptor groups outlined above are not likely to give rise to significant effects and are therefore scoped out of the assessment. However, acknowledging the Scoping Opinion (Ref 4), where significant effects have the potential to be felt, this is reported on as appropriate.

## 11.4 Assessment Methodology

- 11.4.1 The assessment scope, methodology, relevant guidance, key assumptions and limitations for the Socio-economics, recreation and tourism assessment are set out in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**. This includes a description of how



receptor sensitivity, magnitude of impact and significance of effects are all described and assigned to the assessment. A summary of the key components are outlined below.

- 11.4.2 There is limited technical guidance available for Socio-economic, recreation and tourism assessments. As such, the methodology for assessing impacts has followed standard EIA guidance and entails:
- i. assessment of the likely scale, permanence and significance of effects associated with Socio-economics, recreation and tourism receptors; and
  - ii. an assessment of the potential cumulative impacts with other projects within the surrounding area.

## Assessment Assumptions and Limitations

- 11.4.3 All general assumptions and limitations for the topic are listed within **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**. There are no additional limitations and assumptions that have been identified which are specific to the assessment of Section 5.
- 11.4.4 The key parameters and assumptions which inform the assessment will be reviewed based on the design presented in the DCO application and, where required, updated, or refined, for the ES. The ES will present the final key limitations and assumptions applicable to the full assessment, particularly drawing attention to any areas that may have changed from that presented in this preliminary assessment.

## 11.5 Baseline Conditions

### Study Area

- 11.5.1 The Study Area for the assessment of Socio-economic, recreation and tourism effects varies dependent on the likely spatial extent of the effect under consideration, as per the Scoping Opinion (Ref 4).
- 11.5.2 The proposed Study Areas for Section 5 is shown on:
- i. **Supplementary PEI Report Volume 2 Part B Section 5 Figure 11.1 Local Business Receptors and Community Facilities Within the Study Area;**
  - ii. **Supplementary PEI Report Volume 2 Part B Section 5 Figure 11.2 Development Land Allocations and Open Space Within the Study Area;** and
  - iii. **Supplementary PEI Report Volume 2 Part B Section 5 Figure 11.3 PRoW and Promoted/Recreational Routes Within the Study Area.**
- 11.5.3 Professional judgement has been applied to determine the Study Area for each receptor type and is consistent with other similar linear nationally significant infrastructure projects.
- 11.5.4 **Table 11.2** below summarises the Study Areas considered for each receptor type that are considered within this Chapter.

Table 11.2 Study Areas

| Receptor Type                                            | Study Area                                            |
|----------------------------------------------------------|-------------------------------------------------------|
| Local businesses – Indirect effects                      | Within 500 m of the draft Order Limits                |
| Development land – Direct effects                        | Within the draft Order Limits                         |
| Development land – Indirect effects                      | Within 500 m of the draft Order Limits                |
| Community facilities – Indirect effects                  | Within 500 m of the draft Order Limits                |
| Open space – Direct effects                              | Within the draft Order Limits                         |
| Open space – Indirect effects                            | Within 500 m of the draft Order Limits                |
| Users of PRow of local significance – Direct effects     | Within the draft Order Limits                         |
| Users of PRow of local significance – Indirect effects   | Within 500 m of the draft Order Limits                |
| Users of promoted/recreational routes – Direct effects   | Within the draft Order Limits                         |
| Users of promoted/recreational routes – Indirect effects | Within 500 m of the draft Order Limits                |
| Aviation – Indirect effects                              | Within 5 km from the centre of the draft Order Limits |

- 11.5.5 For the purposes of this assessment, direct effects can be defined as that involve loss or severance of land and property. Indirect effects can be defined as impacts on the environment as a result of the Project. For example, a change in a persons' experience of a place.
- 11.5.6 The local labour market, effects on the construction workforce and tourism bed spaces, affected communities and strategic visitor attractions will be considered as part of the **Supplementary PEI Report Volume 2 Part C Route-wide Chapter 6 Socio-economics, recreation and tourism**, owing to the nature of the impacts which will be felt at a regional level.

## Data Collection

- 11.5.7 The following data has been used to inform the baseline conditions:
- South East Lincolnshire Council Local Plan (Ref 2);
  - Lincolnshire County Council Minerals and Waste Local Plan (Ref 3);
  - Central Lincolnshire Local Plan (Ref 7);
  - Ordnance Survey (OS) Open Greenspace (Ref 8);
  - OS Local Important Buildings (Ref 9);
  - OS AddressBase (Ref 10);

- vii. Traffic count data from surveys undertaken by Traffic and Movement, which include pedestrians, cyclists and equestrians;
- viii. Designated non-motorised user (NMU) routes and PRowS from Sustrans (Ref 11 and Ref 12);
- ix. Lincolnshire County Council definitive maps (Ref 13); and
- x. Weston Parish definitive maps (Ref 14).

## Existing Baseline

- 11.5.8 The following section outlines the Socio-economics, recreation and tourism baseline. The baseline section should be read in conjunction with the following supporting Figures as found within **Supplementary PEI Report Volume 2**:
- i. **Supplementary PEI Report Volume 2 Part B Section 5 Figure 11.1 Local Business Receptors and Community Facilities Within the Study Area;**
  - ii. **Supplementary PEI Report Volume 2 Part B Section 5 Figure 11.2 Development Land Allocations and Open Space Within the Study Area;** and
  - iii. **Supplementary PEI Report Volume 2 Part B Section 5 Figure 11.3 PRow and Promoted/Recreational Routes Within the Study Area.**

## Local Businesses

- 11.5.9 The local businesses in this area possess some economic value, with potential for substitution, and as such are assigned a Medium sensitivity. However, some assets are considered to have a Low sensitivity as they are not likely to incur any loss or gain from changes in the environment.
- 11.5.10 It is acknowledged that Wool Hall Farm, a receptor identified in the June 2025 PEI Report Volume 2 Part B Section 6 Chapter 11 Socio-economics, recreation and tourism (Ref 15), has an office building that sits within the Section 5 Study Area and is therefore identified in **Table 11.3** below. However, to avoid double counting of effects, the business as a whole is considered within the June 2025 PEI Report Volume 2 Part B Section 6 Chapter 11 Socio-economics, recreation and tourism (Ref 15) and is not considered again in this document.
- 11.5.11 It is also acknowledged that Wigwam Holidays also hosts a tennis court, which would be considered a community facility. However, to avoid double counting of effects, the business as a whole is considered within **Table 11.3** below.
- 11.5.12 **Table 11.3** below identifies the local businesses, including tourist accommodation that operate as businesses, which fall within the Study Area. These are also shown on **Supplementary PEI Report Volume 2 Part B Section 5 Figure 11.1 Local Business Receptors and Community Facilities Within the Study Area.**

Table 11.3 Local businesses within the Study Area

| Receptor        | Description                                                                     | Sensitivity |
|-----------------|---------------------------------------------------------------------------------|-------------|
| Wigwam Holidays | At its closest point, this receptor is approximately 135 m from the draft Order | Medium      |

| Receptor                                                                                                 | Description                                                                                                                              | Sensitivity |
|----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|-------------|
|                                                                                                          | Limits. The receptor is situated along Marsh Road.                                                                                       |             |
| Ball Colegrave Ltd (Horticultural Company)                                                               | At its closest point, this receptor is approximately 90 m from the draft Order Limits. The receptor is situated along Marsh Road.        | Medium      |
| Wool Hall Farm Office Building                                                                           | At its closest point, this receptor is approximately 270 m from the draft Order Limits. This receptor is located along Runway.           | Low         |
| Flamingo Flowers Ltd                                                                                     | At its closest point, this receptor is approximately 300 m from the draft Order Limits. This receptor is situated along Stone Gate.      | Medium      |
| Industrial estate, including a collection of businesses including EMG Motor Group and Westfalia Fruit UK | At their closest point, these receptors are approximately 220 m from the draft Order Limits. These receptors are situated on Apex Court. | Medium      |

### Development Land

- 11.5.13 For the purposes of assessment, 'development land' includes existing and proposed land used for above ground renewable energy generation (solar and onshore wind farms), alongside development land allocations set out in local planning policy.
- 11.5.14 **Table 11.4** below describes key development land allocations and above-ground renewable energy generation infrastructure (solar and onshore wind farms) which fall within the Study Area. These are also shown on **Supplementary PEI Report Volume 2 Part B Section 5 Figure 11.2 Development Land Allocations and Open Space Within the Study Area**.
- 11.5.15 Generally, the allocations are strategic in nature and are therefore considered to have limited potential for substitution. As such they are considered to have a High sensitivity.

Table 11.4 Development land allocations within the Study Area

| Local authority area               | Receptor                         | Description                                                                                                                                                                                                                            | Sensitivity |
|------------------------------------|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| South East Lincolnshire Local Plan | Lingarden Employment Site- WE001 | Established Employment Site (WE001) in Weston of which 5.58 ha is protected for new B1, B2 and B8 development or B1, B2 and B8 redevelopment. At its closest point, the allocation is approximately 105 m from the draft Order Limits. | High        |

| Local authority area               | Receptor                           | Description                                                                                                                                                                                                       | Sensitivity |
|------------------------------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| South East Lincolnshire Local Plan | Housing Allocation – WSN022        | Housing Allocation site area of 3.88 ha, total capacity yield of 60 dwellings, to the south of High Road. At its closest point, the allocation is approximately 420 m from the draft Order Limits.                | High        |
| South East Lincolnshire Local Plan | Weston Housing Allocation - WSN003 | Weston Housing Allocation site area of 6.1 ha, total capacity yield of 135 dwellings, to the north of High Road, Weston. At its closest point, the allocation is approximately 260 m from the draft Order Limits. | High        |
| South East Lincolnshire Local Plan | Weston Housing Allocation – WSN029 | Weston Housing Allocation site area of 2.83 ha, total capacity yield of 57 dwellings, off High Road, Weston. At its closest point, the allocation is approximately 235 m from the draft Order Limits.             | High        |

### Community Facilities

- 11.5.16 **Table 11.5** below identifies the community facilities which fall within the Study Area. These are also shown on **Supplementary PEI Report Volume 2 Part B Section 5 Figure 11.1 Local Business Receptors and Community Facilities Within the Study Area**.
- 11.5.17 Generally, the community facilities have some social and/or community value and would likely have limited potential for substitution in the immediately surrounding area, and as such should be considered to have a High sensitivity. The exceptions to this are the Post Offices situated on Small Drove. These receptors are considered to have a Medium sensitivity because there is some potential for substitution of these facilities.

Table 11.5 Community facilities within the Study Area

| Receptor           | Description                                                                                                                         | Sensitivity |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------|-------------|
| Weston Post Office | At its closest point, this receptor is approximately 470 m from the draft Order Limits. The receptor is situated along Small Drove. | Medium      |
| St Marys Church    | At its closest point, this receptor is approximately 380 m from the draft Order Limits. The receptor is situated along High Road.   | High        |
| Wykeham Chapel     | At its closest point, this receptor is approximately 180 m from the draft Order Limits. This receptor is situated along The Chase.  | High        |

| Receptor                  | Description                                                                                                                              | Sensitivity |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| Wykeham Abbey             | At its closest point, this receptor is approximately 180 m from the draft Order Limits. This receptor is situated along The Chase.       | High        |
| Sunflower Lodge Childcare | At its closest point, this receptor is approximately 340 m from the draft Order Limits. This receptor is situated along Apex Court.      | High        |
| Pinchbeck Engine Museum   | At its closest point, this receptor is approximately 450 m from the draft Order Limits. This receptor is situated along West Marsh Road. | High        |

### Open Space

- 11.5.18 Open space, which includes all open space of public value, can take many forms, from formal sports pitches to open areas within a development, linear corridors and country parks (Ref 16).
- 11.5.19 Areas of open space within the Study Area that are either allocated via the relevant local development plan or recognised as an area of green space by local communities are shown on **Supplementary PEI Report Volume 2 Part B Section 5 Figure 11.2 Development Land Allocations and Open Space Within the Study Area**.
- 11.5.20 It is noted that the Land at St Marys Church is considered to be an open space. However, this area of land, forms part of the religious ground (church) which has been considered as a community facility. As such, this area of open space has not been assessed separately to avoid double counting.
- 11.5.21 It is also acknowledged that Wigwam Holidays also hosts a Tennis Court which is considered to be an open space. However, as this area of land forms part of the business facility, it has been considered as a local business and has therefore not been assessed separately to avoid double counting.

### Users of Public Rights of Way (PRoW) and Promoted/Recreational Routes

- 11.5.22 This section of the baseline considers people using PRoWs for walking, wheeling, cycling and horse riding. PRoWs have the same legal status and protection as highways and remain in existence until legally closed, diverted or extinguished. The PRoWs within the Study Area are shown on **Supplementary PEI Report Volume 2 Part B Section 5 Figure 11.3 PRoW and Promoted/Recreational Routes Within the Study Area**.
- 11.5.23 Promoted/recreational routes generally involve national cycle routes, the local cycle network, long-distance paths and national trails, which have also been identified within the Study Area. These have also been identified through the use of Lincolnshire County Council (Ref 13) and Weston Parish (Ref 14) definitive maps, and desk-top research. Such routes, paths and trails generally follow alignments utilising combinations of PRoW.
- 11.5.24 PRoWs are typically considered as:
- Public footpaths, open to walkers only;



- ii. Public bridleways, open to walkers, cyclists and horse-riders;
  - iii. Restricted byways, open to walkers, cyclists, horse-riders, and drivers and riders of non-mechanically propelled vehicles (such as horse-drawn carriages); and
  - iv. Byways open to all traffic (BOATs), open to all including motor vehicles.
- 11.5.25 People using wheelchairs or mobility scooters can use all of the above designations.
- 11.5.26 Considering the potential sensitivity of these receptors, generally:
- i. National trails have a very high sensitivity because they are likely to be used for both commuting and recreational purposes, with daily/frequent use and the route has limited potential for substitution;
  - ii. Other promoted/recreational routes have a high sensitivity because they are likely to be well signed long distance/regional trails used daily/frequently for recreation; and
  - iii. Bridleways, footpaths, restricted byways and byways open to all traffic (BOATs) have a medium or low sensitivity because of their value to communities and subject to available alternative routes.
- 11.5.27 Relevant transport surveys are ongoing, which are reported in **Supplementary PEI Report Volume 2 Part B Chapter 9 Traffic and Movement**. At ES stage survey results will help further inform the consideration of sensitivity of routes by providing information about usage and condition, which are relevant to determining value and potential for substitution.
- 11.5.28 **Table 11.6** identifies the PRow and promoted/recreational routes in this Section by local authority area, its unique reference number relevant to the local authority definitive map(s), its proximity to the Project and its sensitivity. It should be noted that some PRow and recreational routes cross Section boundaries and they are reported within each of the Sections they are present within. To avoid the double counting of likely significant effects, where practicable, a receptor will only be assessed within the Section where there is the most adverse effect. Preliminary effects upon PRowS during construction of the Project in Section 5 are assessed within **Supplementary PEI Report Volume 2 Part B Chapter 9 Traffic and Movement**.

Table 11.6 PRow and promoted/recreational routes within the Study Area

| Parish area                         | Receptor                                    | Description                                                                                                                                                                   | Sensitivity |
|-------------------------------------|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| <b>Promoted/recreational routes</b> |                                             |                                                                                                                                                                               |             |
| N/A                                 | MacMillan Way                               | This receptor is a long-distance footpath that links Boston to Abbotsbury in Dorset. The route interacts with the draft Order Limits. The route is 290 miles in total length. | High        |
| <b>Lincolnshire Country Council</b> |                                             |                                                                                                                                                                               |             |
| Surfleet Civil Parish               | 3 BOATs:<br>Surf/3/4, Surf/3/3,<br>Surf/3/2 | There are 3 BOATs and 1 public bridleway located within the Surfleet Civil Parish which interact with the draft Order Limits.                                                 | Medium      |



| Parish area               | Receptor                                                                                             | Description                                                                                                                                                | Sensitivity |
|---------------------------|------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
|                           | 1 public bridleway:<br>Surf/8/2                                                                      |                                                                                                                                                            |             |
| Spalding Civil Parish     | 2 public bridleways:<br>Spal/14/1 and Spal/14/2,                                                     | There are 2 public bridleways within the Spalding Civil Parish that are located within the Study Area and do not interact with the draft Order Limits.     | Medium      |
| The Moultons Civil Parish | 1 public footpath:<br>Moul/2/1                                                                       | There is 1 public footpath located within the Moultons Civil Parish and that interacts with the draft Order Limits.                                        | Medium      |
| Moultons Civil Parish     | 1 public footpath:<br>Moul/2/2                                                                       | There is 1 public footpath located within the Moultons Civil Parish that is located within the Study Area and do not interact with the draft Order Limits. | Medium      |
| Weston Civil Parish       | 1 public bridleway:<br>Wstn/6/2<br><br>3 public footpaths:<br>Wstn/7/1,<br>Wstn/8/1, and<br>Wstn/3/1 | There is 1 public bridleway and 3 public footpaths that are located within the Weston Civil Parish and interact with the draft Order Limits.               | Medium      |
| Weston Civil Parish       | 1 public bridleway:<br>Wstn/6/1                                                                      | There is 1 public bridleway that within the Weston Civil Parish that are located within the Study Area and do not interact with the draft Order Limits.    | Medium      |

## Aviation

- 11.5.29 This assessment has identified no airfields within 5 km of the centre of the draft Order Limits.

## Future Baseline

- 11.5.30 The future baseline relates to known or foreseeable changes to the current baseline in the future, against which the effects of the Project during construction and operation are assessed. Specifically, it accounts for anticipated changes including those caused by changing climatic conditions, policy, legislation, advances in technology and by other confirmed development projects which will be complete prior to construction of the Project.
- 11.5.31 At this preliminary stage, a full assessment of the implications of any confirmed development projects with regard to future baseline conditions has not been undertaken. A list of the currently known developments which are anticipated to be included within the future baseline scenario is provided within **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope Annex A Developments for Consideration Within the Future Baseline**. This will be reviewed and updated as appropriate during development of the ES, as with other information which informs assessment of the future baseline.

- 11.5.32 Population projections relevant to the local labour market and affected communities is considered as part of **Supplementary Volume 2 Part C Route-wide Chapter 6 Socio-economics, recreation and tourism**, owing to the nature of the impacts which will be felt at a regional level.
- 11.5.33 The Spalding PV and Battery Energy Storage System (BESS) is a proposed development situated partly within the Study Area of Section 5, with a high sensitivity. It is also located within Section 4 New Lincolnshire Connection Substation B to New Weston Marsh Substations A and B (Section 4 of the Project) but as it is located primarily within draft Order Limits for Section 5, it is considered within this report.

## 11.6 Design, Control and Additional Mitigation Measures

### Design Mitigation Measures

- 11.6.1 The Project is being designed to avoid sensitive receptors as far as practicable. This is in accordance with the 'Holford Rules' (Ref 17) applicable to routing of new overhead lines and the 'Horlock Rules' (Ref 18) which apply to design and siting of substations. These approaches are explained in further detail within the Corridor Preliminary Routeing and Siting Study (CPRSS) (Ref 1) and **Supplementary PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered**. Principles include, but are not limited to, seeking to avoid areas of highest amenity, cultural or scientific value, taking advantage of natural screening provided by existing landform and features (e.g. woodland) and keeping visual, noise and other environmental effects to a minimum.
- 11.6.2 Following selection of the preferred route corridor, environmental specialists have been integral to ongoing design refinement of works within Section 5. This has and will continue to contribute to the avoidance or reduction of the potential environmental impacts of the Project as the design is finalised.

### Control Mitigation Measures

#### Construction

- 11.6.3 A Preliminary CoCP is provided in **Supplementary PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice**. The control measures included within the Preliminary CoCP relevant to the Socio-economic, recreation and tourism assessment of Section 5 are the same as those presented in June 2025 PEI Report Volume 2 Part B Section 5 Chapter 11 Socioeconomics, recreation and tourism (Ref 15) and include:
- i. TT02: All affected PRowWs will be identified, and any potential permanent or temporary closures detailed in the DCO. All designated PRowWs crossing the working area will be managed with access only closed for periods while construction activities occur. Any required diversions will be clearly marked at both ends with signage explaining the diversion, the duration of the diversion and a contact number for any concerns and will be subject to a Public Right of Way Management Plan (PRowWMP). PRowWs crossing the working areas will be managed in discussion with the relevant local authorities and potential temporary closures applied for discussed with the relevant local authority. Access disruption would be reduced as reasonably practicable while construction activities occur.

- ii. NV01: Construction working will be undertaken within the agreed working hours set out within the DCO unless the works are under an exception to the set working hours in which case they will be carried out in a manner that minimises noise and vibration at all times. Best practicable means to reduce construction noise will be set out within the CEMP.
- iii. GG08: Land used temporarily will be reinstated where practicable to its pre-construction condition (including Agricultural Land Classification (ALC) grade) and use. Hedgerows, fences, and walls (including associated earthworks and boundary features) will be reinstated to a similar style and quality to those that were removed, in consultation with the landowner.
- iv. GG11: Any activity carried out or equipment located within a construction compound that may produce a noticeable nuisance, including but not limited to dust, noise, vibration and lighting, will be located away from sensitive receptors such as residential properties or ecological sites where practicable.

## Additional Mitigation Measures

- 11.6.4 Additional mitigation measures are those required to reduce likely significant adverse environmental effects which may still occur despite the inclusion of the embedded design and control measures described above.
- 11.6.5 Additional mitigation measures are not anticipated to be required in relation to Socio-economics, recreation and tourism effects. However, this will remain under review during the completion of further assessment and development of the ES.

## 11.7 Preliminary Assessment of Effects

- 11.7.1 The following section presents the findings of the preliminary assessment of effects upon the receptors, identified within the Study Area, as a result of construction, operation and/or maintenance activities within Section 5.
- 11.7.1 The preliminary assessment of effects reported below take into account the Design and Control mitigation measures as previously described.
- 11.7.2 For a summary of the likely significant effects please refer to **Supplementary PEI Report Volume 2 Part B Chapter 13 Summary**. A supplementary summary of all non-significant effects is also included in **Table 11.7**, based upon the assessment scope detailed in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.
- 11.7.3 This Supplementary PEI Report has assumed that following the implementation of all Design, Control and Mitigation Measures there is unlikely to be a significant intra-project cumulative effect upon the amenity value of any Socio-economic, recreation and tourism receptors. This will be reviewed and updated accordingly at ES stage.
- 11.7.4 It is noted that this is an ongoing assessment and is subject to change due to the ongoing design development of the Project, statutory consultation feedback and further stakeholder engagement. A full detailed assessment will be included within the ES submitted with the DCO application.

## Likely Significant Effects

### Construction, operation and maintenance

- 11.7.5 No likely significant Socio-economic, recreation and tourism effects are expected as a result of the construction or the operation and maintenance of the Project within Section 5.

## Likely Non-Significant Effects

### Construction

- 11.7.6 For completeness, **Table 11.7** summarises the findings of the preliminary assessment with respect to those impacts that are not predicted to result in significant Socio-economic, recreation and tourism effects.
- 11.7.7 As outlined in the Scoping Report (Ref 5), the effects of the Project's operation and maintenance phases of the receptor groups outlined in **Table 11.2** are not likely to give rise to significant effects and are therefore scoped out of the assessment. However, acknowledging the Scoping Opinion (Ref 4) and the request to report on significant effects resulting from the Projects operation and maintenance phases where they do arise, National Grid has considered this as part of this assessment.
- 11.7.8 Owing to the nature of the operational and maintenance phases of the Project and acknowledging the mitigation that will be in place to ensure continued access to PRoWs or promoted recreational routes, it is considered that there would be a negligible impact on all receptors assessed as part of Section 5. This is due to the fact that access will be maintained or reinstated for all receptors during construction of the Project, and amenity impacts will be minimised through the implementation of mitigation.
- 11.7.9 An assessment of the direct effects of the Project on users of PRoW and promoted recreational routes in relation to diversions, closures and management measures will be presented at ES stage in the Traffic and Movement ES chapter. At ES stage, the Socio-economics, recreation and tourism assessment will also consider the in-combination effects of any proposed diversions and/or closures and changes to amenity value resulting from noise, visual and air quality impacts. The likely significance of effects will be determined at ES stage when the necessary information from all relevant topic specialists is available and confirmed, to help inform determination of the receptors' magnitude of change.

Table 11.7 Preliminary summary of non-significant Socio-economic, recreation and tourism effects – Section 5

| Receptor                                               | Impact                                                                                                                                                                                                                                                                                                                                                                         | Sensitivity/Importance/Value of Receptor | Magnitude of Change | Significance                   | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|---------------------|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Local businesses</b>                                |                                                                                                                                                                                                                                                                                                                                                                                |                                          |                     |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Wigwam Holidays, Marsh Road                            | At its closest point, this receptor is approximately 135 m from the draft Order Limits. This receptor will be indirectly impacted by works to construction new line entries, modify the existing overhead line. Other indirect effects may be felt from an indicative stringing area for the LW route, and the provision of a visibility splay to support construction access. | Medium                                   | Small, adverse      | Minor adverse, not significant | It is considered that this receptor possesses some economic value and has potential for substitution. It has therefore been assigned a Medium sensitivity. It is anticipated that there would be a Small change likely given the proximity of this receptor to construction works. However, it is unlikely to impact the viability of the receptor's operations, and it is further assumed that access would be maintained at all times. Additionally, the most southeastern point of this receptor, closest to the proposed visibility splay, will be screened by proposed environmental mitigation. |
| Ball Colegrave Ltd (Horticultural Company), Marsh Road | At its closest point, this receptor is located approximately 90 m from the draft Order Limits. This receptor will be indirectly                                                                                                                                                                                                                                                | Medium                                   | Small, adverse      | Minor adverse, not significant | It is considered that this receptor possesses some economic value and has potential for substitution. It has therefore been                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

| Receptor                               | Impact                                                                                                                                                                                                                                                                                                                                                                                                                           | Sensitivity/Importance/Value of Receptor | Magnitude of Change | Significance                   | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|---------------------|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                        | impacted by works to an indicative stringing position, SuDS basins and outfall pipes. It is located approximately 260 m from the new Weston Marsh Substation B and is likely to also be indirectly affected from the construction of this, and the proposed construction compound adjacent. It may also experience visual amenity impacts resulting from a new lattice pylon and gantries, in addition to the new overhead line. |                                          |                     |                                | assigned a Medium sensitivity. It is anticipated that there would be a Small change likely given this receptors proximity construction works. However, it is unlikely to impact the viability of its operations, and it is further assumed that access would be maintained at all times. Additionally, this receptor will be in part, screened from the construction and operation of the new Weston Marsh Substation B and the associated construction compound owing to environmental mitigation measures. |
| Wool Hall Farm Office Building, Runway | At its closest point, this receptor is located approximately 270 m from the draft Order Limits. This receptor will be indirectly affected by an indicative stringing area and proposed construction trackway. It is also located approximately 290 m from an indicative stringing area and SuDS basin.                                                                                                                           | Medium                                   | Small, adverse      | Minor adverse, not significant | It is considered that this receptor possesses some economic value and has potential for substitution. It has therefore been assigned a Medium sensitivity. It is anticipated that there would be a Small change likely given this receptors proximity construction works. However, it is unlikely to                                                                                                                                                                                                         |

| Receptor                                                                                                             | Impact                                                                                                                                                                                                                                   | Sensitivity/Importance/Value of Receptor | Magnitude of Change | Significance                   | Rationale                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|---------------------|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                      |                                                                                                                                                                                                                                          |                                          |                     |                                | impact the viability of its operations, and it is further assumed that access would be maintained at all times.                                                                                                                                                                                                                                                                                                      |
| Flamingo Flowers Ltd, Stone Gate                                                                                     | At its closest point, this receptor is approximately 300 m from the draft Order Limits. This receptor will feel a visual amenity impact owing to the placement of two new lattice pylons and overhead line.                              | Medium                                   | Small, adverse      | Minor adverse, not significant | It is considered that this receptor possesses some economic value and has potential for substitution. It has therefore been assigned a Medium sensitivity. It is anticipated that there would be a Small change likely given this receptors proximity construction works. However, it is unlikely to impact the viability of its operations, and it is further assumed that access would be maintained at all times. |
| Industrial estate, including a collection of businesses including EMG Motor Group and Westfalia Fruit UK, Apex Court | At their closest point, these receptors are approximately 220 m from the draft Order Limits. This group of receptors will be indirectly affected by the placement of environmental mitigation and the proposed access track to the area. | Medium                                   | Negligible, adverse | Minor adverse, not significant | It is considered that these receptors possess some economic value and has potential for substitution. They have therefore been assigned a Medium sensitivity. It is anticipated that there would be a Negligible change likely given these receptors                                                                                                                                                                 |



| Receptor                                                               | Impact                                                                                                                                                                                                                                                                                                                                                    | Sensitivity/Importance/Value of Receptor | Magnitude of Change | Significance                   | Rationale                                                                                                                                                                                                                                                                                                                      |
|------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|---------------------|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                        |                                                                                                                                                                                                                                                                                                                                                           |                                          |                     |                                | proximity to environmental mitigation works only. This work is unlikely to impact the viability of its operations, and it is further assumed that access would be maintained at all times.                                                                                                                                     |
| <b>Development land allocations</b>                                    |                                                                                                                                                                                                                                                                                                                                                           |                                          |                     |                                |                                                                                                                                                                                                                                                                                                                                |
| South East Lincolnshire Local Plan – Lingarden Employment Site (WE001) | At its closest point, the allocation is approximately 105 m from the draft Order Limits. This receptor will be indirectly affected by the use of Stone Gate as a construction access route to facilitate an indicative stringing area. This receptor will also experience a visual amenity impact owing to indicative towers to the north and north west. | High                                     | Small, adverse      | Minor adverse, not significant | Development land allocations are strategic in nature and are therefore considered to have limited potential for substitution, and as such, have a high sensitivity. It is anticipated that there would be a small change given change in visual amenity value, and it is assumed that access would be maintained at all times. |
| South East Lincolnshire Local Plan – Housing Allocation (WSN022)       | At its closest point, the allocation is approximately 420 m from the draft Order Limits. This receptor will be indirectly affected by the use of                                                                                                                                                                                                          | High                                     | Small, adverse      | Minor adverse, not significant | Development land allocations are strategic in nature and are therefore considered to have limited potential for                                                                                                                                                                                                                |

| Receptor                                                                | Impact                                                                                                                                                                                                                                                                                                                                                    | Sensitivity/Importance/Value of Receptor | Magnitude of Change | Significance                   | Rationale                                                                                                                                                                                                                                                                                                                      |
|-------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|---------------------|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                         | Stone Gate as a construction access route to facilitate an indicative stringing area. This receptor will also experience a visual amenity impact owing to indicative towers to the north and north west.                                                                                                                                                  |                                          |                     |                                | substitution, and as such, have a high sensitivity. It is anticipated that there would be a small change given change in visual amenity value, and it is assumed that access would be maintained at all times.                                                                                                                 |
| South East Lincolnshire Local Plan - Weston Housing Allocation (WSN003) | At its closest point, the allocation is approximately 260 m from the draft Order Limits. This receptor will be indirectly affected by the use of Stone Gate as a construction access route to facilitate an indicative stringing area. This receptor will also experience a visual amenity impact owing to indicative towers to the north and north west. | High                                     | Small, adverse      | Minor adverse, not significant | Development land allocations are strategic in nature and are therefore considered to have limited potential for substitution, and as such, have a high sensitivity. It is anticipated that there would be a small change given change in visual amenity value, and it is assumed that access would be maintained at all times. |
| South East Lincolnshire Local Plan - Weston Housing                     | At its closest point, the allocation is approximately 235 m from the draft Order Limits. This receptor will be indirectly affected by the                                                                                                                                                                                                                 | High                                     | Small, adverse      | Minor adverse, not significant | Development land allocations are strategic in nature and are therefore considered to have                                                                                                                                                                                                                                      |

| Receptor                        | Impact                                                                                                                                                                                                      | Sensitivity/Importance/Value of Receptor | Magnitude of Change | Significance                   | Rationale                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|---------------------|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Allocation (WSN029)             | use of Runway as a construction access route to facilitate an indicative stringing area. This receptor will also experience a visual amenity impact owing to indicative towers to the north and west.       |                                          |                     |                                | limited potential for substitution, and as such, have a high sensitivity. It is anticipated that there would be a small change given change in visual amenity value, and it is assumed that access would be maintained at all times.                                                                                                                                                                                 |
| <b>Community facilities</b>     |                                                                                                                                                                                                             |                                          |                     |                                |                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Weston Post Office, Small Drove | At its closest point, this receptor is approximately 470 m from the draft Order Limits. This receptor will feel a visual amenity impact owing to the placement of two new lattice pylons and overhead line. | Medium                                   | Small, adverse      | Minor adverse, not significant | It is considered that this receptor possesses some economic value and has potential for substitution. It has therefore been assigned a Medium sensitivity. It is anticipated that there would be a Small change likely given this receptors proximity construction works. However, it is unlikely to impact the viability of its operations, and it is further assumed that access would be maintained at all times. |

| Receptor                                    | Impact                                                                                                                                                                                                                                                                                          | Sensitivity/Importance/Value of Receptor | Magnitude of Change | Significance                   | Rationale                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|---------------------|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| St Marys Church (and open space), High Road | At its closest point, this receptor is approximately 380 m from the draft Order Limits.                                                                                                                                                                                                         | High                                     | Small, adverse      | Minor adverse, not significant | Community facilities have some social and/or community value and would likely have limited potential for substitution in the immediate surrounding area and are therefore assigned a high sensitivity. It is anticipated that a small change would be felt, given construction activities in the surrounding areas. It is also assumed that access would be maintained at all times. |
| Wkyeham Chapel, The Chase                   | At its closest point, this receptor is approximately 180 m from the draft Order Limits. This receptor will experience a visual amenity effect resulting from two new pylons. This receptor will also be indirectly affected by a proposed pylon working area, located approximately 340 m away. | High                                     | Small, adverse      | Minor adverse, not significant | Community facilities have some social and/or community value and would likely have limited potential for substitution in the immediate surrounding area and are therefore assigned a high sensitivity. It is                                                                                                                                                                         |

| Receptor                              | Impact                                                                                                                                                                                                                                                                                          | Sensitivity/Importance/Value of Receptor | Magnitude of Change | Significance                   | Rationale                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|---------------------|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                       |                                                                                                                                                                                                                                                                                                 |                                          |                     |                                | anticipated that a small change would be felt, given construction activities in the surrounding areas. It is also assumed that access would be maintained at all times.                                                                                                                                                                                                              |
| Wykeham Abbey, The Chase              | At its closest point, this receptor is approximately 180 m from the draft Order Limits. This receptor will experience a visual amenity effect resulting from two new pylons. This receptor will also be indirectly affected by a proposed pylon working area, located approximately 350 m away. | High                                     | Small, adverse      | Minor adverse, not significant | Community facilities have some social and/or community value and would likely have limited potential for substitution in the immediate surrounding area and are therefore assigned a high sensitivity. It is anticipated that a small change would be felt, given construction activities in the surrounding areas. It is also assumed that access would be maintained at all times. |
| Sunflower Lodge Childcare, Apex Court | At its closest point, this receptor is approximately 350 m from the draft Order                                                                                                                                                                                                                 | High                                     | Negligible, adverse | Minor adverse, not significant | Community facilities have some social and/or community                                                                                                                                                                                                                                                                                                                               |

| Receptor                                 | Impact                                                                                                                                                                                                                    | Sensitivity/Importance/Value of Receptor | Magnitude of Change | Significance                   | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|---------------------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                          | Limits. This receptor will be indirectly affected by the placement of environmental mitigation and the proposed access track to the area.                                                                                 |                                          |                     |                                | value and would likely have limited potential for substitution in the immediate surrounding area and are therefore assigned a high sensitivity. It is anticipated that there would be a Negligible change likely given these receptors proximity to environmental mitigation works only. This work is unlikely to impact the viability of its operations, and it is further assumed that access would be maintained at all times. |
| Pinchbeck Engine Museum, West Marsh Road | At its closest point, this receptor is approximately 440 m from the draft Order Limits. This receptor will be indirectly affected by the placement of environmental mitigation and the proposed access track to the area. | Medium                                   | Negligible, adverse | Minor adverse, not significant | Community facilities have some social and/or community value and would likely have limited potential for substitution in the immediate surrounding area and are therefore assigned a medium sensitivity. It is anticipated that there would be a                                                                                                                                                                                  |

| Receptor | Impact | Sensitivity/Importance/Value of Receptor | Magnitude of Change | Significance | Rationale                                                                                                                                                                                                                                 |
|----------|--------|------------------------------------------|---------------------|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |        |                                          |                     |              | Negligible change likely given these receptors proximity to environmental mitigation works only. This work is unlikely to impact the viability of its operations, and it is further assumed that access would be maintained at all times. |



## **11.8 Monitoring**

- 11.8.1 The control measures set out in section 11.6 will secure a PRowMP as part of the Preliminary CoCP. No further monitoring requirements have been identified at the time of writing over and above this requirement for the Socio-economic, recreation and tourism assessment. This will be reviewed and updated accordingly as part of the ES.

# References

- Ref 1 National Grid Electricity Transmission (2025). Grimsby to Walpole Preliminary Environmental Information Report [online]. Available at: <https://www.nationalgrid.com/the-great-grid-upgrade/grimsby-to-walpole/document-library#4257225834-3023854277> [Accessed 12 September 2025].
- Ref 2 South East Lincolnshire Joint Strategic Planning Committee, 2019. South East Lincolnshire Local Plan [online]. Available at: <https://southeastlincslocalplan.org/> [Accessed 8 January 2025].
- Ref 3 Lincolnshire County Council, 2016. Lincolnshire Minerals and Waste Local Plan [online]. Available at: [chrome- https://www.lincolnshire.gov.uk/planning/minerals-waste](https://www.lincolnshire.gov.uk/planning/minerals-waste) [Accessed 8 January 2025].
- Ref 4 The Planning Inspectorate (2024). Scoping Opinion: Proposed Grimsby to Walpole Project [online]. Available at: <https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN020036-000109-Scoping%20Opinion%202017%20EIA%20Regs.pdf> [Accessed 8 January 2025].
- Ref 5 National Grid Electricity Transmission (2024). Grimsby to Walpole Environmental Impact Assessment Scoping Report [online]. Available at: <https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN020036-000004-EN020036%20-%20Scoping%20Report%20Volume%201%20Main%20Report.pdf> [Accessed 8 January 2025].
- Ref 6 National Grid (2025). Stage 1 Consultation Feedback Report [online]. Available at: <https://www.nationalgrid.com/document/560496/download> [Accessed 30 September 2025].
- Ref 7 Central Lincolnshire Joint Strategic Planning Committee (CLJSPC) (2023), Central Lincolnshire Local Plan [Online]. Available at <https://www.n-kesteven.gov.uk/sites/default/files/2023-04/Local%20Plan%20for%20adoption%20Approved%20by%20Committee.pdf> [Accessed 8 January 2025].
- Ref 8 Ordnance Survey, 2024. OS Open Greenspace [online]. Available at: <https://www.ordnancesurvey.co.uk/products/os-open-greenspace> [Accessed 8 January 2025].
- Ref 9 Ordnance Survey, 2024. OS OpenMap Local Important Buildings [online]. Available at: <https://www.ordnancesurvey.co.uk/products/os-open-map-local> [Accessed 8 January 2025].
- Ref 10 Ordnance Survey, 2024. OS AddressBase [online]. Available at: <https://www.ordnancesurvey.co.uk/products/addressbase> [Accessed 8 January 2025].
- Ref 11 Sustrans (no date). Temporary diversions of National Cycle Network routes [online]. Available at: <https://www.sustrans.org.uk/for-professionals/infrastructure/temporary-diversions-of-national-cycle-network-routes/> [Accessed 8 January 2025].

- Ref 12     Sustrans (no date) Sustrans traffic-free routes and greenways design guide [online]. Available at: <https://www.sustrans.org.uk/for-professionals/infrastructure/sustrans-traffic-free-routes-and-greenways-design-guide/> [Accessed 8 January 2025].
- Ref 13     Lincolnshire County Council (no date). Lincolnshire Public Rights of Way [online]. Available at: <https://www.lincolnshire.gov.uk/coast-countryside/public-rights-way> [Accessed 5 March 2025].
- Ref 14     Weston Parish (2025). Rights of Way in Weston Parish (South Holland) [online]. Available at: <https://osm.mathmos.net/prow/progress/lincs/south-holland/weston/> [Accessed 27 March 2025].
- Ref 15     National Grid Electricity Transmission (2025). Grimsby to Walpole Preliminary Environmental Information Report Volume 2 Part B Section 6 Chapter 11 Socioeconomics, Recreation and Tourism [online]. Available at: <https://www.nationalgrid.com/the-great-grid-upgrade/grimsby-to-walpole/document-library#4257225834-3023854277> [Accessed 12 September 2025].
- Ref 16     Department for Levelling Up, Housing and Communities, 2014. Open space, sports and recreation facilities, public rights of way and local green space [online]. Available at: <https://www.gov.uk/guidance/open-space-sports-and-recreation-facilities-public-rights-of-way-and-local-green-space> [Accessed 3 March 2025].
- Ref 17     National Grid. The Holford Rules: Guidelines on Overhead Line Routeing. [online] Available at: <https://www.nationalgrid.com/sites/default/files/documents/13795-The%20Holford%20Rules.pdf> [Accessed 20 September 2024].
- Ref 18     National Grid. NGC Substations and the Environment: Guidelines on Siting and Design. [online] Available at: <https://www.nationalgrid.com/sites/default/files/documents/13796-The%20Horlock%20Rules.pdf> [Accessed 20 September 2024].
- Ref 19     National Grid Electricity Transmission (2024). Grimsby to Walpole Corridor Preliminary Routeing and Siting Study [online]. Available at: <https://www.nationalgrid.com/document/352621/download> [Accessed 3 March 2025].

# 12. Air Quality

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# 12. Air Quality

## 12.1 Introduction

- 12.1.1 This chapter presents the Supplementary Preliminary Environmental Information (PEI) in relation to the Air Quality assessment for the New Weston Marsh Substations A and B Section (Section 5) of the Grimsby to Walpole Project (the Project).
- 12.1.1 The preliminary assessment of Section 5 reported within this chapter presents an update to the previously published June 2025 PEI Report (Ref 1), which formed part of the Stage 2 Consultation completed between 11 June and 6 August 2025. This update reflects the fact that since the launch of the Stage 2 Consultation, further design development work has been completed to confirm the requirement for two substations within Section 5, the preferred locations of the new Weston Marsh Substation A and new Weston Marsh Substation B and the associated overhead line and underground cable connections. The draft Order Limits for Section 5 have also now been defined, whereas the June 2025 PEI Report was based upon a wider 'Refined Weston Marsh Substation Siting Zone' which covered a greater total area than the Section 5 draft Order Limits.
- 12.1.2 Updates to the assessment are primarily limited to the Preliminary Assessment of Effects (section 12.7). Specifically, the Construction Dust Assessment has been updated based upon the Section 5 draft Order Limits, rather than the Refined Siting Zone boundary which informed the June 2025 PEI Report.
- 12.1.3 The preliminary assessment of potential air quality effects due construction traffic utilising the highway network is however unchanged from the June 2025 PEI Report. This is given that the preliminary effects assessed at this stage are primarily informed by the assumed construction traffic volumes and routes, rather than the extents of the draft Order Limits and the details of the substation and connection designs. Given that the June 2025 PEI Report construction and operational traffic projections were based upon reasonable worst case assumptions, including the presence of up to two substations within Section 5, the projected volumes of construction and operational traffic have not been updated as a result of the further design development. Traffic projections will however be reviewed and updated as required based upon the Development Consent Order (DCO) scheme design. This updated data will inform the complete assessment to be reported within the Environmental Statement (ES) submitted in support of the DCO application for the Project.
- 12.1.4 Specifically, the chapter includes the following sections:
- i. An introduction to the topic (section 12.1);
  - ii. Identification of key local and regional policy relevant to the assessment (section 12.2). A full overview of the legislation and national, regional onshore and marine planning policy context that applies to Project is presented within the **Supplementary PEI Report Volume 2 Part A Chapter 2 Legislative, Regulatory and Planning Policy Context** and supporting appendices;
  - iii. A summary of the assessment scoping process and resulting scope of the Air Quality assessment (section 12.3). Further detail is provided within

## Supplementary PEI Report Volume 3 Part A Appendix 4A Planning Inspectorate Scoping Opinion Responses;

- iv. A high-level summary of the methodology of the Air Quality assessment within Section 5 (section 12.4). A detailed description of the assessment methods and scope, applicable to the whole Project, is contained in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**;
- v. A description of the environmental baseline within the Section 5 Study Area relevant to the Air Quality assessment, updated since publication of the June 2025 PEI Report based upon the Section 5 draft Order Limits (section 12.5);
- vi. A description of mitigation measures included for the purposes of the Air Quality assessment reported within the Supplementary PEI Report (section 12.6). Further information regarding design development can be found in **Supplementary PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered** and the **Supplementary Design Development Report for Section 5**;
- vii. The likely significant and non-significant Air Quality effects arising during construction and operation of the Project within the Section 5 Study Area, based upon the assessment completed to date (section 12.7); and
- viii. An outline of the proposed monitoring requirements in relation to Air Quality (section 12.8).

12.1.5 Further supporting information is set out in **Table 12.1**, including supporting figures and technical appendices.

Table 12.1 Supporting documentation

| Supporting Information                                                                                    | Description                                                                                                                                                          |
|-----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Topic Specific Supporting Documentation</b>                                                            |                                                                                                                                                                      |
| Supplementary PEI Report Volume 2 Part B Figures                                                          | Figure 12.1 Construction Dust Study Area<br>Figure 12.2 Preliminary Affected Road Network and Local Authority Monitoring Locations                                   |
| <b>Project Supporting Documentation</b>                                                                   |                                                                                                                                                                      |
| Supplementary PEI Report Volume 2 Part B Chapter 1 Overview of the Section and Description of the Project | A summary of the works within Section 5, including the permanent infrastructure, temporary construction works, and operational activities.                           |
| Supplementary PEI Report Volume 3 Part A Appendix 2A Key Legislation                                      | A list of identified environmental legislation considered relevant to the Project, which will be updated and amended as required to inform the ES.                   |
| Supplementary PEI Report Volume 3 Part A Appendix 2B National and Regional Planning Policy                | A list of national and regional policies generally applicable to the assessment principles which underpin the June 2025 PEI Report, Supplementary PEI Report and ES. |



| Supporting Information                                                                                      | Description                                                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Supplementary PEI Report Volume 3 Part A Appendix 2C Local Plan Policy</b>                               | An outline of the potentially relevant local planning policy allocations affecting Section 5 of the Project.                                                                                                                |
| <b>Supplementary PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered</b>                      | A summary of the main alternatives considered in relation to Section 5 of the Project during the design development process, including the main reasons for selecting the chosen option.                                    |
| <b>Supplementary PEI Report Volume 2 Part A Chapter 4 Approach to Preliminary Environmental Information</b> | Sets out the Environmental Impact Assessment (EIA) approach and general methodology that has been used in developing the Supplementary PEI Report for Section 5 of the Project.                                             |
| <b>Supplementary PEI Report Volume 2 Part A Chapter 5 Project Description</b>                               | An overarching description of the Project and its key components, including updated design and construction information relating to Section 5.                                                                              |
| <b>Supplementary PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice</b>       | Sets out control and management measures that will be undertaken during construction of the Project if granted consent. The final Code of Construction Practice (CoCP) will be submitted in support of the DCO application. |

- 12.1.6 There are also interrelationships between the potential effects on Air Quality and other environmental topics. Therefore, please also refer to the following chapters within the **Supplementary PEI Report Volume 2 Part B** and **Part C**:
- i. **Supplementary PEI Report Volume 2 Part B Chapter 4 Ecology and Biodiversity** assesses the potential for changes in Air Quality to effect ecological receptors, such as increases in pollutant concentrations or dust deposition.
  - ii. **Supplementary PEI Report Volume 2 Part B Chapter 9 Traffic and Movement** assesses the potential change in traffic movements during construction and operation, which are relevant to the assessment of Air Quality effects associated with vehicle emissions.
  - iii. **Supplementary PEI Report Volume 2 Part B Chapter 11 Socio-economics, Recreation and Tourism** assesses potential effects upon local businesses and recreational areas that could be affected by changes in air quality acting in combination with other impacts.
  - iv. **Supplementary PEI Report Volume 2 Part B Chapter 13 Summary** provides a concise, consolidated summary of the likely significant effects reported for all topics, based upon the preliminary assessment .
  - v. **Supplementary PEI Report Volume 2 Part C Route-wide Chapter 7 Health and Wellbeing** assesses the potential effects of changes in Air Quality upon health and wellbeing.

- vi. **Supplementary PEI Report Volume 2 Part C Route-wide Chapter 9 Cumulative Effects** reports those intra-project effects which could potentially act in combination to result in cumulative environmental effects. It also identifies a shortlist of other Committed Developments with which there may be potential for cumulative effects, and the relevant environmental topics for such effects (inter-project). The full cumulative effects assessment will be reported within the ES.

## 12.2 Legislation and Policy Framework

### Legislation and National Policy

- 12.2.1 Legislation and national policy relevant to the Project and this chapter is described in **Supplementary PEI Report Volume 2 Part A Chapter 2 Legislative, Regulatory and Planning Policy Context** and supporting appendices, details of which are set out in **Table 12.1**.

### Regional and Local Policy

- 12.2.2 Regional and local plans or policies relevant to this assessment are as follows:
  - i. South East Lincolnshire Local Plan 2011-2036 (Adopted 2019) (Ref 2) which covers the administrative areas of both Boston Borough and South Holland District Councils:
    - Policy 30 – Pollution: development proposals will not be permitted should they lead to unacceptable adverse impacts upon air quality; and
    - Policy 31 – Climate Change and Renewable and Low Carbon Energy: Developments must demonstrate consequences of current climate change has been addressed, minimised and mitigated through the protection of air quality.

## 12.3 Scope of Assessment

- 12.3.1 The scope of the assessment has been informed by the Scoping Opinion (Ref 3) provided by the Planning Inspectorate in September 2024 on behalf of the Secretary of State, following the submission of the EIA Scoping Report (Ref 4). A summary of the Scoping Opinion together with a response against each point of relevance to the Air Quality chapter is provided in **Supplementary PEI Report Volume 3 Part A Appendix 4A Planning Inspectorate Scoping Opinion Responses**.
- 12.3.2 Non-statutory consultation feedback was discussed within the Grimsby to Walpole Stage 1 Consultation Feedback Report (Ref 5). Stage 2 Consultation feedback relevant to Section 5 is discussed within the **Grimsby to Walpole Section 5 Consultation Feedback Report**.
- 12.3.3 The scope of the Air Quality assessment considers the impact of:
  - i. Dust from on-site construction activities (including enabling works) and off-site trackout by construction vehicles on sensitive (human and ecological) receptors. The main potential impacts are dust soiling (which can lead to the loss of amenity) and the deterioration of human health (as a result of increases in concentrations of Particulate Matter (PM<sub>10</sub> and PM<sub>2.5</sub>)); and

- ii. Vehicular tail-pipe emissions containing air pollutants released by construction, operation and maintenance vehicles associated with the Project using the local road network. The emissions from vehicles include but are not limited to Nitrogen Oxides (NO<sub>x</sub>) (comprising Nitrogen Monoxide, NO, and Nitrogen Dioxide, NO<sub>2</sub>), Ammonia (NH<sub>3</sub>) and Particulate Matter (PM<sub>10</sub> and PM<sub>2.5</sub>). Emissions from vehicles also include those associated with brake and tyre wear.

12.3.4 The projected number, type and location of plant and Non-Road Mobile Machinery (NRMM), as well information on the duration and change in traffic flows associated with planned diversions, including proposed routes, are yet to be determined. An assessment of any associated effects will be included in the ES, in accordance with the Scoping Opinion (Ref 3). However, these details are not included within the Supplementary PEI Report and as such no assessment of NRMM emissions and planned traffic diversions has been completed at this stage.

## 12.4 Assessment Methodology

- 12.4.1 The assessment scope, methodology, relevant guidance, key assumptions and limitations for the Air Quality assessment are set out in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**. This includes a description of how receptor sensitivity, magnitude of impact and significance of effects are all described and assigned in the assessment. A summary of the key components is provided below.
- 12.4.2 This Supplementary PEI Report chapter presents a baseline appraisal of air quality within Section 5. It assesses the impact of dust and PM<sub>10</sub> on human and ecological receptors before concluding whether the effects are likely to be significant or not.
- 12.4.3 The assessment of construction dust impacts has been undertaken in line with Institute of Air Quality Management (IAQM) Guidance on the Assessment of Dust from Demolition and Construction (Ref 6). This guidance provides a risk-based approach to the assessment of the potential for dust impacts from four types of activities taking account of the sensitivity of the environment surrounding the works: demolition; earthworks; construction; and trackout (the movement of dust/mud onto the public highway via construction vehicles) on sensitive (human and ecological) receptors.
- 12.4.4 For the purposes of the Supplementary PEI Report, an initial screening assessment of construction traffic flows has been completed based on preliminary construction traffic projections. Projected changes in Annual Average Daily Traffic (AADT) flows for both Light Goods Vehicles (LGVs) and Heavy Goods Vehicles (HGVs) have been screened to determine where detailed assessment (using dispersion modelling) is likely to be required, the findings of which will be reported in the ES submitted with the DCO application. This screening exercise is intended to provide an indication of where there is greatest potential for changes in air quality as a result of construction traffic, but it is noted that no dispersion modelling has been completed at this stage.
- 12.4.5 The impact of construction traffic vehicle emissions on sensitive (human and ecological) receptors within 200 m of affected roads will be considered, beyond this distance no significant effects are expected (Ref 7).
- 12.4.6 Where changes in traffic flows resulting from the construction of the Project meet the assessment criteria within the Environmental Protection UK (EPUK)/IAQM Land Use Planning & Development Control guidance (Ref 8), and set out below, then detailed

dispersion modelling will be undertaken to determine the impact on existing human sensitive receptors:

- i. a change in Light Duty Vehicle (LDV)<sup>1</sup> flows of more than 100 Annual Average Daily Traffic (AADT, vehicles/day) within or adjacent to an Air Quality Management Area (AQMA) or more than 500 AADT elsewhere; and
- ii. a change in Heavy Duty Vehicle (HDV) (>3.5 tonnes)<sup>2</sup> flows of more than 25 AADT within or adjacent to an AQMA or more than 100 AADT elsewhere.

- 12.4.7 Based on an initial review of the draft Order Limits and the existing road network that may be used by construction traffic to access the Project, the assessment of vehicle emission impacts on ecological sensitive receptors within 200 m of the affected roads may be required as there are a number of road links where the predicted change in HDV flows (of 200 AADT) exceeds the change criteria outlined within the IAQM's Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites (Ref 9). There are no road links where the projected change in total traffic (LDV + HDV) flows exceeds the 1000 AADT criteria also given in the IAQM guidance.
- 12.4.8 An initial review of operation/maintenance vehicle movements associated with the Project has also been undertaken against the EPUK/IAQM screening criteria described above (Ref 8) for human sensitive receptors and the IAQM criteria (Ref 9) for ecological sensitive receptors.
- 12.4.9 Once updated construction and operational/maintenance traffic data is made available, projected changes in traffic flows as a result of the Project will be re-screened against the criteria within the EPUK/IAQM and IAQM guidance. A detailed assessment of impacts will be undertaken where traffic flows exceed the criteria and reported within the ES.

## Assessment Assumptions and Limitations

- 12.4.10 All general assumptions and limitations for the topic are listed within **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**. There are no additional limitations and assumptions that have been identified within Section 5.
- 12.4.11 The key parameters and assumptions which inform the assessment will be reviewed based on the design presented in the DCO application and, where required, updated, or refined, for the ES. The ES will present the final key limitations and assumptions used within that assessment, particularly drawing attention to any areas that may have changed from that presented in this preliminary assessment.

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<sup>1</sup> Light Duty Vehicles = cars and Light Goods Vehicles (LGVs).

<sup>2</sup> Heavy Duty Vehicles = Heavy Goods Vehicles (HGVs) plus Public Service Vehicles, e.g., buses and coaches.

## 12.5 Baseline Conditions

### Study Area

#### Construction Dust

- 12.5.1 For construction phase dust impacts, the assessment Study Area has been defined by the screening criteria from the IAQM guidance (Ref 6) and additional guidance given by Natural England during the Scoping Opinion (Ref 3). The construction dust Study Area is shown within **Supplementary PEI Report Volume 2 Part B Figure 12.1 Construction Dust Study Area** and is dictated by the screening criteria below:
- i. human receptors within the draft Order Limits plus those within the surrounding area extending 250 m from the draft Order Limits, or within 50 m of the proposed routes used by construction traffic on the public highway or up to 250 m from a site entrance; and
  - ii. ecological designated sites within the draft Order Limits plus those within the surrounding area extending 200 m from the draft Order Limits, or within 50 m of the proposed routes used by construction traffic on the public highway up to 250 m from a site entrance. The 200 m screening distance from the draft Order Limits is more conservative than that stipulated in the IAQM guidance (Ref 6), and has been used following the advice given by Natural England within their Scoping Opinion consultation response (Ref 3).
- 12.5.2 Background NO<sub>x</sub>, NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> concentrations presented in the baseline assessment for the existing and future years have been extracted from Defra's background maps<sup>3</sup> (Ref 10) for the area extending 500 m from the draft Order Limits.
- 12.5.3 Where ecological receptors have been identified within 200 m of the draft Order Limits, baseline data for pollutants which affect nutrient nitrogen deposition, such as NH<sub>3</sub> concentrations and nitrogen deposition rates, have been taken from Air Pollution Information System (APIS) (Ref 11), along with acid deposition rates and the relevant critical levels and loads for the designated sites.

#### Road Traffic Emissions

- 12.5.4 The Section 5 Study Area for the assessment of impacts upon human receptors due to road traffic emissions associated with the Project has been defined with reference to the criteria given in the EPUK/IAQM guidance described in section 12.4 Methodology (Ref 8). The Section 5 Study Area comprises any roads where these criteria are exceeded, and any human receptors within 200 m of these roads. The Section 5 Study Area described within this chapter will be updated as required for the ES, based upon further analysis of traffic projections for the Project.
- 12.5.5 The Section 5 Study Area for the assessment of impacts upon ecological receptors due to road traffic emissions associated with the Project includes ecological sensitive receptors within 200 m of any road links where the projected changes in traffic flow exceed IAQM guidance thresholds (Ref 9).

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<sup>3</sup> Defra's background maps of modelled air pollutant concentrations are provided on a 1 km x 1 km basis for the whole of the UK. To capture the grid squares that fall within the draft Order Limits and those immediately adjacent, a 500 m buffer has been applied.



- 12.5.6 Roadside concentrations from local authority monitoring sites within 200 m of the routes within the Section 5 Study Area that are expected to be used by construction and operational/maintenance traffic have therefore been used to determine baseline conditions.

## Data Collection

- 12.5.7 The following data has been used to inform the baseline conditions along with those outlined in **Supplementary PEI Report Volume 2 Part A Chapter 5 Project Description**:
- i. Defra's Background Maps (based on a 2021-base year) (Ref 10);
  - ii. Air Pollution Information System (APIS) (Ref 11);
  - iii. Defra's AQMA dataset (Ref 12);
  - iv. Defra's Multi-Agency Geographic Information for the Countryside (MAGIC) (Ref 13);
  - v. Local authority Air Quality Management Reports (Ref 14);
  - vi. Ordnance Survey (OS) AddressBase Plus dataset;
  - vii. Google Earth Imagery; and
  - viii. Data on Part A<sup>4</sup> Permitted Installations held by the Environment Agency and Part A2 and B<sup>5</sup> Installations held by the local authorities within the Section 5 Study Area (Ref 15, Ref 16).
- 12.5.8 As previously stated, preliminary projections of changes in traffic flow as a result of the Project have been used to complete an initial screening exercise. Further detail regarding traffic data is provided within **Supplementary PEI Report Volume 2 Part B Chapter 9 Traffic and Movement** and supporting appendices.

## Existing Baseline

- 12.5.9 The following section outlines the Air Quality baseline for the Section 5 Study Area. There are two main potential sources of air pollution associated with the Project, construction dust emissions and construction road traffic emissions. The baseline presented is therefore based upon an assessment of likely background concentrations of NO<sub>x</sub>, NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> taken from Defra's modelled data and a review of available local authority monitoring data.
- 12.5.10 The baseline section should be read in conjunction with **Supplementary PEI Report Volume 2 Part B Figure 12.1 Construction Dust Study Area**.
- 12.5.11 The Section 5 Study Area is predominantly rural in nature and the land use is mostly agricultural. The settlement of Moulton Seas End is located to the east of the draft Order Limits and Weston is situated to the south. **Supplementary PEI Report Volume 2 Part B Figure 12.1 Construction Dust Study Area** demonstrates that the assessed sensitive receptor locations across the Section 5 Study Area are either at

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<sup>4</sup> Large-scale industrial processes emitting to land, air and/or water.

<sup>5</sup> This would relate to smaller industrial processes regulated by the Local Authority under the Pollution Prevention and Control guidance, including Part A2 processes (which may release to land, air and water) or Part B processes (which only release to air).

the extents of these and other small settlements, closest to the draft Order Limits, or represent individual scattered properties within the wider rural area. These properties include those located in several small hamlets and individual agricultural holdings. The baseline presented is based upon an assessment of likely background concentrations of NO<sub>2</sub> and PM<sub>10</sub> taken from Defra’s modelled data and a review of available local authority monitoring data across the Section 5 Study Area.

12.5.12 There are three designated ecological sites identified within Section 5 Study Area which are sensitive to effects due to construction dust, Surfleet Bank Local Wildlife Site, to the northwest, and Vernatt’s Drain and Pinchbeck Marsh Local Wildlife Sites, to the west of the draft Order Limits.

**Local authority Air Quality Monitoring Data**

12.5.13 Section 5 is located within the administrative area of South Holland District Council (SHDC).

12.5.14 SHDC’s 2024 Annual Status Report (ASR) states that there are no AQMAs within their administrative area (Ref 14). SHDC measure pollutant concentrations for NO<sub>2</sub>, PM<sub>10</sub> and Ozone (O<sub>3</sub>).

12.5.15 Monitoring of annual mean NO<sub>2</sub> levels is undertaken by SHDC using a network of passive diffusion tubes and automatic monitoring stations and is reported in the SHCD 2024 ASR (Ref 14) which presents the concentrations from the calendar years 2019-2023. The locations and annual mean NO<sub>2</sub> concentrations of roadside diffusion tubes in SHCD’s administrative areas that are within 200 m of construction traffic routes are presented in **Table 12.2** and shown in **Supplementary PEI Report Volume 2 Part B Figure 12.2 Preliminary Affected Road Network and Local Authority Monitoring Locations**.

12.5.16 **Table 12.2** shows that concentrations decreased from 2019 to 2020 before increasing in 2021 and 2022 (as consistent with national trends due to behavioural change during coronavirus lockdowns). All concentrations decreased between 2022 and 2023, with an overall trend of decreasing concentrations between 2019 and 2023. There are no exceedances of the Air Quality Objective (AQO) seen within the scoped-in monitoring locations.

Table 12.2 Section 5 Local Authority NO<sub>2</sub> monitoring data

| ID                    | Location      | Distance to draft Order Limits (km) | Annual Mean NO <sub>2</sub> Concentration (µg/m <sup>3</sup> ) |      |      |      |      |
|-----------------------|---------------|-------------------------------------|----------------------------------------------------------------|------|------|------|------|
|                       |               |                                     | 2019                                                           | 2020 | 2021 | 2022 | 2023 |
| SH5                   | Station Road  | 1.8                                 | 27.9                                                           | 20.9 | 23.8 | 27.6 | 24.3 |
| SH6                   | Boston Rd A17 | 5.3                                 | 26.4                                                           | 20.0 | 19.5 | 21.6 | 18.3 |
| SH7                   | Gedney A17    | 10.9                                | 15.5                                                           | 12.7 | 14.3 | 14.4 | 13.6 |
| SH19 (formerly SH14)  | Whaplode      | 3.6                                 | 17.0                                                           | 12.1 | 13.4 | 13.6 | 12.3 |
| SH16                  | Gosberton     | 4.3                                 | 20.3                                                           | 18.7 | 19.0 | 22.2 | 19.6 |
| Air Quality Objective |               |                                     | 40                                                             |      |      |      |      |



12.5.17 SHDC undertakes monitoring of PM<sub>10</sub> at two locations, however only monitoring station ID CM1, which is an urban background site within Spalding, has been deemed representative of the conditions within the Section 5 Study Area due to its proximity. Data from this location is shown in **Table 12.3**.

Table 12.3 Section 5 Local Authority PM<sub>10</sub> monitoring data

| ID                    | Location                  | Distance to draft Order Limits (km) | Annual Mean NO <sub>2</sub> Concentration (µg/m <sup>3</sup> ) |      |      |      |      |
|-----------------------|---------------------------|-------------------------------------|----------------------------------------------------------------|------|------|------|------|
|                       |                           |                                     | 2019                                                           | 2020 | 2021 | 2022 | 2023 |
| CM1                   | Spalding Monkhouse School | 4.3                                 | 13.7                                                           | 10.9 | 9.0  | 11.5 | 10.9 |
| Air Quality Objective |                           |                                     | 40                                                             |      |      |      |      |

- 12.5.18 The PM<sub>10</sub> data shows similar trends to those seen in the NO<sub>2</sub> data. There have been no exceedances of the AQO between 2019 and 2023.
- 12.5.19 12 permitted industrial sources have been identified within 2 km of the draft Order Limits (Ref 15, Ref 16). However, the identified permitted industrial sources are unlikely to substantially contribute to dust and PM<sub>10</sub> levels within the Section 5 Study Area, as those present will have limits on emissions to air imposed by the relevant regulator. These sources are represented within the background concentrations outlined within **Table 12.4**.

Background Air Quality Data

- 12.5.20 **Table 12.4** displays the arithmetic mean, minimum and maximum of modelled annual mean background pollutant concentrations of NO<sub>x</sub>, NO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> for 2024 within the Section 5 Study Area (Ref 10).

Table 12.4 2024 modelled Defra background concentrations within the Section 5 Study Area

| Average (Minimum - Maximum) 2024 Annual Mean Concentration (µg/m <sup>3</sup> ) |                  |                    |                   |
|---------------------------------------------------------------------------------|------------------|--------------------|-------------------|
| NO <sub>x</sub>                                                                 | NO <sub>2</sub>  | PM <sub>10</sub>   | PM <sub>2.5</sub> |
| 7.9 (6.9 – 16.5)                                                                | 6.2 (5.5 – 12.3) | 13.4 (12.6 – 14.1) | 6.0 (5.8 – 6.7)   |

- 12.5.21 The background concentrations of NO<sub>2</sub> and PM<sub>10</sub> are generally low within the Section 5 Study Area, given they are under half of the limit value of 40 µg/m<sup>3</sup> for both pollutants.
- 12.5.22 Background NO<sub>x</sub> concentrations (relevant to ecological receptors) are also generally low within the Section 5 Study Area. There are three designated ecological sites of local importance within the Section 5 Study Area. However, the average NO<sub>x</sub> concentration across the Section 5 Study Area is 7.9 µg/m<sup>3</sup> which falls below the critical level for the protection of vegetation of 30 µg/m<sup>3</sup>.
- 12.5.23 Concentrations of PM<sub>2.5</sub> are below the relevant limit value (20 µg/m<sup>3</sup>) where the average concentration within the Section 5 Study Area is 6.0 µg/m<sup>3</sup>. PM<sub>2.5</sub> is the pollutant for which background concentrations are closest to the limit value in 2024.

12.5.24 **Table 12.5** below shows the NH<sub>3</sub> critical level and concentration, nitrogen and acid deposition rates and critical loads for the designated ecological sites identified within the Section 5 Study Area.

Table 12.5 Ammonia critical level and concentration, nitrogen and acid deposition rates and critical loads for the ecological sites within the Section 5 Study Area

| Ecological Site<br>(Grid Reference<br>X, Y)              | 2020 - 2022 Average Concentration  |                                     |                                             |                                                    |                                     |                                                                  |
|----------------------------------------------------------|------------------------------------|-------------------------------------|---------------------------------------------|----------------------------------------------------|-------------------------------------|------------------------------------------------------------------|
|                                                          | Ammonia Critical<br>Level (µg/m³)* | Ammonia<br>Concentration<br>(µg/m³) | Nitrogen<br>Deposition Rate<br>(kg N/ha/yr) | Nitrogen<br>Critical Load<br>Range (kg<br>N/ha/yr) | Acid Deposition Rate<br>(keq/ha/yr) | Acid Critical Load<br>(CLmaxS/ CLminN/<br>CLmaxN)<br>(keq/ha/yr) |
| <b>Surfleet Bank (Local Wildlife Site)<sup>1</sup></b>   |                                    |                                     |                                             |                                                    |                                     |                                                                  |
| 528500, 330500                                           | 1 - 3                              | 1.66                                | 15.52                                       | 10 - 15                                            | 1.02 (N:1.11   S: 0.11)             | 4 / 1.071 / 5.071                                                |
| 529500, 330500                                           | 1 - 3                              | 1.64                                | 15.43                                       | 10 - 15                                            | 1.01 (N:1.1   S: 0.11)              | 4 / 1.071 / 5.071                                                |
| 528500, 330500                                           | 1 - 3                              | 1.66                                | 15.52                                       | 10 - 15                                            | 1.02 (N:1.11   S: 0.11)             | 4 / 1.071 / 5.071                                                |
| 529500, 330500                                           | 1 - 3                              | 1.64                                | 15.43                                       | 10 - 15                                            | 1.01 (N:1.1   S: 0.11)              | 4 / 1.071 / 5.071                                                |
| <b>Vernatt's Drain (Local Wildlife Site)<sup>2</sup></b> |                                    |                                     |                                             |                                                    |                                     |                                                                  |
| 521500, 322500                                           | N/A                                | 1.91                                | 16.31                                       | N/A                                                | 1.12 (N:1.17   S: 0.12)             | N/A                                                              |
| 522500, 322500                                           | N/A                                | 1.9                                 | 16.4                                        | N/A                                                | 1.12 (N:1.17   S: 0.12)             | N/A                                                              |
| 522500, 323500                                           | N/A                                | 1.88                                | 16.26                                       | N/A                                                | 1.11 (N:1.16   S: 0.12)             | N/A                                                              |
| 523500, 323500                                           | N/A                                | 1.88                                | 16.16                                       | N/A                                                | 1.1 (N:1.15   S: 0.12)              | N/A                                                              |
| 523500, 324500                                           | N/A                                | 1.86                                | 16.03                                       | N/A                                                | 1.09 (N:1.15   S: 0.12)             | N/A                                                              |
| 524500, 324500                                           | N/A                                | 1.82                                | 15.94                                       | N/A                                                | 1.08 (N:1.14   S: 0.12)             | N/A                                                              |
| 525500, 324500                                           | N/A                                | 1.78                                | 15.84                                       | N/A                                                | 1.07 (N:1.13   S: 0.12)             | N/A                                                              |

| Ecological Site<br>(Grid Reference<br>X, Y)              | 2020 - 2022 Average Concentration  |                                     |                                             |                                                    |                                     |                                                                  |
|----------------------------------------------------------|------------------------------------|-------------------------------------|---------------------------------------------|----------------------------------------------------|-------------------------------------|------------------------------------------------------------------|
|                                                          | Ammonia Critical<br>Level (µg/m³)* | Ammonia<br>Concentration<br>(µg/m³) | Nitrogen<br>Deposition Rate<br>(kg N/ha/yr) | Nitrogen<br>Critical Load<br>Range (kg<br>N/ha/yr) | Acid Deposition Rate<br>(keq/ha/yr) | Acid Critical Load<br>(CLmaxS/ CLminN/<br>CLmaxN)<br>(keq/ha/yr) |
| 525500, 325500                                           | N/A                                | 1.75                                | 15.75                                       | N/A                                                | 1.06 (N:1.12   S: 0.12)             | N/A                                                              |
| 526500, 325500                                           | N/A                                | 1.72                                | 15.67                                       | N/A                                                | 1.05 (N:1.12   S: 0.12)             | N/A                                                              |
| 526500, 326500                                           | N/A                                | 1.69                                | 15.59                                       | N/A                                                | 1.04 (N:1.11   S: 0.12)             | N/A                                                              |
| 526500, 327500                                           | N/A                                | 1.67                                | 15.5                                        | N/A                                                | 1.03 (N:1.11   S: 0.12)             | N/A                                                              |
| 527500, 327500                                           | N/A                                | 1.65                                | 15.45                                       | N/A                                                | 1.02 (N:1.1   S: 0.12)              | N/A                                                              |
| 527500, 328500                                           | N/A                                | 1.66                                | 15.5                                        | N/A                                                | 1.02 (N:1.11   S: 0.12)             | N/A                                                              |
| 528500, 328500                                           | N/A                                | 1.63                                | 15.44                                       | N/A                                                | 1.02 (N:1.1   S: 0.12)              | N/A                                                              |
| 528500, 329500                                           | N/A                                | 1.64                                | 15.48                                       | N/A                                                | 1.02 (N:1.11   S: 0.11)             | N/A                                                              |
| <b>Pinchbeck Marsh (Local Wildlife Site)<sup>3</sup></b> |                                    |                                     |                                             |                                                    |                                     |                                                                  |
| 526500, 325500                                           | 1 - 3                              | 1.72                                | 15.67                                       | 5 - 10                                             | 1.05 (N:1.12   S: 0.12)             | 4 /1.071 / 5.071                                                 |
| 526500, 326500                                           | 1 - 3                              | 1.69                                | 15.59                                       | 5 - 10                                             | 1.04 (N:1.11   S: 0.12)             | 4 /1.071 / 5.071                                                 |
| 527500, 326500                                           | 1 - 3                              | 1.68                                | 15.59                                       | 5 - 10                                             | 1.04 (N:1.11   S: 0.12)             | 4 /1.071 / 5.071                                                 |
| 527500, 327500                                           | 1 - 3                              | 1.65                                | 15.45                                       | 5 - 10                                             | 1.02 (N:1.1   S: 0.12)              | 4 /1.071 / 5.071                                                 |
| Note:                                                    |                                    |                                     |                                             |                                                    |                                     |                                                                  |

| Ecological Site<br>(Grid Reference<br>X, Y)                                                                                               | 2020 - 2022 Average Concentration  |                                     |                                             |                                                    |                                     |                                                                  |
|-------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|-------------------------------------|---------------------------------------------|----------------------------------------------------|-------------------------------------|------------------------------------------------------------------|
|                                                                                                                                           | Ammonia Critical<br>Level (µg/m³)* | Ammonia<br>Concentration<br>(µg/m³) | Nitrogen<br>Deposition Rate<br>(kg N/ha/yr) | Nitrogen<br>Critical Load<br>Range (kg<br>N/ha/yr) | Acid Deposition Rate<br>(keq/ha/yr) | Acid Critical Load<br>(CLmaxS/ CLminN/<br>CLmaxN)<br>(keq/ha/yr) |
| *The NH <sub>3</sub> critical level is 3 µg/m³ unless lichens and bryophytes are known to be present in which case it reduces to 1 µg/m³. |                                    |                                     |                                             |                                                    |                                     |                                                                  |
| <sup>1</sup> The habitat has been defined as neutral grassland.                                                                           |                                    |                                     |                                             |                                                    |                                     |                                                                  |
| <sup>2</sup> The habitat is a watercourse for which APIS does not provide critical levels or loads.                                       |                                    |                                     |                                             |                                                    |                                     |                                                                  |
| <sup>3</sup> The habitat has been defined as calcareous grassland.                                                                        |                                    |                                     |                                             |                                                    |                                     |                                                                  |
| N/A denotes no data available.                                                                                                            |                                    |                                     |                                             |                                                    |                                     |                                                                  |

- 12.5.25 **Table 12.5** shows that the average NH<sub>3</sub> concentrations is estimated to be above the lower critical level of 1 µg/m<sup>3</sup> at all sites. The nitrogen deposition is above the upper critical load at Surfleet Bank (neutral grassland) and Pinchbeck Marsh (calcareous grassland). The total acid deposition is below the minimum critical load for Surfleet Bank (neutral grassland) and Pinchbeck Marsh (calcareous grassland).

### Summary

- 12.5.26 Overall, the Air Quality in the Section 5 Study Area is very good. There are no exceedances of the annual mean NO<sub>2</sub> or PM<sub>10</sub> objective in the Local Authority monitoring data and the background concentrations within the Section 5 Study Area are low in comparison to the Air Quality objectives.
- 12.5.27 There are habitats in the Section 5 Study Area where current predicted NH<sub>3</sub> concentrations are above their respective lower critical level and acid deposition rates above their respective maximum critical loads, whereas nutrient nitrogen deposition rates are above the respective critical load for neutral grassland and calcareous grassland.

### Future Baseline

- 12.5.28 The future baseline relates to known or foreseeable changes to the current baseline in the future, against which the effects of the Project during construction and operation are assessed. Specifically, it accounts for anticipated changes, including those caused by changing climatic conditions, policy, legislation, advances in technology and by other confirmed development projects which will be complete prior to the construction of the Project.
- 12.5.29 At this preliminary stage, a full assessment of the implications of any committed development projects with regard to future baseline conditions has not been undertaken. A list of the currently known developments which are anticipated to be included within the future baseline scenario is provided within **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope Annex A Developments for Consideration Within the Future Baseline**. This will be reviewed and updated as appropriate during development of the ES, as with other information which informs assessment of the future baseline.
- 12.5.30 Projected background air pollutant concentrations available from a base year of 2021 (Ref 10) have been used to determine future baseline conditions. Levels of NO<sub>x</sub>, NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> are predicted to improve over time due to reductions in emissions resulting from:
- reductions in transport exhaust gas pollutants due to improvements in fuel efficiency and the uptake of low emission vehicles;
  - the reduction in the use of fossil fuels prior to the ban on the sale of new petroleum and diesel cars in the UK by 2030;
  - reductions in pollutant emissions from agricultural sources due to improvements in management envisaged in the 2019 Clean Air Strategy (Ref 17); and
  - improved emission standards for NRMM and static generators.
- 12.5.31 As concentrations of air pollutants are projected to decrease with time, the earlier the assessment year the higher the level of projected background pollution. Therefore,

the earlier the assumed opening year, the more conservative the assessment result. The earliest year by which the Project could potentially be operational is 2033 and construction is predicted to begin in 2029. Therefore, 2029 air pollutant data have been used to provide a conservative representation of opening year background concentrations (Ref 10).

- 12.5.32 The arithmetic mean, minimum and maximum of predicted pollutant concentrations for the future baseline Section 5 Study Area for 2029 is shown in **Table 12.6**. There are reductions in both NO<sub>x</sub> and NO<sub>2</sub> levels within the Section 5 Study Area compared to the 2024 forecast as shown in **Table 12.4**. There is a steady reduction in both NO<sub>x</sub> and NO<sub>2</sub> concentrations of about 0.9 – 1.2 µg/m<sup>3</sup>, and a reduction in PM<sub>10</sub> and PM<sub>2.5</sub> of 0.4 µg/m<sup>3</sup> and 0.3 µg/m<sup>3</sup>, respectively.

Table 12.6 2029 modelled Defra background concentrations within the Section 5 Study Area

| Average (Minimum - Maximum) 2029 Annual Mean Concentration (µg/m <sup>3</sup> ) |                  |                    |                   |
|---------------------------------------------------------------------------------|------------------|--------------------|-------------------|
| NO <sub>x</sub>                                                                 | NO <sub>2</sub>  | PM <sub>10</sub>   | PM <sub>2.5</sub> |
| 6.7 (5.9 – 15.1)                                                                | 5.3 (4.7 – 11.4) | 13.0 (12.2 – 13.7) | 5.7 (5.5 – 6.4)   |

- 12.5.33 Future baseline background NH<sub>3</sub> concentrations, rates of nutrient nitrogen and acid deposition are currently unknown. For the ES, these will be calculated using data from APIS projected using growth factors taken from best practice guidance.

12.6 Design, Control and Additional Mitigation Measures

Design Mitigation Measures

- 12.6.1 The Project is being designed to avoid sensitive receptors as far as practicable. This is in accordance with the ‘Holford Rules’ (Ref 18) applicable to routing of new overhead lines and the ‘Horlock Rules’ (Ref 19) which apply to design and siting of substations. These approaches are explained in further detail within the Corridor Preliminary Routeing and Siting Study (CPRSS) (Ref 20) and **Supplementary PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered**. Principles include, but are not limited to, seeking to avoid areas of highest amenity, cultural or scientific value, taking advantage of natural screening provided by existing landform and features (e.g. woodland) and keeping visual, noise and other environmental effects to a minimum.
- 12.6.2 Following selection of the preferred route corridor, environmental specialists have been integral to ongoing design refinement of works within Section 5. This has and will continue to contribute to the avoidance or reduction of the potential environmental impacts of the Project as the design is finalised. Specific examples relevant to the assessment include siting of the substations and access roads away from sensitive receptors where practicable.

Control Mitigation Measures

- 12.6.3 A Preliminary Code of Construction (CoCP) is provided in **Supplementary PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice**. The control measures included within the Preliminary CoCP relevant to the



Air Quality assessment, are the same as those presented in June 2025 PEI Report Volume 2 Part B Chapter 12 Air Quality (Ref 1) and include:

- i. GG01: The Project will be compliant with all relevant legislation, consents and permits.
- ii. GG03: Suitably experienced Environmental Advisers will be appointed for the duration of the construction phase. In addition, qualified and experienced Environmental Clerks of Works will be available during the construction phase to advise, supervise and report on the delivery of the mitigation methods and controls outlined in the Management Plans. The Environmental Clerks of Works will monitor that the works proceed in accordance with relevant environmental DCO requirements and adhere to the required good practice and mitigation measures. The Environmental Clerks of Works will be supported as necessary by appropriate specialists, including ecologists and arboriculturists, soils and land drainage experts.
- iii. GG04: Construction workers will undergo training to increase their awareness of environmental issues as applicable to their role on the Project. Topics will include where appropriate:
  - pollution prevention and pollution incident response;
  - dust management and control measures;
  - location and protection of sensitive environmental sites and features;
  - adherence to protected environmental areas around sensitive features;
  - working hours and noise and vibration reduction measures;
  - working with potentially contaminated materials;
  - waste management and storage;
  - flood risk response actions;
  - agreed traffic routes, access points, etc.;
  - soil management; and
  - drainage management.
- iv. GG06: A Construction Environmental Management Plan (CEMP), a Landscape and Ecological Management Plan (LEMP), a Materials and Waste Management Plan (MWMP), a Construction Traffic Management Plan (CTMP), Emergency Action Plan, Public Rights of Way Management Plan (PRoWMP), Overarching Written Scheme of Investigation (WSI), Biodiversity Management Plan, Noise and Vibration Management Plan, Pollution Prevention Plan, Foundation Works Risk Assessment, Carbon efficiency Plan, Dust Management Plan (DMP), DrMP along with a Soil Management Plan (SMP) will be produced prior to construction. These are collectively referred to as ‘the environmental control Plans.’
- v. GG07: The CEMP will set out site specific measures and construction methodologies to avoid or reduce potential effects of the Project on the environment during construction. The contractor(s) shall undertake regular site inspections to check conformance to the Management Plans.

- vi. GG10: The name and contact details for the Project will be displayed at the entrance to all compounds. This will include an emergency number.
- vii. GG11: Any activity carried out or equipment located within a construction compound that may produce a noticeable nuisance, including but not limited to dust, noise, vibration and lighting, will be located away from sensitive receptors such as residential properties or ecological sites where practicable.
- viii. GG13: Vehicles will be correctly maintained and operated in accordance with manufacturer's recommendations and in a responsible manner. All plant and vehicles will be required to switch off their engines when not in use and when it is safe to do so. Electric, or other low carbon plant and equipment should be used where available and where practicable
- ix. GG14: Materials and equipment will not be moved or handled unnecessarily. When loading and unloading materials from vehicles, including excavated materials, drop heights will be limited.
- x. GG18: Wheel washing facilities will be provided at each main compound, where appropriate. Road sweepers will be deployed on public roads where necessary to prevent excessive dust or mud deposits.
- xi. GG19: Earthworks and stockpiled soil will be managed as per the SMP.
- xii. GG20: Bonfires and the burning of waste material will be prohibited.

12.6.4 The control and management measures included within the Preliminary CoCP specific to Air Quality include:

- i. AQ01: Dust management measures will be set out in the Dust Management Plan (DMP) as part of the CEMP. This will be specific to particular phases of the Project. The DMP, will include, but not be limited to the following:
  - Communications to include display of the name and contact details of person(s) accountable for Air Quality and dust issues on the site boundary.
  - Daily on-site and off-site inspections will be undertaken by the Contractor(s), where receptors are nearby, to monitor dust. This should include regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100 m of the site boundary, with cleaning to be provided if necessary. The frequency of site inspections will be increased by the person accountable for Air Quality and dust issues on-site when activities with a high potential to produce dust are being carried out, during prolonged dry or windy conditions or in response to complaints or an incident resulting in dust emissions. Inspection results will be recorded, and an inspection log made available to the local authority upon request.
  - Site management will document all dust and Air Quality complaints, identify causes and take measures to reduce emissions in a timely manner, and record the measures taken.
  - Preparation and management of the site ensuring that machinery and dust causing activities are located as far as possible away from receptors, screens/barriers are erected around dusty activities/materials and are at least as high as any stockpiles, use wet methods to keep site fencing, barriers and scaffolding clean, remove materials that have a potential to produce dust

from site as soon as possible, unless being re-used on-site where they must be covered, seeded, or fence stockpiles used to prevent wind whipping.

- Monitoring and inspections to include evolving evaluation of Project phases as required and practicable.
  - Construction operations will only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, for example, suitable local exhaust ventilation systems. Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate. Use enclosed chutes and conveyors and covered skips. Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate. Ensure equipment is readily available on-site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
- ii. AQ03: During construction, bulk cement and other fine powder materials are to be delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery. Sand and other aggregates are to be stored in bunding areas and not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate control measures to reduce dust are in place. For smaller supplies of fine powder materials, bags are to be sealed after use and stored appropriately. Scabbing (roughening of concrete surfaces) will be avoided if possible.
- iii. AQ04: The contractor is to inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
- iv. AQ05: To minimise the impact from trackout, on-site activities will:
- Impose and signpost a maximum speed limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures, subject to the approval of the nominated undertaker and in agreement with the local authority, where appropriate).
  - Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.
  - Avoid dry sweeping of large areas.
  - Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
  - Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
  - Record all inspections of haul routes and any subsequent action in the site log book.
  - Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.

- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).
  - Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.
  - Access gates to be located at least 10 m from receptors where possible.
- v. AQ06: Dust pollution from earthworks activities will be limited through the use of the following measures, as appropriate:
- Topsoil will be stripped as close as reasonably practicable to the period of excavation or other earthworks activities to avoid risks associated with run-off or dust generation.
  - Hessian, mulches, or tackifiers will be used where it is not possible to re-vegetate or cover with topsoil as soon as practicable.
  - Materials will be compacted after deposition, with the exception of topsoil and subsoil on land to be restored for agriculture, forestry, landscaping and wildlife habitats.
  - Cover will only be removed in small areas during work and not all at once.
  - Soil spreading, seeding, planting or sealing of completed earthworks will be undertaken as soon as reasonably practicable following completion of the earthworks.
- vi. AQ07: Operating vehicle/machinery will follow the below:
- Construction vehicles will be required to meet Euro VI emissions standards which reduce NO<sub>x</sub> and PM<sub>10</sub> emissions.
  - All NRMM with an engine power rating of 37 kW to 560 kW will be required to meet Euro Stage IV standards as a minimum.
  - Avoid the use of diesel or petrol-powered generators and use mains electricity or battery powered equipment where practicable to limit emissions from plant and NRMM.
  - Low and zero emission vehicles will be used where possible for site use.
  - Produce a Construction Logistics Plan to manage the sustainability of goods and materials.
  - Implement a Construction Workforce Travel plan to support and encourage sustainable travel.
  - Ensure all vehicles switch off engines when stationary - no idling vehicles.
  - All vehicles, plant and NRMM will be regularly inspected, serviced and maintained.

## Additional Mitigation Measures

- 12.6.5 Additional mitigation measures are those required to reduce likely significant adverse environmental effects which may still occur despite the inclusion of the embedded design and control measures described above.

- 12.6.6 Additional mitigation measures are not anticipated to be required in relation to Air Quality effects. However, this will remain under review during the completion of further assessment and development of the ES.
- 12.6.7 It is however noted that additional environmental mitigation which has been proposed to reduce effects upon visual amenity and ecology and biodiversity may also reduce impacts upon Air Quality. This includes screening vegetation which, while primarily included to limit visual intrusion (for landscaping purposes), may further reduce potential Air Quality in impacts by filtering dust and air pollutants emitted by construction site activities.

## 12.7 Preliminary Assessment of Effects

- 12.7.1 The following section presents the findings of the preliminary assessment of effects upon the relevant Air Quality receptors identified within the Section 5 Study Area, as a result of construction, maintenance and/or operational activities.
- 12.7.2 The preliminary assessment of effects reported below takes into account the Design and Control mitigation measures previously described.
- 12.7.3 For a summary of the likely significant effects please refer to **Supplementary PEI Report Volume 2 Part B Chapter 13 Summary**. A supplementary summary of all non-significant effects is also included within this Section in **Table 12.12**, based upon the assessment scope detailed in **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.
- 12.7.4 It is noted that this is an ongoing assessment and is subject to change due to the ongoing design development of the Project. This is particularly relevant to the further assessment of the likely air quality effects of changes in traffic flow due to the Project. A full assessment will be included within the ES submitted with the DCO application.

## Likely Significant Effects

### Construction

#### Construction Dust

- 12.7.5 The preliminary assessment presented indicates that no significant effect are likely due to construction dust and PM<sub>10</sub>. Further rationale is provided in the following sections in relation to non-significant effects.

#### Construction Traffic Emissions

- 12.7.6 The methodology followed for predicting construction traffic flows is given in **Supplementary PEI Report Volume 2 Part B Chapter 9 Traffic and Movement**. Construction traffic flows (in terms of LGVs and HGVs) have been provided for the current year of 2024 and 2031, which is anticipated to be the busiest period for vehicle movements.
- 12.7.7 Initial screening of the projected construction traffic flows against the EPUK/IAQM change criteria (for human sensitive receptors) and the IAQM criteria (for ecological sensitive receptors) has been undertaken. The road links where the criteria are exceeded in the SHDC local authority area are shown in **Supplementary PEI Report**

**Volume 2 Part B Figure 12.2 Preliminary Affected Road Network and Local Authority Monitoring Locations** and presented in **Table 12.7**.

- 12.7.8 Based on the initial screening, changes in traffic flows on 11 road links which form parts of the A16, A151, Marsh Road and Stone Gate within Spalding, exceed the EPUK/IAQM screening criteria for human sensitive receptors. Given these links are located outside an AQMA, the relevant criteria are:
- i. a change in LDV flows of more than 500 AADT; and/or
  - ii. a change in HDV flows of more than 100 AADT.
- 12.7.9 The initial screening has also identified road links which exceed the IAQM screening criteria for ecological sensitive receptors. The relevant criteria are:
- i. a change in total traffic flows greater than or equal to equal to 1000 AADT; and/or
  - ii. a change in HDV flows greater than or equal to 200 AADT.

Table 12.7 Road Links exceeding the relevant assessment criteria – construction traffic

| Road Link |                            | Road Name                        |                        | 2024 Base                       |                       | 2031 Future Base                                   |                                              | 2031 Construction                            |  |
|-----------|----------------------------|----------------------------------|------------------------|---------------------------------|-----------------------|----------------------------------------------------|----------------------------------------------|----------------------------------------------|--|
|           |                            | AADT<br>(total vehicles/<br>day) | HGV (vehicles/<br>day) | AADT<br>(total<br>vehicles/day) | HGV<br>(vehicles/day) | Change in<br>AADT Flows<br>(total<br>vehicles/day) | Change in<br>LGV Flows<br>(vehicles/<br>day) | Change in<br>HGV Flows<br>(vehicles/<br>day) |  |
| CR11-3    | A16                        | 20116                            | 3088                   | 21679                           | 3327                  | 369                                                | 139                                          | 229                                          |  |
| CR12-2    | A16                        | 17435                            | 1938                   | 18790                           | 2088                  | 308                                                | 72                                           | 235                                          |  |
| CR11-4    | A16                        | 23808                            | 3164                   | 25658                           | 3410                  | 367                                                | 137                                          | 229                                          |  |
| CR11-1    | A16                        | 18830                            | 3207                   | 20293                           | 3456                  | 341                                                | 95                                           | 245                                          |  |
| CR11-2    | A16                        | 16661                            | 1765                   | 17956                           | 1902                  | 353                                                | 123                                          | 229                                          |  |
| CR12-1    | A16                        | 16125                            | 2380                   | 17378                           | 2565                  | 338                                                | 102                                          | 235                                          |  |
| LK65      | Marsh<br>Road,<br>Spalding | 145                              | 20                     | 156                             | 22                    | 502                                                | 348                                          | 155                                          |  |
| LK66      | Stone<br>Gate,<br>Spalding | 0                                | 0                      | 0                               | 0                     | 239                                                | 82                                           | 157                                          |  |
| LK87      | A151                       | 0                                | 0                      | 0                               | 0                     | 164                                                | 7                                            | 157                                          |  |
| LK79      | A151                       | 16435                            | 1620                   | 17712                           | 1746                  | 312                                                | 7                                            | 305                                          |  |
| LK86      | A151                       | 12544                            | 1593                   | 13519                           | 1717                  | 298                                                | 7                                            | 291                                          |  |

Note:

All traffic data presented in the table has been rounded to the nearest whole number.



- 12.7.1 Human and ecological sensitive receptors adjacent to road links where the projected changes in traffic flows due to construction of the Project do not exceed the EPUK/IAQM and IAMQ criteria have been screened out of any further assessment and therefore significant effects at these locations are considered unlikely.
- 12.7.2 Finalised traffic projections produced in support of the ES will, however, be rescreened to confirm that changes in traffic flows due to construction of the Project exceed the relevant criteria. Where this is the case, a detailed assessment involving dispersion modelling will be undertaken and reported in the ES, based upon the methodology summarised in section 12.5 and detailed within **Supplementary PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.
- 12.7.3 It is noted that vehicle movements during construction of the Project will vary throughout the construction programme, with relatively short peaks in LGV and HGV movements, associated with workforce travel and the import/export of construction materials respectively. It is assumed that any peak in HGV movements will be short in duration.
- 12.7.4 Notwithstanding this, at receptors within 200 m of those road links identified in **Table 12.7**, significant effects due to changes in air quality cannot be ruled out at this stage, in the absence of dispersion modelling results.

### Operation

- 12.7.5 It is currently predicted that the operational and maintenance traffic flows will fall below the EPUK/IAQM change criteria (for human sensitive receptors) and the IAQM criteria (for ecological sensitive receptors). However, screening against both the EPUK/IAQM and IAQM screening criteria will be undertaken at the ES Stage.

## Likely Non-significant Effects

### Construction Dust Assessment

- 12.7.6 **Supplementary PEI Report Volume 2 Part B Figure 12.1 Construction Dust Study Area** shows the construction dust Study Area. The construction of the 400 kV overhead line would generally follow the sequence outlined in **Supplementary PEI Report Volume 2 Part B Chapter 1 Overview of the Section and Description of the Project**.
- 12.7.7 Construction activities that have the potential to generate and/or re-suspend dust and PM<sub>10</sub> include:
- site surveys and preparation;
  - enabling works, including localised utility works;
  - establishment of temporary access/egress to the Site and haul routes;
  - establishment of construction compounds;
  - earthworks, including the groundworks (soil stripping and excavation for substation and pylon foundations);
  - materials handling, storage, stockpiling and disposal;
  - movement of vehicles and construction traffic within the draft Order Limits;

- viii. exhaust emissions from site plant and NRMM, especially when used at the extremes of their capacity and during mechanical breakdown;
- ix. construction of foundations and substation aprons;
- x. construction of buildings and areas of hardstanding alongside fabrication processes;
- xi. pylon assembly;
- xii. establishment of scaffolding and crossing protection;
- xiii. conductor stringing;
- xiv. demobilisation of construction compounds and temporary accesses; and
- xv. site reinstatement.

- 12.7.8 The majority of the dust releases during construction are likely to occur in the 'working week', during which construction activities are undertaken. However, for some potential release sources (e.g. exposed soil or stockpiles), in the absence of dust control mitigation measures, dust generation has the potential to occur 24 hours per day, 7 days per week, until such works are complete and areas are reinstated.
- 12.7.9 The construction dust assessment methodology adopts a worst-case approach and treats all receptors within the Section 5 Study Area consistently. There will, however, be considerable variation in the magnitude of dust emissions throughout the construction phase dependant on specific construction activities being undertaken at any one time. This includes, for example, variation in the number of vehicles throughout the construction programme, which will affect the trackout of dust emissions.
- 12.7.10 Therefore, the risk of impacts to local amenity will vary throughout construction and be greater during certain periods (e.g. during the peak of earthwork activities). Several receptors within Section 5 Study Area will also be influenced by construction activities for shorter periods than others. For example, a sensitive receptor location in proximity to a pylon location is likely to experience impacts for a shorter period than a receptor in proximity to a construction compound site. This is due to the greater scale and duration of construction activities associated with a construction compound, relative to the activities required for the erection of pylons. This assessment will be refined further as more detail is available in the ES submitted with the DCO application.

### Assessment of Potential Dust Emission Magnitude

- 12.7.11 The IAQM assessment methodology has been used to determine the potential dust emission magnitude for the following four different dust and PM<sub>10</sub> sources: demolition; earthworks; construction; and trackout. The findings of the assessment are presented below.

#### Demolition

- 12.7.12 Demolition works within the Section 5 Study Area are anticipated to include works to reconfigure the existing 400 kV overhead lines, involving both temporary overhead line diversions and permanent modifications to the existing overhead line alignments. As part of this work, some of the existing 400 kV pylons will be dismantled and removed where they are no longer required following the realignment of the overhead

lines, or where the existing pylons need to be removed to provide space for the new overhead line alignments.

- 12.7.13 Based upon precautionary assumptions, the total volume of assumed works is more than 75,000 m<sup>3</sup> and is therefore defined as large.

#### Earthworks

- 12.7.14 The main earthworks that will be undertaken are localised preparation for substation, underground cable and pylon foundation construction and landscaping. The main soil type within the Section 5 Study Area is Wisbech Association which is seasonally waterlogged affected by a shallow fluctuating ground-water table. More information on each soil type is given within **Supplementary PEI Volume 2 Section 5 Chapter 8 Agriculture and Soils**.

- 12.7.15 The total area of the Site falls within the IAQM range for large sites (over 110,000 m<sup>2</sup>). Therefore, the potential dust emission magnitude is judged to be large for earthwork activities given the scale of the site and the soil types present.

#### Construction

- 12.7.16 The total volume of buildings<sup>6</sup> (substations, pylons and construction compounds) to be constructed on the Site will be above 75,000 m<sup>3</sup> with potentially dusty construction materials being used. Therefore, the potential dust emission magnitude is judged to be large for construction activities.

#### Trackout

- 12.7.17 There are likely to be between over 50 HDV outward movements in any one day, travelling over potentially dusty surface material. It is considered that the potential dust emission magnitude is large for trackout.

#### Dust Emission Magnitude Summary

- 12.7.18 **Table 12.8** provides a summary of the potential dust emission magnitude determined for each construction activity considered.

**Table 12.8** Potential dust emission magnitude

| Activity     | Dust Emission Magnitude |
|--------------|-------------------------|
| Demolition   | Large                   |
| Earthworks   | Large                   |
| Construction | Large                   |
| Trackout     | Large                   |

<sup>6</sup> For the purposes of the assessment, pylons have been defined as buildings. The Building Act 1984 defines the word “building” as “any permanent or temporary building, and, unless the context otherwise requires, it includes any other structure or erection of whatever kind or nature (whether permanent or temporary)”.

## Assessment of Sensitivity of the Study Area

- 12.7.19 The prevailing wind direction is from the south. Therefore, receptors located to the north of the draft Order Limits (specifically the residential properties off March Road on the edge of draft Order Limits) are more likely to be affected by dust and PM<sub>10</sub> emitted and re-suspended during the construction phase.
- 12.7.20 Surfleet Bank Local Wildlife Site is situated less than 10 m northwest of the draft Order Limits, Vernatt's Drain is situated less than 10 m west of the draft Order Limits and Pinchbeck Marsh is situated less than 10 m east of the draft Order Limits. As per the IAQM guidance (Ref 6), Local Wildlife Sites are deemed to be low sensitivity receptors.
- 12.7.21 Under low wind speed conditions, it is likely that the majority of dust would be deposited in the area immediately surrounding the source. This area mainly comprises arable land, the receptor counts are outlined in **Table 12.9** There are also sensitive receptors along the public highways which could be used as construction routes within 250 m of the Site, including residential receptors on Marsh Road and Carrington Road. Background PM<sub>10</sub> levels are predicted to be well below the annual mean objective (see **Table 12.4**).

Table 12.9 Count of human sensitive receptors within defined distances

| Section Number | Distance from draft Order Limits |        |         |         |         |
|----------------|----------------------------------|--------|---------|---------|---------|
|                | 0-20 m                           | 0-50 m | 0-100 m | 0-200 m | 0-250 m |
| 5              | 9                                | 19     | 30      | 45      | 71      |

- 12.7.22 Taking the above number and sensitivity of receptors into account and following the IAQM assessment methodology, the sensitivity of the area to changes in dust and PM<sub>10</sub> has been derived for each of the construction activities considered. The results are shown in **Table 12.10**.

Table 12.10 Sensitivity of the Section 5 Study Area

| Potential Impact | Sensitivity of the Surrounding Area |            |              |          |
|------------------|-------------------------------------|------------|--------------|----------|
|                  | Demolition                          | Earthworks | Construction | Trackout |
| Dust Soiling     | Medium                              | Medium     | Medium       | Medium   |
| Human Health     | Low                                 | Low        | Low          | Low      |
| Ecological       | Low                                 | Low        | Low          | Low      |

## Assessment of Dust Risk to Define Site-Specific Mitigation

- 12.7.23 The predicted dust emission magnitude has been combined with the defined sensitivity of the area to determine the risk of impacts during the construction phase, prior to mitigation. **Table 12.11** below provides a summary of the risk of dust impacts for the Project. The risk category identified for each construction activity has been used to determine the level of mitigation required.

Table 12.11 Summary dust risk table

| Potential Impact | Risk       |            |              |          |
|------------------|------------|------------|--------------|----------|
|                  | Demolition | Earthworks | Construction | Trackout |
| Dust Soiling     | High       | Medium     | Medium       | Medium   |
| Human Health     | Medium     | Low        | Low          | Low      |
| Ecological       | Medium     | Low        | Low          | Low      |

- 12.7.24 Control measures relevant to dust impacts during construction are set out within the Preliminary CoCP and summarised in section 12.6. Based upon the identified risk, an appropriate suite of dust management measures will be specified within the DMP to be included in the CEMP, which will be adhered to during construction (Preliminary CoCP measure AQ1). Based upon the application of the DMP and the further management measures included within Preliminary CoCP, it is not considered likely that there would be significant effects associated with dust generated during construction.

### Construction Traffic Emissions

- 12.7.25 Where projected changes in vehicle movements due to construction are below the EPUK/IAQM thresholds and IAQM thresholds, changes in air quality at relevant receptor locations are unlikely to be significant. However, the change in HGV vehicle trips will be rescreened and assessed as per the EPUK/IAQM guidance (Ref 8) and IAQM guidance (Ref 9) and the outcomes reported within the ES.

### Operation and Maintenance

- 12.7.26 It is considered unlikely, based upon professional experience of similar projects, that the operation/maintenance vehicle movements associated with the elements of the Project located in Section 5 will exceed EPUK/IAQM screening criteria described above (Ref 8). However, once full operational traffic data has been made available, a detailed assessment of any road links where predicted operational traffic flows exceed the criteria will be completed and reported within the ES.

### Summary

- 12.7.27 For completeness, **Table 12.12** summarises the findings of the preliminary assessment with respect to those impacts that are not predicted to result in significant Air Quality effects.

Table 12.12 Preliminary summary of non-significant Air Quality effects – Section 5

| Receptor                                                      | Impact                                                                                                                         | Sensitivity/ Importance/ Value of Receptor                                                                                                                | Magnitude of Change | Significance    | Rationale                                                                                                                                                                                    |
|---------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Construction</b>                                           |                                                                                                                                |                                                                                                                                                           |                     |                 |                                                                                                                                                                                              |
| Human Health Receptors sensitive to construction dust impacts | Without mitigation, there may be adverse impacts to human health owing to construction dust impacts.                           | There are 9 receptors within 20 m of the draft Order Limits, therefore according to the IAQM guidance, the area sensitivity is classified as low.         | Negligible          | Not significant | With the appropriate mitigation in place as described in the chapter and as will be secured in the Preliminary CoCP, construction dust impacts are not considered significant.               |
| Receptors sensitive to amenity loss from construction dust    | Without mitigation, there may be adverse impacts to receptors sensitive to amenity loss within 250m of the draft Order Limits. | There are over 9 receptors within 20 m of the draft Order Limits, therefore according to the IAQM guidance, the area sensitivity is classified as medium. | Negligible          | Not significant | With the appropriate mitigation in place as described in the chapter and as will be secured in the Preliminary CoCP, construction dust impacts are not considered significant.               |
| Ecological receptors sensitive to construction dust impacts   | Without mitigation, there may be adverse impacts to ecological sites through dust deposition.                                  | There are Local Wildlife Sites within 200 m of the draft Order Limits, therefore, according to the IAQM guidance, the receptor sensitivity is low.        | Negligible          | Not significant | With the appropriate mitigation in place as described in the chapter and as will be secured in the Preliminary CoCP, construction dust impacts are not considered significant.               |
| <b>Operation and Maintenance</b>                              |                                                                                                                                |                                                                                                                                                           |                     |                 |                                                                                                                                                                                              |
| Human Health Receptors sensitive to changes in air quality    | Changes in pollutant concentrations due to operation/maintenance vehicle emissions associated with the Project.                | No road links have been identified which exceed the relevant criteria.                                                                                    | Negligible          | Not significant | Projected changes in traffic flow during operation and maintenance of the Project are low and are not predicted to exceed the relevant assessment criteria. Therefore, changes in pollutants |

| Receptor                                                             | Impact | Sensitivity/ Importance/<br>Value of Receptor | Magnitude<br>of Change | Significance | Rationale                                                                                        |
|----------------------------------------------------------------------|--------|-----------------------------------------------|------------------------|--------------|--------------------------------------------------------------------------------------------------|
| Ecological<br>Receptors<br>sensitive to<br>changes in air<br>quality |        |                                               |                        |              | concentrations due to<br>operational/maintenance traffic<br>are not predicted to be significant. |



## 12.8 Monitoring

- 12.8.1 As part of the CoCP, a CEMP will be prepared which will include dust management measures as outlined above. Control Mitigation Measure AQ01 includes for daily on-site and off-site visual inspections which would be undertaken by the Contractor(s) to monitor dust levels. These inspection findings would be recorded in the site log.
- 12.8.2 The proposed Control Mitigation Measures are anticipated to minimise the impacts such as that no significant effect would be expected. Consequently, no Air Quality monitoring beyond on-site and off-site visual inspections would be required during the construction and operational phases of the Project.

# References

- Ref 1 National Grid Electricity Transmission (2025). Grimsby to Walpole Preliminary Environmental Information Report [online]. Available at: <https://www.nationalgrid.com/the-great-grid-upgrade/grimsby-to-walpole/document-library#4257225834-3023854277> [Accessed 12 September 2025].
- Ref 2 South East Lincolnshire Council (2019). Local Plan 2011 to 2036 (Adopted 2019) [online]. Available at: <https://southeastlincslocalplan.org/media/21941/South-East-Lincolnshire-Local-Plan-2011-2036/pdf/Local-Plan-text-March-2019.pdf?m=1720710748483> [Accessed 02 December 2024].
- Ref 3 The Planning Inspectorate (2024). Scoping Opinion: Proposed Grimsby to Walpole Project [online]. Available at: <https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN020036-000109-Scoping%20Opinion%202017%20EIA%20Regs.pdf> [Accessed 18 October 2024].
- Ref 4 National Grid Electricity Transmission (2024). Grimsby to Walpole Environmental Impact Assessment Scoping Report [online]. Available at: <https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN020036-000004-EN020036%20-%20Scoping%20Report%20Volume%201%20Main%20Report.pdf> [Accessed 18 October 2024].
- Ref 5 National Grid (2025). Stage 1 Consultation Feedback Report. Available at: [\[https://www.nationalgrid.com/the-great-grid-upgrade/grimsby-to-walpole/document-library\]](https://www.nationalgrid.com/the-great-grid-upgrade/grimsby-to-walpole/document-library) [Accessed 12 September 2025].
- Ref 6 Institute of Air Quality Management (2024). Guidance on the Assessment of Dust from Demolition and Construction v2.2 [online]. Available at: <https://iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf> [Accessed 18 October 2024].
- Ref 7 Laxen & Marner (2008). NO<sub>2</sub> Concentrations and Distance from Roads [online]. Available at: <https://iaqm.defra.gov.uk/documents/FallOffWithDistanceReptJuly08.pdf> [Accessed 15 January 2024].
- Ref 8 Environmental Protection UK and Institute of Air Quality Management (2017). Land Use Planning & Development Control: Planning for Air Quality v1.2 [online]. Available at: <https://iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf> [Accessed 19 November 2024].
- Ref 9 Institute of Air Quality Management (2020). A Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites v1.1 [online]. Available at: <https://www.the-ies.org/resources/guide-assessment-air-quality> [Accessed 18 December 2024].
- Ref 10 Defra (2024). Background Mapping data for local authorities - 2021 [online]. Available at: UK Air Information Resources: <https://uk-air.defra.gov.uk/data/iaqm-background-maps?year=2021> [Accessed 22 November 2024].
- Ref 11 UK Centre for Ecology & Hydrology (CEH) (2025). The UK Air Pollution Information System [online]. Available at: <http://www.apis.ac.uk/> [Accessed 03 April 2025].

- Ref 12 Defra (2025). AQMAs Interactive Map [online]. Available at: <https://uk-air.defra.gov.uk/aqma/maps/> [Accessed 11 March 2025].
- Ref 13 Defra (2024). Multi-Agency Geographic Information for the Countryside Interactive Map [online]. Available at: <https://magic.defra.gov.uk/> [Accessed 18 October 2024].
- Ref 14 South Holland District Council (2024). South Holland District Council Annual Progress Report 2024 [online]. Available at: <https://democracy.sholland.gov.uk/documents/s42153/Overview%20and%20Scrutiny%20Annual%20Report%2020232024.pdf> [Accessed 02 December 2024].
- Ref 15 UK Pollutant Release and Transfer Register data sets (2024). Public Register of Industrial Pollution Sources. Available at: <https://prtr.defra.gov.uk/map-search> [Accessed 27 November 2024].
- Ref 16 South Holland District Council (2024). Environmental Permitting [online]. Available at: <https://www.sholland.gov.uk/article/5654/Environmental-Permitting> [Accessed 02 January 2025].
- Ref 17 Defra (2019). Clean Air Strategy 2019 [online]. Available at: <https://www.gov.uk/government/publications/clean-air-strategy-2019> [Accessed 18 October 2024].
- Ref 18 National Grid. The Holford Rules: Guidelines on Overhead Line Routing. [online] Available at: <https://www.nationalgrid.com/sites/default/files/documents/13795-The%20Holford%20Rules.pdf> [Accessed 20 September 2024].
- Ref 19 National Grid. NGC Substations and the Environment: Guidelines on Siting and Design. [online] Available at: <https://www.nationalgrid.com/sites/default/files/documents/13796-The%20Horlock%20Rules.pdf> [Accessed 20 September 2024].
- Ref 20 National Grid Electricity Transmission (2024). Grimsby to Walpole Corridor Preliminary Routeing and Siting Study [online]. Available at: <https://www.nationalgrid.com/document/352621/download> [Accessed 12 April 2024].

# 13. Summary

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# 13. Summary for Section 5 New Weston Marsh Substations A and B

## 13.1 Introduction

- 13.1.1 This chapter of the Supplementary Preliminary Environmental Information (PEI) Report summarises the findings of the preliminary assessment of likely significant environmental effects arising from the construction, operation and maintenance of the New Weston Marsh Substations A and B Section (Section 5) of the Grimsby to Walpole Project (the Project).
- 13.1.2 This chapter presents an update to the previously published June 2025 PEI Report Volume 2 Part B Section 5 Chapter 13 (Ref 1), which formed part of the Stage 2 Consultation completed between 11 June and 6 August 2025. This update reflects the fact that since the launch of the Stage 2 Consultation, further design development work has been completed to confirm the requirement for two substations within Section 5, the preferred locations of the new Weston Marsh Substation A and new Weston Marsh Substation B and the associated overhead line and underground cable connections. The draft Order Limits for Section 5 have also now been defined, whereas the June 2025 PEI Report was based upon a wider 'Refined Weston Marsh Substation Siting Zone' boundary which covered a greater total area than the draft Order Limits.
- 13.1.3 The full preliminary assessments, including the rationale as to why an effect is considered to be significant or not significant, can be found in **Supplementary PEI Report Volume 2 Part B Chapter 2 to 12**.
- 13.1.4 The likely significant effects summarised in **Table 13.2** and **Table 13.3** take into account the design and embedded mitigation measures and control mitigation measures described within **Supplementary PEI Report Volume 2 Part B Chapter 2 to 12**. Where additional mitigation measures have been determined at this stage, these are taken into account, however it is noted that the identification and design of additional mitigation measures is ongoing. As such, likely significant effects identified in **Table 13.2** and **Table 13.3** are based upon currently confirmed additional mitigation measures only.
- 13.1.5 Baseline data is also still being collected, surveys are still being undertaken, and the design of the Project will be refined prior to the Development Consent Order (DCO) application being submitted. As such, a confidence rating has been introduced in the summary tables below which provides a rating of high, moderate or low confidence in the prediction of the significance of effects. Definitions of the confidence ratings are provided in **Table 13.1**.
- 13.1.6 As the design evolves, mitigation measures and environmental assessments will be further developed and reported within the Environmental Statement (ES) submitted with the DCO application.

Table 13.1 Confidence level definitions

| Confidence Level    | Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| High Confidence     | <p>A high level of confidence in the prediction of significant effects can be justified through:</p> <ul style="list-style-type: none"> <li>• The consideration of, and routeing and/or siting of the Project away from, designated features and high sensitivity receptors;</li> <li>• Complete baseline data to inform the prediction;</li> <li>• Mitigation measures are fully defined and/or the application of mitigation measures has proven to be effective in similar projects; and</li> <li>• A thorough understanding of Project activities.</li> </ul>                                              |
| Moderate Confidence | <p>A moderate level of confidence in the prediction of significance of effects can be justified through:</p> <ul style="list-style-type: none"> <li>• Particular surveys or assessments are incomplete at this stage, but it is possible to extrapolate results;</li> <li>• Mitigation measures will continue to be developed up to the submission of the application for consent; and</li> <li>• A general understanding of the Project activities being undertaken, and the associated impacts based on other Projects, while more detailed information will be provided later.</li> </ul>                   |
| Low Confidence      | <p>A low level of confidence in the prediction of significance of effects can be justified through:</p> <ul style="list-style-type: none"> <li>• Only limited baseline data is available at this stage;</li> <li>• Input assessments (e.g. modelling outputs) are unavailable or limited, to the extent it isn't possible to confidently identify the effect and its significance.</li> <li>• Exact project activities are unknown;</li> <li>• Mitigation measures remain in the early stages of development; and</li> <li>• Where this is the case, a precautionary, worst-case approach is taken.</li> </ul> |



Table 13.2 Summary of significant effects during the construction phase

| Description of receptor and potential impact                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Key embedded and control measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Proposed additional mitigation measures                                                                                                                                                                        | Preliminary likely significant effects | Confidence rating (high/ moderate/ low) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------|
| <b>Landscape</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                |                                        |                                         |
| <p>The East Midlands Regional Landscape Character Types (RLCT) of RLCT 2A: Settled Fens and Marshes, would be directly impacted by the construction of the proposed new Weston Marsh Substation A and the new Weston Marsh Substation B and their overhead line connections, including the establishment and presence of temporary construction compounds, haul roads and pylons. There would also be direct effects on the landscape from the construction of the underground cable between the new Weston Marsh Substation A and the new Weston Marsh Substation B. Together, all of these works would fundamentally alter both the landscape's character and how it is perceived.</p> | <p>The new Weston Marsh Substation A has been located close to the existing Spalding Tee Point to reduce the amount of new overhead line required.</p> <p>The new Weston Marsh Substation B is located where it balances the overhead line requirements for this Project and other proposed connections and reduces the number of pylons required.</p> <p>The locations of access tracks, bellmouths and overhead line seeks to minimise loss of vegetation, to help retain existing landscape character.</p> <p>Construction related impacts would be managed through measures outlined within the <b>Preliminary Code of Construction Practice</b> (Preliminary CoCP).</p> | <p>Areas of woodland planting and tree planting on field boundaries around the new Weston Marsh Substations A and B are proposed to provide visual screening, which would help with landscape integration.</p> | Adverse effect                         | High                                    |
| <b>Visual</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                |                                        |                                         |

| Description of receptor and potential impact | Key embedded and control measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Proposed additional mitigation measures                                                                                                                                                                        | Preliminary likely significant effects | Confidence rating (high/ moderate/ low) |
|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------|
|                                              | <p>The new Weston Marsh Substation A has been located close to the existing Spalding Tee Point to reduce the amount of new overhead line required.</p> <p>The new Weston Marsh Substation B is located where it balances the overhead line requirements for this Project and other proposed connections and reduces the number of pylons required.</p> <p>The locations of access tracks, bellmouths and overhead line seeks to minimise loss of vegetation, to help retain existing landscape character.</p> <p>Construction related impacts would be managed through measures outlined within the Preliminary CoCP.</p> | <p>Areas of woodland planting and tree planting on field boundaries around the New Weston Marsh Substations A and B are proposed to provide visual screening, which would help with landscape integration.</p> | Adverse effect                         | High                                    |

## Ecology

### Designated Sites

|                                                                                              |                                                                               |                                                                                       |                                                               |                                                                          |
|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------|--------------------------------------------------------------------------|
| Bird species which are qualifying features of the following European Designated Sites may be | The new substations, overhead line and underground cable connections, and the | The assessment does not take into account additional mitigation measures which are in | Significant adverse effects cannot be excluded at this stage. | Low – further assessment is required once surveys are completed and data |
|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------|--------------------------------------------------------------------------|

| Description of receptor and potential impact                                                                                                                                                                                                                                                                                 | Key embedded and control measures                                                                                                                                                                                                                                                                             | Proposed additional mitigation measures                                                                                                                                                                                                           | Preliminary likely significant effects                               | Confidence rating (high/ moderate/ low)                                                                                                                                                                                                                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>impacted by construction activities within functionally linked land, potentially resulting in temporary displacement and/or habitat degradation:</p> <ul style="list-style-type: none"> <li>The Wash Special Protection Area (SPA) and Ramsar Site; and</li> </ul> <p>Nene Washes SPA and Ramsar Site.</p>                | <p>associated temporary construction works, have been designed to minimise the extent of land take and reduce impacts on habitats and protected species as far as reasonably practicable.</p> <p>Construction related impacts would be managed through the measures outlined within the Preliminary CoCP.</p> | <p>the early stages of development and are yet to be confirmed. These measures will be informed by ongoing surveys and assessment and are likely to include the creation of replacement habitats where required to avoid significant effects.</p> |                                                                      | <p>assessed. The potential for likely significant effect (LSE) upon these sites will be assessed within the Report to Inform the Habitat Regulations Assessment, informed by discussions with Natural England other statutory bodies.</p>                                                                          |
| <p>Otters and habitats such as seedbanks, mudflats and coastal lagoons, which are qualifying features of The Wash and North Norfolk Coast Special Area of Conservation (SAC) may be impacted by construction activities within functionally linked land, resulting in temporary displacement and/or habitat degradation.</p> |                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                   | <p>Significant adverse effects cannot be excluded at this stage.</p> | <p>Low – further assessment is required once surveys are completed and data assessed. The potential for likely significant effect (LSE) upon these sites will be assessed within the Report to Inform the Habitat Regulations Assessment, informed by discussions with Natural England other statutory bodies.</p> |
| <p>The bird assemblages of The Wash Site of Special Scientific Interest (SSSI) and Surfleet Lows SSSI may be impacted by construction activities within</p>                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                   | <p>Significant adverse effects cannot be excluded at this stage.</p> | <p>Low - potential impacts upon the bird assemblage will be assessed once all</p>                                                                                                                                                                                                                                  |

| Description of receptor and potential impact                                                                                                                                                                                                                                                                                                                    | Key embedded and control measures                                                                                                                                                                                                                                                                                     | Proposed additional mitigation measures                                                                                                                                                                                                                                            | Preliminary likely significant effects                        | Confidence rating (high/ moderate/ low)                                                                                                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| functionally linked land, resulting in temporary displacement and/or habitat degradation.                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                    |                                                               | baseline surveys are complete.                                                                                                               |
| Three local wildlife sites (LWSs) may be adversely impacted by construction activities causing habitat loss and/or degradation, potentially resulting in adverse effects on local fauna. These specifically include Surfleet Bank LWS within the draft Order Limits and Pinchbeck Marsh LWS and Vernatts Drain LWS immediately adjacent the draft Order Limits. |                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                    | Significant adverse effects cannot be excluded at this stage. | Low - Survey works are ongoing and will inform further assessment of impacts.                                                                |
| <b>Habitats</b>                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                    |                                                               |                                                                                                                                              |
| Terrestrial habitats may be directly impacted by construction of the new substations, new pylons, stringing areas, the underground cable route and haul roads, causing loss of habitats affecting local flora and fauna. This includes Coastal and Floodplain Grazing Marsh along the River Welland and small areas of                                          | The new substations, overhead line and underground cable connections, and the associated temporary construction works, have been designed to minimise the extent of land take and reduce impacts on habitats and protected species as far as reasonably practicable. Wherever possible, habitats directly impacted by | The assessment does not take into account additional mitigation measures which are in the early stages of development and are yet to be confirmed. These measures will be informed by ongoing survey and assessment and are likely to include the creation of replacement habitats | Significant adverse effects cannot be excluded at this stage. | Low - survey works are ongoing and will inform further assessment of impacts and effects and the design of any required mitigation measures. |

| Description of receptor and potential impact                                                                                                                                                                                                                                                                                                                                      | Key embedded and control measures                                                                                                                                                         | Proposed additional mitigation measures      | Preliminary likely significant effects | Confidence rating (high/ moderate/ low) |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|----------------------------------------|-----------------------------------------|
| <p>broadleaved woodland within the draft Order Limits.</p> <p>Aquatic habitats may be directly and indirectly impacted by construction activities associated with the construction of the substations, overhead line, underground cable route and access watercourse crossings and diversions, potentially resulting in temporary loss or damage to watercourses and ditches.</p> | <p>temporary construction works will be reinstated post construction.</p> <p>Construction related impacts would be managed through the measures outlined within the Preliminary CoCP.</p> | where required to avoid significant effects. |                                        |                                         |

### Protected and Notable Species

|                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                        |                                                               |                                                                                                                                              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| <p>The following species may be impacted by construction activities resulting in loss, damage or fragmentation of suitable habitats; disturbance due to noise and vibration, lighting and/or increased human presence; and/or death/injury:</p> <ul style="list-style-type: none"> <li>• Great Crested Newts;</li> <li>• Wintering and breeding birds;</li> <li>• Bats;</li> <li>• Otters;</li> <li>• Fish;</li> </ul> | <p>The new substations, overhead line and underground cable connections, and the associated temporary construction works, have been designed to minimise the extent of land take and reduce impacts on habitats and protected species as far as reasonably practicable.</p> <p>Wherever possible, habitats directly impacted by temporary construction works will be reinstated post construction.</p> | <p>The assessment does not take into account additional mitigation measures which are in the early stages of development and are yet to be confirmed. These measures will be informed by ongoing survey and assessment and are likely to include the creation of replacement habitats where required to avoid significant effects.</p> | Significant adverse effects cannot be excluded at this stage. | Low - survey works are ongoing and will inform further assessment of impacts and effects and the design of any required mitigation measures. |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|

| Description of receptor and potential impact                                                                                          | Key embedded and control measures                                                                        | Proposed additional mitigation measures | Preliminary likely significant effects | Confidence rating (high/ moderate/ low) |
|---------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-----------------------------------------|----------------------------------------|-----------------------------------------|
| <ul style="list-style-type: none"> <li>Aquatic macroinvertebrates;</li> <li>Aquatic macrophytes; and</li> <li>Water voles.</li> </ul> | Construction related impacts would be managed through the measures outlined within the Preliminary CoCP. |                                         |                                        |                                         |

## Historic Environment

### Designated Assets

|                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                  |                |      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|----------------|------|
| Wykeham Chapel moated monastic grange (NHLE 1019096) Scheduled Monument would be impacted temporarily by construction activities associated with the New Weston Marsh Substation B, new/modified overhead line entries and new underground cable route, including temporary construction compounds and haul roads, resulting in changes to the setting of this scheduled monument. | The locations of the proposed new substations and associated works have sought to ensure existing vegetation can be retained to screen views of the substation. The locations of access tracks, bellmouths and overhead line alignments have also been refined to minimise loss of mature vegetation. This includes utilising existing permanent access routes where reasonably practicable. | The assessment does not consider additional measures as they are yet to be developed due to the preliminary nature of the design, for Section 5. | Adverse effect | High |
| Wykeham Chapel moated monastic grange (NHLE 1019096) Scheduled Monument would be impacted permanently due to the presence of the New Weston Marsh Substation B and associated overhead line connections, which would                                                                                                                                                               | Construction related impacts would be managed through the measures outlined within the Preliminary CoCP.                                                                                                                                                                                                                                                                                     |                                                                                                                                                  | Adverse effect | High |

| Description of receptor and potential impact                                                                                                                                                                                                                                                                                                 | Key embedded and control measures | Proposed additional mitigation measures | Preliminary likely significant effects | Confidence rating (high/ moderate/ low) |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-----------------------------------------|----------------------------------------|-----------------------------------------|
| noticeably alter the wider setting of the setting of this scheduled monument.                                                                                                                                                                                                                                                                |                                   |                                         |                                        |                                         |
| The Grade I Listed Wykeham Chapel of St Nicholas (NHLE 1064471) would be impacted temporarily by construction activities associated with the New Weston Marsh Substation B, new/modified overhead line entries, new underground cable route and construction compounds and haul roads, resulting in changes to the setting of this building. |                                   |                                         | Adverse effect                         | High                                    |
| The Grade I Listed Wykeham Chapel of St Nicholas (NHLE 1064471) would be impacted permanently due to the presence of the New Weston Marsh Substation B and associated overhead line connections, which would noticeably alter the wider setting of this building.                                                                            |                                   |                                         | Adverse effect                         | High                                    |
| The Grade II Listed The Chapel Farmhouse (NHLE 1147513) and associated gate piers (NHLE 1064472) would be impacted temporarily by                                                                                                                                                                                                            |                                   |                                         | Adverse effect                         | High                                    |



| Description of receptor and potential impact                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Key embedded and control measures                                                                                                                   | Proposed additional mitigation measures                                                                                                                                              | Preliminary likely significant effects | Confidence rating (high/ moderate/ low)                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>construction activities associated with the New Weston Marsh Substation B, new/modified overhead line entries, new underground cable route and construction compounds and haul roads, resulting in changes to the setting of these assets.</p> <p>The Grade II Listed Chapel Farmhouse (NHLE 1147513) and associated gate piers (NHLE 1064472) would be impacted permanently due to the presence of the New Weston Marsh Substation B and associated overhead line connections, which would noticeably alter the wider setting of these assets.</p> |                                                                                                                                                     |                                                                                                                                                                                      | Adverse effect                         | High                                                                                                                                                                                       |
| <b>Water Environment and Flood Risk</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                     |                                                                                                                                                                                      |                                        |                                                                                                                                                                                            |
| Third party flood risk receptors may be impacted by the presence of temporary works within defended floodplain, including construction compounds, haul roads, stockpiles and watercourse crossings, resulting in the temporary loss of floodplain storage and/or change in                                                                                                                                                                                                                                                                             | Impacts upon floodplain storage and flow conveyance during construction would be managed through the measures outlined within the Preliminary CoCP. | Additional mitigation measures are in the early stages of development and may include provision of compensatory storage, subject to ongoing discussions with the Environment Agency. | Moderate to Major adverse effect       | Low - several factors require further assessment to inform the final Flood Risk Assessment, including review of existing flood models, informed by engagement with the Environment Agency. |

| Description of receptor and potential impact                                                                                                                                                                                                                              | Key embedded and control measures                                                                                                                                                                                                                                                                       | Proposed additional mitigation measures                                                 | Preliminary likely significant effects | Confidence rating (high/ moderate/ low) |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------|
| floodplain flow conveyance (under conditions of flood defence overtopping or breach)                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                         |                                                                                         |                                        |                                         |
| <b>Geology and Hydrogeology</b>                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                         |                                                                                         |                                        |                                         |
| No likely significant effects are predicted as a result of the construction phase of the Project, based upon the preliminary assessment.                                                                                                                                  |                                                                                                                                                                                                                                                                                                         |                                                                                         |                                        |                                         |
| <b>Agriculture and Soils</b>                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                         |                                                                                         |                                        |                                         |
| <b>Agriculture Land Classification</b>                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                         |                                                                                         |                                        |                                         |
| 362.6 ha of agricultural land (assumed to be Best and Most Versatile) would be temporarily impacted by construction activities including establishment of haul roads, working areas and temporary compounds, resulting in temporary loss of agricultural land.            | The Project is being designed to minimise the extent of land take required to construct, maintain and operate the proposed assets and position infrastructure (such as substations, pylons and haul roads) as close as is practicable to field boundaries to reduce impacts to agricultural operations. | No additional mitigation measures have been identified for this preliminary assessment. | Moderate adverse effect                | High                                    |
| 106.9 ha of agricultural land (assumed to be BMV land) would be permanently impacted by construction of the substations, overhead line infrastructure (pylon footings and foundations) and underground cable route, resulting in the permanent loss of agricultural land. | Construction impacts would be managed through the measures outlined within the CoCP.                                                                                                                                                                                                                    |                                                                                         | Major adverse effect                   | High                                    |

| Description of receptor and potential impact                                                                                                                                                                                                                                                                                                                                                                                                                                                | Key embedded and control measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Proposed additional mitigation measures                                                                                                                                                       | Preliminary likely significant effects | Confidence rating (high/ moderate/ low) |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------|
| <b>Soil Function</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                               |                                        |                                         |
| <p>Soils within the draft order limits would be temporarily impacted by construction activities, including topsoil/subsoil stripping and storage and trenching associated with underground cable installation, resulting in temporary effects on soil quality and ecosystem services.</p> <p>106.9 ha of soils would be permanently impacted by construction of overhead line infrastructure (pylon footings and foundations) resulting in loss of soil quality and ecosystem services.</p> | <p>The Project is being designed to minimise the extent of land take required to construct, maintain and operate the proposed assets and position infrastructure (such as towers and permanent access routes) as close as is practicable to field boundaries to reduce impacts on agricultural operations.</p> <p>Construction impacts would be managed through the measures outlined within the Preliminary CoCP.</p> <p>Where practicable, all surplus soil resources would be re-used within the Project where, depending on the proposed land use, some soil ecosystem services would be retained, restored or potentially enhanced.</p> <p>Construction impacts would be managed through the measures outlined within the Preliminary CoCP.</p> | <p>No additional mitigation measures have been identified for this preliminary assessment.</p> <p>No additional mitigation measures have been identified for this preliminary assessment.</p> | Major - Moderate adverse effect        | High                                    |
| <b>Traffic and Movement</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                               |                                        |                                         |

| Description of receptor and potential impact                                                                                                                                                                                                                                                                                                           | Key embedded and control measures                                                                                                                                                                                                                                                        | Proposed additional mitigation measures                                                                                                          | Preliminary likely significant effects                       | Confidence rating (high/ moderate/ low)                                                                                                                                                                                                                                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Users of Highways Links</b>                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                          |                                                                                                                                                  |                                                              |                                                                                                                                                                                                                                                                                                                 |
| Drivers (all vehicles including HGVs and Emergency Services) may be impacted where projected increases in traffic flows exceed the relevant Institute of Environmental Management and Assessment thresholds. Where this is the case, change in traffic flow may result in severance, changes in journey time, driver delay and highway safety effects. | Identified construction traffic routes are based upon classified roads as far as practicable. Haul roads would be used to reduce construction traffic movements on local roads. Construction related impacts would be managed through the measures outlined within the Preliminary CoCP. | The assessment does not consider additional measures as they are yet to be developed due to the preliminary nature of the design, for Section 5. | Significant adverse effects cannot be excluded at this stage | Low - construction traffic routes, flows and numbers are not yet known and have been estimated for the purposes of the PEI Report. Detailed assessment of severance, delay, highway safety and fear and intimidation, has yet been undertaken to determine the magnitude of impacts upon identified road links. |
| Bus passengers may be impacted on those routes where projected increases in traffic flows exceed the relevant Institute of Environmental Management and Assessment thresholds, potentially resulting in delay due to congestion.                                                                                                                       |                                                                                                                                                                                                                                                                                          |                                                                                                                                                  | Significant adverse effects cannot be excluded at this stage | Low - construction traffic routes, flows and numbers are not yet known and have been estimated for the purposes of the PEI Report. Detailed assessment of severance, delay, highway safety and fear and intimidation, has yet been undertaken to determine the magnitude of impacts                             |

| Description of receptor and potential impact                                                                                                                                                                                                                                                                                         | Key embedded and control measures                                                                                             | Proposed additional mitigation measures                                                     | Preliminary likely significant effects                       | Confidence rating (high/ moderate/ low)                                                                                                                                                                                                                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|--------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pedestrians and cyclists may be impacted on those routes where projected increases in traffic flows exceed the relevant Institute of Environmental Management and Assessment thresholds, potentially resulting in severance, delay, increased journey time, decline in amenity, additional fear and intimidation and safety effects. |                                                                                                                               |                                                                                             | Significant adverse effects cannot be excluded at this stage | upon identified road links.<br><br>Low - construction traffic routes, flows and numbers are not yet known and have been estimated for the purposes of the PEI Report. Detailed assessment of severance, delay, highway safety and fear and intimidation, has yet been undertaken to determine the magnitude of impacts upon identified road links. |
| <b>Noise and Vibration</b>                                                                                                                                                                                                                                                                                                           |                                                                                                                               |                                                                                             |                                                              |                                                                                                                                                                                                                                                                                                                                                    |
| No likely significant effects are predicted as a result of the construction phase of the Project, based upon the preliminary assessment.                                                                                                                                                                                             |                                                                                                                               |                                                                                             |                                                              |                                                                                                                                                                                                                                                                                                                                                    |
| <b>Socio-economics, recreation and tourism</b>                                                                                                                                                                                                                                                                                       |                                                                                                                               |                                                                                             |                                                              |                                                                                                                                                                                                                                                                                                                                                    |
| No likely significant effects are predicted as a result of the construction phase of the Project, based upon the preliminary assessment.                                                                                                                                                                                             |                                                                                                                               |                                                                                             |                                                              |                                                                                                                                                                                                                                                                                                                                                    |
| <b>Air Quality</b>                                                                                                                                                                                                                                                                                                                   |                                                                                                                               |                                                                                             |                                                              |                                                                                                                                                                                                                                                                                                                                                    |
| Human sensitive receptors (including residential properties, schools, care homes and hospitals) which are within 200 m of road links                                                                                                                                                                                                 | The Project is being designed to maximise the separation between sensitive receptors and the proposed temporary and permanent | The assessment does not consider additional measures as they are yet to be developed due to | Significant adverse effects cannot be excluded at this stage | Low - Dispersion modelling will be undertaken for the ES and will inform further assessment of impacts                                                                                                                                                                                                                                             |

| Description of receptor and potential impact                                                                                                                                                                                                                                                                              | Key embedded and control measures                                                                                                                          | Proposed additional mitigation measures              | Preliminary likely significant effects                       | Confidence rating (high/ moderate/ low)                                                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|--------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| projected to experience increases in traffic flow which are above the Environmental Protection UK/Institute of Air Quality Management and Assessment thresholds, could be exposed to increased pollutant concentrations during the construction phase.                                                                    | access roads as far as reasonably practicable.<br>Construction related impacts would be managed through the measures outlined within the Preliminary CoCP. | the preliminary nature of the design, for Section 5. |                                                              | and effects and the design of any required mitigation measures.                                                                                                        |
| Ecological sensitive receptors which are within 200m of road links projected to experience increases in traffic flow which are above the Environmental Protection UK/Institute of Air Quality Management and Assessment thresholds, could be exposed to increased pollutant concentrations during the construction phase. |                                                                                                                                                            |                                                      | Significant adverse effects cannot be excluded at this stage | Low - Dispersion modelling will be undertaken for the ES and will inform further assessment of impacts and effects and the design of any required mitigation measures. |

Table 13.3 Summary of significant effects during the operation and maintenance phase

| Description of receptor and potential impact                                                                                                                                                                                                                                             | Key embedded and control measures                                                                                                                                                                                                                       | Proposed additional mitigation measures                                                                                                                                                                                                                                                                                   | Preliminary likely significant effects | Confidence rating (high/moderate/low) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|---------------------------------------|
| <b>Landscape</b>                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                           |                                        |                                       |
| The RLCT of RLCT 2A: Settled Fens and Marshes would be directly impacted by the permanent presence of the New Weston Marsh A and New Weston Marsh Substation B and approximately 5km of new 400 kV overhead line, resulting in changes in the character and perception of the landscape. | Permanent infrastructure has been sited close to areas of existing vegetation to screen views of the substations, overhead lines and pylons as far as reasonably practicable and help to integrate the new infrastructure within the broader landscape. | Areas of woodland planting and tree planting on field boundaries around the New Weston Marsh Substations A and B, to provide visual screening, which would help with landscape integration.<br><br>Any planting will seek to utilise native trees and shrubs, where practicable, around the perimeter of the substations. | Adverse effect                         | High                                  |
| <b>Visual</b>                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                           |                                        |                                       |
| The community of Weston Parish would be directly impacted by the permanent presence of the New Weston Marsh Substation A, New Weston Marsh Substation B and approximately 5km of new 400 kV overhead line, extending the area affected by overhead line infrastructure and the           | Permanent infrastructure has been sited close to areas of existing vegetation to screen views of the substations, overhead lines and pylons, to help reduce their visibility within the broader landscape as far as reasonably practicable.             | Areas of woodland planting and tree planting on field boundaries around the New Weston Marsh Substations A and B, to provide visual screening, which would help with landscape integration.<br><br>Any planting will seek to utilise native trees and shrubs, where practicable,                                          | Adverse effect                         | High                                  |



| Description of receptor and potential impact                                                                                                                                                                                                                                                                                                                  | Key embedded and control measures                                                                                                                                                                                                         | Proposed additional mitigation measures                                                                                                                                                                                                                                                                                         | Preliminary likely significant effects                        | Confidence rating (high/moderate/low)                                                                                                                                                                                                                                                                                                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| number of visible pylons. This would result changes to views from receptor locations and those moving through the parish.                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                           | around the perimeter of the substations.                                                                                                                                                                                                                                                                                        |                                                               |                                                                                                                                                                                                                                                                                                                                              |
| <b>Ecology and Biodiversity</b>                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                 |                                                               |                                                                                                                                                                                                                                                                                                                                              |
| <b>Designated Sites</b>                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                 |                                                               |                                                                                                                                                                                                                                                                                                                                              |
| <p>Birds species which are qualifying features of the following designated sites may be impacted by the presence of overhead line resulting in collision mortality:</p> <ul style="list-style-type: none"> <li>• The Wash Special Protection Area (SPA) and Ramsar Site;</li> <li>• Nene Washes SPA and Ramsar Site; and</li> <li>• The Wash SSSI.</li> </ul> | The new substations (including permanent accesses), overhead line, pylons and underground cable connections have been positioned to avoid or reduce impacts on sensitive habitats and protected species as far as reasonably practicable. | The assessment does not take into account additional mitigation measures which are in the early stages of development and are yet to be confirmed. These measures will be informed by ongoing survey and assessment and are likely to include the creation of replacement habitats where required to avoid significant effects. | Significant adverse effects cannot be excluded at this stage. | Low - survey works are ongoing and will inform further assessment of impacts and effects and the design of any required mitigation measures. The potential for LSE upon European Sites will be assessed within the Report to Inform the Habitat Regulations Assessment, informed by discussions with Natural England other statutory bodies. |
| Internationally designated sites within the Section 5 Study Area may be impacted by operational infrastructure causing changes in flow regimes, including the volume of water supplied, water                                                                                                                                                                 | Substation surface water drainage systems would provide attenuation of runoff from impermeable surfaces to greenfield rates and incorporate appropriate pollution prevention measures, incorporating the                                  |                                                                                                                                                                                                                                                                                                                                 | Significant adverse effects cannot be excluded at this stage. |                                                                                                                                                                                                                                                                                                                                              |

| Description of receptor and potential impact                                                                                                                                                                                                                                                                                                                         | Key embedded and control measures                                                                                                                                                                                                         | Proposed additional mitigation measures                                                                                                          | Preliminary likely significant effects                        | Confidence rating (high/moderate/low)                                                                                                                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| depth and water flow rates which may lead to indirect impacts on species in these sites.                                                                                                                                                                                                                                                                             | use of Sustainable Urban Drainage Systems (SuDS) as far as practicable.                                                                                                                                                                   |                                                                                                                                                  |                                                               |                                                                                                                                                                                            |
| <b>Protected and Notable Species</b>                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                           |                                                                                                                                                  |                                                               |                                                                                                                                                                                            |
| Wintering and breeding birds may be impacted by the presence of overhead line resulting in collision mortality.                                                                                                                                                                                                                                                      | The new substations (including permanent accesses), overhead line, pylons and underground cable connections have been positioned to avoid or reduce impacts on sensitive habitats and protected species as far as reasonably practicable. | The assessment does not consider additional measures as they are yet to be developed due to the preliminary nature of the design, for Section 5. | Significant adverse effects cannot be excluded at this stage. | Low - survey works are ongoing and will inform further assessment of impacts and effects and the design of any required mitigation measures.                                               |
| <b>Historic Environment</b>                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                           |                                                                                                                                                  |                                                               |                                                                                                                                                                                            |
| No likely significant effects are predicted as a result of the operation and maintenance of the Project, based upon the preliminary assessment. Whilst the presence of infrastructure within the landscape would result in effects upon the historic environment, the associated effects are reported as permanent effects within the construction phase assessment. |                                                                                                                                                                                                                                           |                                                                                                                                                  |                                                               |                                                                                                                                                                                            |
| <b>Water Environment and Flood Risk</b>                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                           |                                                                                                                                                  |                                                               |                                                                                                                                                                                            |
| Third party flood risk receptors may impacted by the New Weston Marsh A and New Weston Marsh Substation B within defended floodplain, resulting in the permanent                                                                                                                                                                                                     | Substation surface water drainage systems would provide attenuation of runoff from impermeable surfaces to greenfield rates and incorporate appropriate pollution prevention                                                              | Additional mitigation measures are in the early stages of development and may include provision of compensatory flood storage, subject to        | Moderate to Major adverse effect                              | Low - several factors require further assessment to inform the final Flood Risk Assessment, including review of existing flood models, informed by engagement with the Environment Agency. |

| Description of receptor and potential impact                                                                                                                                                                                                                                                                                                                                                     | Key embedded and control measures                                                                   | Proposed additional mitigation measures          | Preliminary likely significant effects | Confidence rating (high/moderate/low) |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|--------------------------------------------------|----------------------------------------|---------------------------------------|
| loss of floodplain storage and/or change in floodplain flow conveyance (under conditions of flood defence overtopping or breach).                                                                                                                                                                                                                                                                | measures, incorporating the use of Sustainable Urban Drainage Systems (SuDS) as far as practicable. | ongoing discussions with the Environment Agency. |                                        |                                       |
| <b>Geology and Hydrogeology</b>                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                     |                                                  |                                        |                                       |
| No likely significant effects are predicted as a result of the operation and maintenance of the Project, based upon the preliminary assessment.                                                                                                                                                                                                                                                  |                                                                                                     |                                                  |                                        |                                       |
| <b>Agriculture and Soils</b>                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                     |                                                  |                                        |                                       |
| No likely significant effects are predicted as a result of the operation and maintenance of the Project, based upon the preliminary assessment. Whilst land required permanently for the Project would no longer be in agricultural use during the operation phase, the likely significant effects of permanent loss of agricultural land are reported within the construction phase assessment. |                                                                                                     |                                                  |                                        |                                       |
| <b>Traffic and Movement</b>                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                     |                                                  |                                        |                                       |
| No likely significant effects are predicted as a result of the operation and maintenance of the Project, based upon the preliminary assessment.                                                                                                                                                                                                                                                  |                                                                                                     |                                                  |                                        |                                       |
| <b>Noise and Vibration</b>                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                     |                                                  |                                        |                                       |
| No likely significant effects are predicted as a result of the operation and maintenance of the Project, based upon the preliminary assessment.                                                                                                                                                                                                                                                  |                                                                                                     |                                                  |                                        |                                       |
| <b>Socioeconomics, Recreation and Tourism</b>                                                                                                                                                                                                                                                                                                                                                    |                                                                                                     |                                                  |                                        |                                       |
| No likely significant effects are predicted as a result of the operation and maintenance of the Project, based upon the preliminary assessment.                                                                                                                                                                                                                                                  |                                                                                                     |                                                  |                                        |                                       |
| <b>Air Quality</b>                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                     |                                                  |                                        |                                       |

| Description of receptor and potential impact                                                                                                    | Key embedded and control measures | Proposed additional mitigation measures | Preliminary likely significant effects | Confidence rating (high/moderate/low) |
|-------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-----------------------------------------|----------------------------------------|---------------------------------------|
| No likely significant effects are predicted as a result of the operation and maintenance of the Project, based upon the preliminary assessment. |                                   |                                         |                                        |                                       |

# References

- Ref 1      National Grid Electricity Transmission (2025). Grimsby to Walpole Preliminary Environmental Information Report [online]. Available at: <https://www.nationalgrid.com/the-great-grid-upgrade/grimsby-to-walpole/document-library#4257225834-3023854277> [Accessed 12 September 2025].

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