

The Great Grid Upgrade

Grimsby to Walpole

Preliminary Environmental Information Report

Volume 2 Part B Section Specific Assessments

Section 6 Refined Weston Marsh Substation Siting Zone to New
Walpole B Substation

Chapters 1 to 13

June 2025



Contents

Preface

- 1. Overview of the Section and Description of the Project**
 - 2. Landscape**
 - 3. Visual**
 - 4. Ecology and Biodiversity**
 - 5. Historic Environment**
 - 6. Water Environment and Flood Risk**
 - 7. Geology and Hydrogeology**
 - 8. Agriculture and Soils**
 - 9. Traffic and Movement**
 - 10. Noise and Vibration**
 - 11. Socio-economics, Recreation and Tourism**
 - 12. Air Quality**
 - 13. Summary**
-

Grimsby to Walpole

Document control

Document Properties			
Organisation		Arup AECOM	
Approved by		National Grid	
Title		Preliminary Environmental Information Report Volume 2 Part B Section Specific Assessments Section 6 Refined Weston Marsh Substation Siting Zone to New Walpole B Substation Chapters 1 to 13	
Document Register ID		GWNC-ARUP(AEC)-ENV-REP-0002	
Data Classification		Public	
Version History			
Date	Version	Status	Description / Changes
June 2025	1.0	Final	First Issue

Preface

Contents

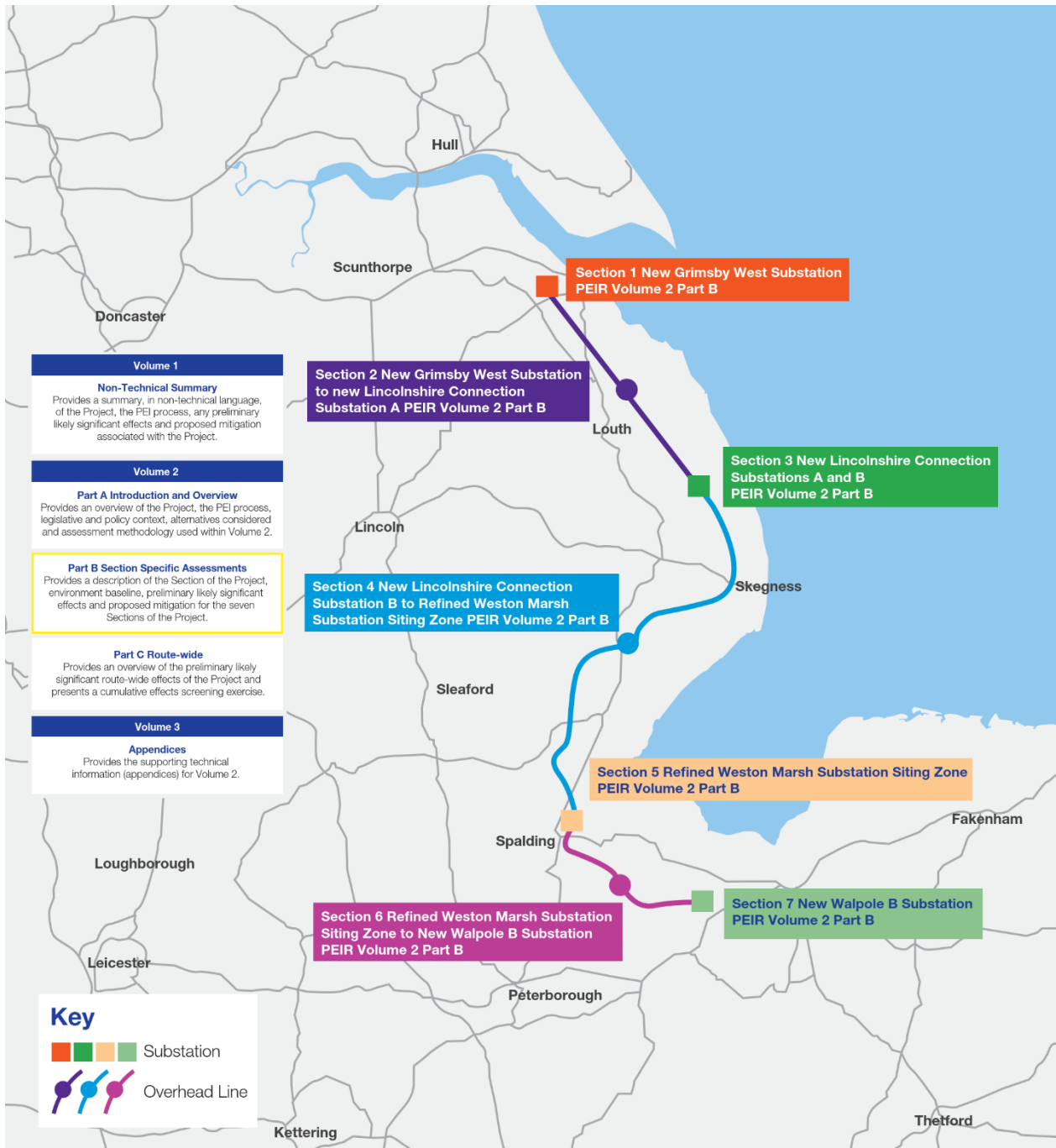
1.	Part B Preface	1
1.1	Structure and Context of the Preliminary Environmental Information Report	1

	References	3
--	------------	---

1. Part B Preface

1.1 Structure and Context of the Preliminary Environmental Information Report

- 1.1.1 This **Preliminary Environmental Information (PEI) Report Volume 2 Part B** is part of the wider suite of documents that make up the PEI Report for the Grimsby to Walpole Project (the Project), prepared by Ove Arup and Partners Ltd and AECOM Ltd, on behalf of National Grid Electricity Transmission plc (National Grid). The purpose of this PEI Report is to give consultees an understanding of the potential likely significant environmental effects (positive or negative) of the Project to enable them to prepare well-informed responses to the statutory consultation. This 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 1).
- 1.1.2 The proposal by National Grid 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, up to two new 400 kV 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.
- 1.1.3 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 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)*'. This PEI Report consists of three volumes:
- i. **PEI Report Volume 1** contains the Non-technical Summary (NTS);
 - ii. **PEI Report Volume 2 Part A** contains an Introduction and Overview;
 - iii. **PEI Report Volume 2 Part B** contains the Section Specific Assessments;
 - iv. **PEI Report Volume 2 Part C** contains the Route-wide Assessments; and
 - v. **PEI Report Volume 3** contains the technical appendices supporting Volume 2.
- 1.1.4 Further detail on the structure and content of this PEI Report is provided in the following figure:



References

- Ref 1 References 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 21 February 2025]
- Ref 2 Planning Act 2008 [online]. Available at: <https://www.legislation.gov.uk/ukpga/2008/29/part/3> [Accessed 21 February 2025].
- Ref 3 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 [online]. Available at: <https://www.legislation.gov.uk/uksi/2017/572/contents/made> [Accessed 31 January 2025].

1. Overview of the Section and Description of the Project

Contents

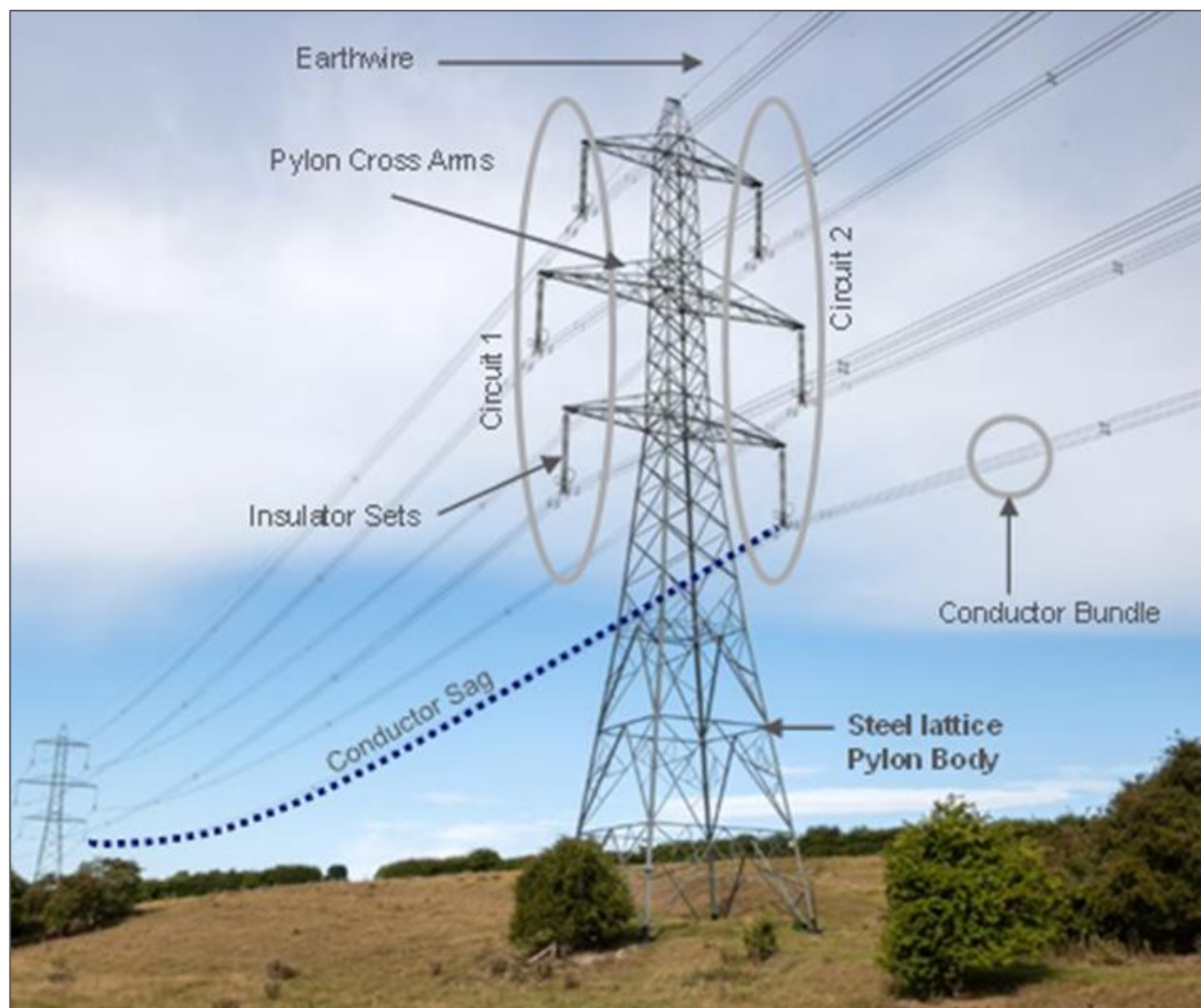
1.	Overview of the Section and Description of the Project	1-1
1.1	Overview of the Section	1-1
1.2	Proposed Project	1-2
	Proposed Overhead Line Route	1-2
Image 1.1 Components of a typical transmission connection		1-2

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 Section 6 Refined Weston Marsh Substation Siting Zone to New Walpole B Substation (Section 6) and has informed the preliminary environmental assessments reported in subsequent Chapters 2 to 13 within Preliminary Environmental Information (PEI) Report Volume 2 Part B Section 6.
- 1.1.2 Section 6 is located in the southern extent of the Project and principally comprises the new 400kV overhead line, as well as associated temporary works required for construction.
- 1.1.3 The draft Order Limits are presented in **PEI Report Volume 2 Part B Section 6 Figure 1.1 Draft Order Limits**. They extend predominantly in a south east direction between the Refined Weston Marsh Substation Siting Zone (Section 5) and the New Walpole B Substation (Section 7), commencing at the Route Section break between Section 5 and Section 6 at pylon no. SW1 and concluding at the Route Section break between Section 6 and Section near pylon no. SW82.
- 1.1.4 There are a number of water bodies in this Section including the River Nene, the South Holland Main Drain and the North Level Main Drain. Principal highways in this Section include the A151 and the A1101. Within the area there are several footpaths, bridleways and local access roads that provide links between rural dwellings and villages. Section 6 is located within the local authority areas of South Holland, Fenland and King's Lynn and West Norfolk.
- 1.1.5 For the purposes of this PEI Report, it has been assumed that the pylon type is a typical steel lattice suspension 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.
- 1.1.6 A more detailed description of the design of Section 6 is provided in section 1.2 below. For the purpose of reporting within this PEI Report, pylons located within Section 6 have been assigned a nominal code with the prefix 'SW', followed by a number. These can be seen on **PEI Report Volume 2 Part B Section 6 Figure 1.3 Permanent and Operational Features**.

Image 1.1 Components of a typical transmission connection



1.2 Proposed Project

Proposed Overhead Line Route

Design and Overview

- 1.2.1 A section of the proposed new 400kV overhead line route measuring approximately 27 km is included within Section 6. The Section 6 draft Order Limits are illustrated in **PEI Report Volume 2 Part B Section 6 Figure 1.1 Draft Order Limits**.
- 1.2.2 The proposed route commences at the Route Section break between Section 5 and Section 6 at pylon no. SW1, heading broadly south and crossing the A151 and Broad Gate, until it reaches pylon no. SW10, where the route changes direction, heading east where it crosses Delgate Bank, Long Lane Clapton Gate, the B1357 and Hog's Gate. From pylon no. SW19, the route heads south again until pylon no. SW23, crossing Sparkes Lane and Hurdletree Bank. From pylon no. SW23, the route continues in a broadly south east direction until pylon no. SW53. Along this stretch of the route, roads crossed include Mill Gate, Narrow Lane, Crane's Gate North, the

B1165, the B1168, Neal's Gate, Joy's Bank, Inley Drove, Bardling's Drove, Broad Gate, Goochgate, Sandy Gate, Bad Gate, and Grangehill Road. The route also crosses South Holland Main Drain along this stretch.

- 1.2.3 From pylon no. SW53, the route crosses Middle Broad Drove, and the North Level Main Drain, as it heads east. At pylon no. SW62, the route heads northeast for a short distance, crossing the B1165. Then, the route heads in an east direction again from pylon no. SW65 until pylon no. SW75. Along this stretch, the route crosses Fenland Gate, the A1101 and the River Nene. The final stretch of the route heads in a south east direction from pylon no. SW75 until the Route Section break between Section 6 and Section 7 at pylon no. SW82. Along the final stretch of Section 6 of the route, Mill Road is crossed. The route also crosses several unnamed ordinary watercourses throughout Section 6.
- 1.2.4 Along the approximately 27 km long section of the new 400 kV overhead line in Section 6 there are 81 structures which are assumed to comprise of steel lattice 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 will depend upon the ground conditions encountered. A typical pylon operating at 400 kV is approximately 50 m in height, however, this varies across the proposed route. Within Section 6 pylons range from a height of approximately 46 m to 111 m¹ (including LoD). A typical span distance between pylons is approximately 350 m, however, this varies from a distance of approximately 260 m to 420 m within Section 6.
- 1.2.5 Within the design of the Project, there is a need for some flexibility, which has been accounted for in the assessments within this PEI Report. The horizontal Limits of Deviation (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 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.
- 1.2.6 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.
- 1.2.7 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. Within Section 6, where pylons are river crossing, at pylon no. SW73 and pylon no. SW74, the vertical LoD is 20 m.
- 1.2.8 Further detail on the evolution of the design of the Project, and the design of Section 6, can be found in the **Grimsby to Walpole Design Development Report**.

¹ This custom pylon height is where the Project crosses the River Nene.

Mitigation measures

- 1.2.9 As detailed within **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 Environmental Impact Assessment (EIA) has identified a requirement to further reduce significant environmental effects.
- 1.2.10 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.
- 1.2.11 Additional environmental mitigation measures that have been incorporated into the design of Section 6 at this stage include the following:
- i. S6-ECO-01: mitigation in an area of coastal floodplain grazing marsh, located around pylon no. SW2;
 - ii. S6-ECO-02: creation of space for avocet mitigation lies in between pylon no. SW73 and pylon no. SW74;
 - iii. S6-ECO-03: creation of space for badger sett mitigation lies southeast of pylon no. SW64;
 - iv. S6-L+V-01, S6-L+V-03 and S6-L+V-04: planting of native hedgerows with trees northwest and northeast of pylon no. SW24 and southeast of pylon no. SW64, to aid landscape integration; and
 - v. S6-L+V-02 and S6-L+V-05: replacement woodland planting northeast of pylon no. SW11 and southeast of pylon no. SW64 to aid landscape integration.

Construction

- 1.2.12 Subject to gaining development consent in 2028, it is anticipated that access and 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 The construction of the 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.

- 1.2.14 In regard to temporary construction requirements, there are two construction compounds located within Section 6. This includes the following:
- i. a satellite construction compound located to the west of the B1168, with an area of approximately 1.4 ha; and
 - ii. a satellite construction compound located to the east of the A1101, with an area of approximately 1.4 ha.
- 1.2.15 The land on which construction compounds are located would be reinstated upon completion of construction.
- 1.2.16 In regard to construction access points, there would be a temporary construction corridor established along the route which would comprise 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. There is the potential to reduce carbon emissions/embodied carbon associated with construction and temporary works requirements through measures such as soil stabilisation.² These are access points where construction traffic would access/egress the construction corridor.

² Soil stabilisation is the process of altering the physical or chemical properties of soil to enhance its engineering performance.

- 1.2.17 There would also be crossover points where construction traffic would cross the public highway, but traffic would not be permitted to access/egress at these points.
- 1.2.18 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.
- 1.2.19 Within Section 6, there are 30 construction access points. Of these access points, 29 are located within Section 6 and one access point is located in Section 5. Construction access points to the construction compounds are located to the west of the B1168 (in proximity to pylon no. SW31) and to the west of the A1101 (in proximity to pylon no. SW70). Construction access points for the proposed 400 kV overhead line route stem from a number of roads. Construction access points stemming from principal highways includes from the A151 (in proximity to pylon no. SW3) and the aforementioned A1101 (in proximity to pylon no. SW70). Other roads that construction access points link up to, in order from north to south, include Long Lane, the B1357, the B1165, the B1168, Joy's Bank, North Road, Broadgate Road, New Fen Dike, Cross Drove, Middlebroad Drove, Black Dike, the B1165, and Mill Road.
- 1.2.20 Within Section 6, there are also 24 crossover points which are for crossing the existing road network only, and would not be used for turning onto or off of the roads being crossed.
- 1.2.21 **PEI Report Volume 2 Part B Section 6 Figure 1.2 Temporary and Construction Features** outlines the temporary features within Section 6 in place as part of construction for the proposed 400 kV overhead line route and **PEI Report Volume 2 Part A Chapter 5 Project Description** provides further information on the what the construction of the proposed 400 kV overhead line route entails.

Operation

- 1.2.22 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.
- 1.2.23 The overhead line within Section 6 forms part of this reinforcement by providing a high capacity power transmission route between the Refined Weston Marsh Substation Siting Zone and new Walpole B Substation. Overhead lines require minimal maintenance during operation and would be monitored and regularly inspected for signs of fatigue. Subject to planting within the vicinity of Section 6, it is assumed that there would be an ongoing vegetation management regime. Overall, once operational, the overhead line would not generate significant activity beyond ordinary inspection and maintenance.
- 1.2.24 **PEI Report Volume 2 Part B Section 6 Figure 1.3 Permanent and Operational Features** outlines the permanent features within Section 6 in place as part of operation for the proposed 400 kV overhead line route and **PEI Report Volume 2 Part A Chapter 5 Project Description** provides further information on the what the operation, inspection and maintenance of the proposed 400 kV overhead line entails.

2. Landscape

Contents

2.	Landscape	2-1
2.1	Introduction	2-1
2.2	Legislation and Policy Framework	2-4
	Regional and Local Policy	2-4
2.3	Scope of Assessment	2-5
2.4	Assessment Methodology	2-5
	Approach	2-6
	Assessment Assumptions and Limitations	2-7
2.5	Baseline Conditions	2-7
	Study Area	2-7
	Data Collection	2-8
	Existing Baseline	2-9
	Future Baseline	2-10
2.6	Design, Control and Additional Mitigation Measures	2-10
	Design Mitigation Measures	2-10
	Control Mitigation Measures	2-11
	Additional Mitigation Measures	2-12
2.7	Preliminary Assessment of Effects	2-12
	Likely Significant Effects	2-13
	Likely Non-Significant Effects	2-13
2.8	Monitoring	2-26
	Table 2.1 Supporting documentation	2-2
	Table 2.2 Preliminary summary of non-significant landscape effects – Section 6	2-18
	References	2-27

2. Landscape

2.1 Introduction

- 2.1.1 This chapter presents the Preliminary Environmental Information (PEI) in relation to the Landscape assessment for Refined Weston Marsh Substation Siting Zone to New Walpole B Substation Section (Section 6) of the Grimsby to Walpole Project (the Project). 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 **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 **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 6 (section 2.4). A detailed description of the assessment methods and scope, applicable to the whole Project, is contained in **PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**;
 - v. A description of the environmental baseline within the Section 6 Study Area relevant to the Landscape assessment (section 2.5);
 - vi. A description of mitigation measures included for the purposes of the Landscape assessment reported within the PEI Report (section 2.6). Further information regarding design development can be found in **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 Landscape effects arising during construction and operation of the Project within Section 6 (section 2.7), based upon the assessment completed to date; and
 - viii. An outline of the proposed monitoring requirements in relation to Landscape (section 2.8).
- 2.1.2 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
Topic Specific Supporting Documentation	
PEI Report Volume 2 Part B Section 6 Figures	<p>Figure 2.1 Landscape Designations and Features</p> <p>Figure 2.2 Landform and Drainage</p> <p>Figure 2.3 National Character Areas</p> <p>Figure 2.4 Regional and Local Landscape Character Areas</p> <p>Figure 3.2 Zone of Theoretical Visibility (ZTV)</p>
PEI Report Volume 3 Part B Appendix 2A Landscape Character Baseline	Description of the landscape character baseline across the route of the Project.
Project Supporting Documentation	
PEI Report Volume 2 Part B Section 6 Chapter 1 Overview of the Section and Description of the Project	A summary of the works within Section 6, including permanent infrastructure, temporary construction works, and operational activities.
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).
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 PEI Report and ES.
PEI Report Volume 3 Part A Appendix 2Ci Local Plan Policy: Section Specific	An outline of the potentially relevant local planning policy allocations affecting each of the specific Sections of the Project.
PEI Report Volume 3 Part A Appendix 2Cii Local Plan Policy: Route-wide	Details of planning policies applicable route-wide within the relevant Local Authority areas.
PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered	Provides a summary of the main alternatives considered in relation to the Project during the design development process, including the main reasons for selecting the chosen option.
PEI Report Volume 2 Part A Chapter 4 Approach to Preliminary Environmental Information	Sets out the Environmental Impact Assessment (EIA) approach and general methodology that has been used in developing the PEI Report for the Project.
PEI Report Volume 2 Part A Chapter 5 Project Description	An overarching description of the Project and its key components, including available construction information.
PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice	Sets out control and management measures that will be undertaken during construction of the Project if granted consent. The final CoCP

Supporting Information	Description
	will be submitted in support of the Development Consent Order (DCO) application.

- 2.1.3 There are also interrelationships between the potential effects on Landscape and other environmental topics. Therefore, please also refer to the following chapters within **PEI Report Volume 2 Part B** and **Part C**:
- i. **PEI Report Volume 2 Part B Section 6 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. **PEI Report Volume 2 Part B Section 6 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 effects on the landscape reported in the ES.
 - iii. **PEI Report Volume 2 Part B Section 6 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 landscape. This helps to inform the baseline description and supports the assessment of effects on the landscape.
 - iv. **PEI Report Volume 2 Part B Section 6 Chapter 9 Traffic and Movement** should be consulted in relation to increased traffic flows, 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. **PEI Report Volume 2 Part B Section 6 Chapter 10 Noise and Vibration** should be consulted in relation to noise intrusion, 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. **PEI Report Volume 2 Part B Section 6 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 landscape. The outputs of the landscape assessment will inform the assessment of effects on recreation and tourism.
 - vii. **PEI Report Volume 2 Part B Section 6 Chapter 13 Summary** provides a concise, consolidated summary of the likely significant effects reported for all topics, based upon the preliminary assessment.
 - viii. **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.

2.2 Legislation and Policy Framework

2.2.1 Legislation and national policy relevant to the Project and this chapter is described in **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 2.1**.

Regional and Local Policy

2.2.2 Regional and local plans or policies relevant to this assessment are as follows.

- i. Fenland Local Plan (Adopted May 2014) (Ref 1):
 - Policy LP16 - Delivering and Protecting High Quality Environments across the District: Proposals will be managed in such a way that it protects and improves the diverse natural environment of the District and preserves and enhances its rich built and cultural heritage.
- ii. Fenland Local Plan 2021-2040 Draft Local Plan Consultation (August 2022) (Ref 2):
 - Policy LP6 - Renewable and Low Carbon Energy Infrastructure: states that proposals will identify, manage and mitigate any existing or proposed risks to the landscape as a result of the project; and
 - Policy LP28 - Landscape: seeks to ensure that development protects and where possible enhances the intrinsic value of the landscape.
- iii. King's Lynn and West Norfolk Local Plan 2021 - 2040 (Adopted March 2025) (Ref 3):
 - Policy LP18 - Design and Sustainable Development: seeks to ensure that all new development in the borough should be of high quality design and will be required to demonstrate ability to respond to the context and character of places in West Norfolk by ensuring that the scale, density, layout and access will enhance the quality of the environment. Measures should include provision of green space to safeguard wildlife; and
 - Policy LP19 - Environmental Assets: states proposals for development will be informed by, and seek opportunities to reinforce the distinctive character areas and potential habitat creation areas identified in the King's Lynn and West Norfolk Landscape Character Assessment and other character assessments.
 - Policy LP21 - Environment, Design and Amenity: states that development must protect and enhance the amenity of the wider environment and identified criteria against which proposals will be assessed.
 - Policy LP24 - Renewable Energy: states that developments will be assessed to determine whether the energy benefits outweigh the impact individually or cumulatively upon sites of landscape importance.
 - LP26 - Protection of Local Open Space: When assessing planning applications for development, the Council will have careful regard to the value of any area of open space, based upon factors including visual amenity and landscape character.
- iv. South East Lincolnshire Local Plan 2011 – 2036 (adopted 2019) (Ref 4):

- Policy 27 - Climate Change and Renewable and Low Carbon Energy: states that 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 5) provided by the Planning Inspectorate in September 2024 on behalf of the Secretary of State, following the submission 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 Landscape chapter is provided in **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 **PEI Report Volume 3 Part A Appendix 4D Summary of Stakeholder Engagement**.
- 2.3.2 Non-statutory consultation feedback has been addressed within the **Grimsby to Walpole Stage 1 Consultation Feedback Report**.
- 2.3.3 The scope of the construction and operation assessment for Section 6 covers the following receptor types:
- Locally designated landscapes;
 - Landscape Character Types (LCT);
 - Regional Landscape Character Types (RLCT); and
 - 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 7) 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 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 Sections 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 **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 (Ref 8) “*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 baseline for the preliminary assessment is presented in the **PEI Report Volume 3 Part B Appendix 2A Landscape Character Baseline**.
- 2.4.5 In accordance with GLVIA3 (Ref 8), 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 **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 8) evaluations of the sensitivity of a landscape receptor to change are based on consideration of the 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 **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 8), evaluations of the magnitude of landscape change are based on 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 Landscape section of **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 8), 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 **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 9). 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 **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 6.
- 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 **PEI Report Volume 2 Part B Section 6 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^[1]. This distance was informed by the ZTV, the scale and appearance of the pylons (as detailed in **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 of the Project. 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.

¹ 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.

- 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 **PEI Report Volume 2 Part B Section 6 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 and ZTV production is presented in **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 updated ZTVs as the Project develops.

Data Collection

- 2.5.6 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;
 - vi. Fenland Local Plan (Adopted May 2014) (Ref 1);
 - vii. Fenland Local Plan 2021-2040 Draft Local Plan Consultation (August 2022) (Ref 2);
 - viii. King's Lynn and West Norfolk Local Plan 2021 - 2040 (Adopted March 2025) (Ref 3);
 - ix. East Midlands Regional Landscape Character Assessment (Ref 10);
 - x. Kings Lynn and West Norfolk Landscape Character Assessment (Ref 11Ref 11); and
 - xi. Natural England National Character Area Profiles (Ref 7).
- 2.5.7 Site surveys were carried out during several visits under differing weather conditions between spring 2023 and summer 2024.

Existing Baseline

- 2.5.8 The following section outlines the Landscape baseline and should be read in conjunction with **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 **PEI Report Volume 2**:
- i. **PEI Report Volume 2 Part B Figure 2.1 Landscape Designations and Features;**
 - ii. **PEI Report Volume 2 Part B Figure 2.2 Landform and Drainage;**
 - iii. **PEI Report Volume 2 Part B Figure 2.3 National Character Areas;**
 - iv. **PEI Report Volume 2 Part B Figure 2.4 Regional and Local Landscape Character Areas;** and
 - v. **PEI Report Volume 3 Part B Appendix 2A Landscape Character Baseline.**
- 2.5.10 **PEI Report Volume 2 Part B Section 6 Figure 2.1 Landscape Designations and Features** shows the distribution of woodland across the Study Area.

Designated Landscapes

- 2.5.11 There are no designated landscapes within the Study Area for the Project in Section 6.

Landscape Character

- 2.5.12 The following landscape character areas cover the Study Area for Section 6:
- i. Natural England - National Character Area Profiles (NCA)
 - 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; and
 - RLCT 2B Planned and Drained Fens which is considered to be of medium value and medium susceptibility to the Project.
 - iii. Fenland Local Plan Landscape Character Areas (LCA)
 - The Fens LCA which is considered to be of medium value and medium susceptibility to the Project; and
 - Wisbech Settled Fen LCA which is considered to be of medium value and medium susceptibility to the Project.
 - iv. Kings Lynn and West Norfolk Landscape Character Areas (LCA)
 - LCA D3: Terrington St John which is considered to be of medium value and medium susceptibility to the Project; and

- LCA D4: Emneth, West Walton and Walsoken which is considered to be of medium value and medium susceptibility to the Project.

Future Baseline

- 2.5.13 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.
- 2.5.14 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 **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.
- 2.5.15 Ash trees (*Fraxinus excelsior*) within the Study Area for Section 6 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. An Arboricultural Impact Assessment 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 and draft Order Limits have been designed to avoid sensitive receptors as far as practicable. This is in accordance with the 'Holford Rules' (Ref 12) which apply to the routeing of new overhead lines, and the 'Horlock Rules' (Ref 13), 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 14) and **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 the selection of the preferred route corridor, environmental specialists have been integral to the ongoing design refinement of works within Section 6. This has further contributed to the avoidance or reduction of the potential environmental impacts of the Project. Specific examples relevant to the assessment include amendments to locations of access tracks and bellmouths and overhead line proposed alignment to minimise loss of mature 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 **PEI Report Volume 2 Part B Sections 1-7 Chapter 4 Ecology and Biodiversity**) and will accompany the ES and DCO application.

- 2.6.4 A detailed mitigation plan for Section 6 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

- 2.6.5 A Preliminary CoCP is provided in **PEI Report Volume 3 Part A Appendix 5A Preliminary CoCP**. Measures contained in the Preliminary CoCP that are relevant to the control and management of impacts that could affect the landscape assessment are:

- 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 Electricity Transmission plc (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 British Standard (BS) 5837:2012: Trees in relation to Design, Demolition and Construction Recommendations (Ref 15). 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. B07: 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 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 **PEI Report Volume 2 Part B Section 6 Chapter 1 Overview of the Section and Description of the Project** and illustrated on **PEI Report Volume 2 Part B Section 6 Figure 1.3 Permanent and Operational Features** the preliminary additional mitigation measures embedded into the design of Section 6 for Landscape include:
- i. Areas of woodland planting to replace those affected by the Project would also help would help with landscape integration for Section 6; and
 - ii. Introduction of tree planting on field boundaries and roadsides to filter views of the Project for people as they move around their communities would also help strengthen the pattern of the landscape as defined by field boundaries.
- 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, because of construction and/or operational activities within Section 6.
- 2.7.2 The preliminary assessment of effects reported below takes into account the Design Mitigation Measures, Control Mitigation Measures and Additional Mitigation Measures (where they have already been included in the design), as previously described.
- 2.7.3 For a summary of the likely significant effects please refer to **PEI Report Volume 2 Part B Section 6 Chapter 13 Summary**. A supplementary summary of all non-significant effects is also included within this Section in **Table 2.2**, based upon the assessment scope detailed in **PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.
- 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 5).
- 2.7.5 As explained in section 2.3.4, of this PEI Report, the Natural England NCAs which are included in the baseline above are not assessed at this preliminary stage. 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 more detailed assessments have been completed.

- 2.7.6 Where an effect is reported in this 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 occur within the draft Order Limits and 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 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 and Operation

- 2.7.9 Based upon the preliminary assessment, no significant effects are predicted for Landscape receptors within Section 6, as a result of the construction or operation phases of the Project.

Likely Non-Significant Effects

- 2.7.10 For completeness, **Table 2.2** summarises the findings of the preliminary assessment with respect to those impacts that are not predicted to result in significant Landscape effects.
- 2.7.11 The preliminary assessment of effects below considers receptors that are not significantly affected in Section 6 but, when evaluated as a whole across all of the Sections in which they are located, would experience a likely significant effect.

Construction

- 2.7.12 Changes in the character and perception of the landscape could occur during construction due to physical impacts arising from activities such as vegetation removal and presence of construction compounds, storage areas, access tracks, plant (including mobile cranes), vehicles and personnel. However, these effects would be temporary and reversible once the works are complete, and the land is reinstated².

East Midlands Regional Landscape Character Types (RLCT)

RLCT 2A Settled Fens and Marshes

- 2.7.13 RLCT 2A Settled Fens and Marshes, which is located within the Study Area for Section 6, is also located in:

² 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 the landscape are considered in the context of the final, post-construction condition.

- i. Section 2 New Grimsby West Substation to New Lincolnshire Connection Substation A;
- ii. Section 3 New Lincolnshire Connection Substations (LCS) A and B;
- iii. Section 4 New Lincolnshire Connection Substation B to Refined Weston Marsh Substation Siting Zone;
- iv. Section 5 Refined Weston Marsh Substation Siting Zone; and
- v. Section 7 New Walpole B Substation.

2.7.14 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 6.

2.7.15 The western part of RLCT 2A Settled Fens and Marshes would be directly impacted by the construction of pylons SW1-SW22. At the same time, the remainder of this section would experience indirect effects from the proximity of the works to the south. A working area would be required around each pylon, which would be accessed by temporary routes and bellmouths. Most work would occur at ground level, with some limited at-height tasks requiring mobile cranes, minimising the scale of change. The construction activity would add to existing movement and disturbance in this intensively farmed landscape but would not fundamentally alter its character or how it is perceived. Overall, the magnitude of predicted change is small. Combined with the landscape's medium value and susceptibility, significant effects on the part of the RLCT in Section 6 are unlikely.

2.7.16 When considering the construction phase of the Project in its entirety across all Sections, the overall magnitude of predicted change increases to medium. Combined with the medium value and susceptibility of RLCT 2A Settled Fens and Marshes, the Project would result in a likely significant effect.

RLCT 2B Planned and Drained Fens

2.7.17 RLCT 2B Planned and Drained Fens, which is located within Section 6, is also located in Section 4 New Lincolnshire Connection Substation B to Refined Weston Marsh Substation Siting Zone.

2.7.18 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 6.

2.7.19 RLCT 2B Planned and Drained Fens would be directly impacted by the construction of pylons SW23-SW49. The works would extend across the easternmost part of the RLCT between Whaplode St Catherine and Tydd St Giles. A working area would be required around each pylon, which would be accessed by temporary routes and bellmouths. A temporary satellite construction compound is also located in this RLCT. Most work would occur at ground level, with some limited at-height tasks requiring mobile cranes, minimising the scale of change. The construction activity would add to existing movement and disturbance in the settled farmland between Spalding and Wisbech but would not fundamentally alter the perception or character of the landscape. Overall, the magnitude of predicted change is small. Combined with the landscape's medium value and susceptibility, significant effects on the part of the RLCT in Section 6 are unlikely.

- 2.7.20 When considering the construction phase of the Project in its entirety across all Sections, the overall magnitude of predicted change increases to medium. Combined with the medium value and susceptibility of RLCT 2B Planned and Drained Fens, the Project would result in a likely significant effect.

King's Lynn and West Norfolk Landscape Character Areas (LCA)

LCA D3 Terrington St John

- 2.7.21 LCA D3 Terrington St John, which is located within Section 6, is also located in Section 7 New Walpole B Substation. The preliminary assessment of the effects on LCA D3 Terrington St John presented below considers the part of the RLCT that is located within the Study Area for Section 6.
- 2.7.22 The western part of LCA D3 Terrington St John would be directly impacted by the construction of pylons SW74-SW81. A working area would be required around each pylon, which would be accessed by temporary routes and bellmouths. Most work would occur at ground level, with some limited at-height tasks requiring mobile cranes, minimising the scale of change. The RLCT within Section 6 would also be indirectly affected by construction of the New Walpole B Substation and the works to modify the existing 4ZM 400 kV overhead line in Section 7 to the east. The construction activity would add to the existing movement and disturbance in this settled landscape to the north of Wisbech but would not fundamentally alter its character or how it is perceived. Overall, the magnitude of predicted change is small. Combined with the landscape's medium value and susceptibility, significant effects on the part of the LCA in Section 6 are unlikely.
- 2.7.23 When considering the construction phase of the Project in its entirety across all Sections, the overall magnitude of predicted change increases to medium but remains in the medium category. Combined with the medium value and susceptibility of LCA D3 Terrington St John, the Project would result in a likely significant effect.

Operation

- 2.7.24 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 considered permanent.

East Midlands Regional Landscape Character Types (RLCT)

RLCT 2A Settled Fens and Marshes

- 2.7.25 RLCT 2A Settled Fens and Marshes, which is located in Section 6, 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 Refined Weston Marsh Substation Siting Zone;
 - iv. Section 5 Refined Weston Marsh Substation Siting Zone; and

v. Section 7 New Walpole B Substation.

- 2.7.26 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 6.
- 2.7.27 RLCT 2A Settled Fens and Marshes would be directly impacted by the new 400 kV overhead line (pylons SW1-SW22), which would cross the western part of the RLCT as far as Whaplode St Catherine. At the same time, the remainder of this Section would experience indirect effects from the proximity of the new 400 kV overhead line to the south. The character of this area is already affected by proximity to the urban edge of Spalding, by the overhead lines converging at the existing Walpole Substation in Section 7 and other discordant elements. The new 400 kV overhead line would contribute to these urbanising elements but would not fundamentally alter the perception or character of the landscape, reducing the size/scale of change. The overall magnitude of predicted change is small. Combined with the landscape's medium value and susceptibility, significant effects on the part of the RLCT in Section 6 are unlikely.
- 2.7.28 When considering the operational phase of the Project, in its entirety across all Sections, the overall magnitude of predicted change increases to medium. Combined with the medium value and susceptibility of RLCT 2A Settled Fens and Marshes, the Project would result in a likely significant effect.

RLCT 2B Planned and Drained Fens

- 2.7.29 RLCT 2B Planned and Drained Fens, which is located within Section 6, is also located in Section 4 New Lincolnshire Connection Substation B to Refined Weston Marsh Substation Siting Zone. The preliminary assessment of the effects on RLCT 2B Planned and Drained Fens presented below considers the part of the RLCT that is located within the Study Area for Section 6.
- 2.7.30 RLCT 2B Planned and Drained Fens would be directly impacted by the presence of the Project. The new 400 kV overhead line (pylons SW23-SW49) would cross the central part of the RLCT between Whaplode St Catherine and Tydd St Giles and would be visible to the south from the remainder of the RLCT within Section 6. The character of this area is already affected by proximity to the urban edge of Spalding, by the overhead lines converging at the existing Walpole Substation in Section 7, and other discordant elements. The new 400 kV overhead line would contribute to these urbanising elements but would not fundamentally alter the character or perception of the landscape, reducing the size/scale of change. The overall magnitude of predicted change is small. Combined with the landscape's medium value and susceptibility, significant effects on the part of the RLCT in Section 6 are unlikely.
- 2.7.31 When considering the operational phase of the Project, in its entirety across all Sections, the overall magnitude of predicted change increases to medium. Combined with the medium value and susceptibility of RLCT 2B Planned and Drained Fens, the Project would result in a likely significant effect.

King's Lynn and West Norfolk Landscape Character Areas (LCA)

LCA D3 Terrington St John

- 2.7.32 LCA D3 Terrington St John which is located within Section 6 is also located in Section 7 New Walpole B Substation. The preliminary assessment of the effects on

LCA D3 Terrington St John presented below considers the part of the RLCT that is located within the Study Area for Section 6.

- 2.7.33 LCA D3 Terrington St John would be directly impacted by the presence of the Project. The new 400 kV overhead line (pylons SW74-SW81) would run through the westernmost part of the LCA north of Wisbech. The character of this area is already impacted by several overhead lines converging at the existing Walpole Substation in Section 7, and other discordant elements, reducing the perceived size/scale of change. The new 400 kV overhead line would add to these urbanising elements but would not fundamentally alter the perception or character of the landscape. The overall magnitude of predicted change is small. Combined with the landscape's medium value and susceptibility, significant effects on the part of the LCA in Section 6 are unlikely.
- 2.7.34 When considering the operational phase of the Project, in its entirety across all Sections of the Project, the overall magnitude of predicted change increases to medium. Combined with the medium value and susceptibility of LCA D3 Terrington St John, the Project would result in a likely significant effect.

Table 2.2 Preliminary summary of non-significant landscape effects – Section 6

Receptor	Value and susceptibility of the landscape	Impact	Magnitude of Change	Significance	Rationale
East Midlands Regional Landscape Character Types (RLCT)					
RLCT 2A Settled Fens and Marshes	Value – Medium	Directly impacted by construction of pylons SW1-SW22.	Construction - small	Construction - not significant	The construction of pylons SW1-SW22 would directly impact the western part of RLCT 2A Settled Fens and Marshes. At the same time, the remainder of this Section would experience indirect effects from the proximity of the works to the south. A working area would be required around each pylon, which would be accessed by temporary routes and bellmouths. Most work would occur at ground level, with some limited at-height tasks requiring mobile cranes, minimising the scale of change. The construction activity would add to existing movement and disturbance in this intensively farmed landscape but would not fundamentally alter its character or how it is perceived. Overall, the magnitude of predicted change is small. Combined with the landscape's medium value and susceptibility, significant effects on the part of the LCA in Section 6 are unlikely.
	Susceptibility – Medium		Operation - small	Operation - not significant	

Receptor	Value and susceptibility of the landscape	Impact	Magnitude of Change	Significance	Rationale
					proximity to the urban edge of Spalding, by the overhead lines converging at the existing Walpole Substation in Section 7 and other discordant elements. The new 400 kV overhead line would contribute to these urbanising elements but would not fundamentally alter the perception or character of the landscape, reducing the size/scale of change. The overall magnitude of predicted change is small. Combined with the landscape's medium value and susceptibility, significant effects on the part of the RLCT in Section 6 are unlikely.
RLCT 2B Planned and Drained Fens	Value – Medium Susceptibility – Medium	Directly impacted by construction of pylons SW23-SW49.	Construction - small	Construction - not significant	RLCT 2B Planned and Drained Fens would be directly impacted by the construction of pylons SW23-SW49. The works would extend across the easternmost part of the RLCT between Whaplode St Catherine and Tydd St Giles. A working area would be required around each pylon, which would be accessed by temporary routes and bellmouths. A temporary satellite construction compound is also located in this RLCT. Most work would occur at ground level, with some limited at-height tasks requiring mobile cranes, minimising the scale of change. The construction activity would add to existing movement and disturbance in the settled farmland between Spalding and Wisbech but would not fundamentally alter the perception or character of the landscape. Overall, the magnitude of predicted change is small. Combined with the landscape's medium value

Receptor	Value and susceptibility of the landscape	Impact	Magnitude of Change	Significance	Rationale
					and susceptibility, significant effects on the part of the RLCT in Section 6 are unlikely.
		Directly impacted by operation of pylons SW23-SW49.	Operation - small	Operation - not significant	RLCT 2B Planned and Drained Fens would be directly impacted by the presence of the Project. The new 400 kV overhead line (pylons SW23-SW49) would cross the central part of the RLCT between Whaplade St Catherine and Tydd St Giles and would be visible from the remainder of the RLCT within Section 6. The character of this area is already affected by proximity to the urban edge of Spalding, by the overhead lines converging at the existing Walpole Substation in Section 7, and other discordant elements. The new 400 kV overhead line would contribute to these urbanising elements but would not fundamentally alter the perception or character of the landscape, reducing the size/scale of change. The overall magnitude of predicted change is small. Combined with the landscape's medium value and susceptibility, significant effects on the part of the RLCT in Section 6 are unlikely.

Fenland District Landscape Character Areas

The Fens LCA	Value – Medium Susceptibility – Medium	Directly impacted by construction of pylons SW50-SW65.	Construction - small	Construction - not significant	The northern part of The Fens LCA would be directly impacted by construction activity associated with pylons SW50-SW65. A working area would be required around each pylon, which would be accessed by temporary routes and bellmouths. Most work would occur at
--------------	---	--	----------------------	--------------------------------	--

Receptor	Value and susceptibility of the landscape	Impact	Magnitude of Change	Significance	Rationale
					ground level, with some limited at-height tasks requiring mobile cranes, minimising the scale of change. The construction activity would add to existing movement and disturbance in this intensively farmed landscape but would not fundamentally alter the perception or character of the landscape. Overall, the magnitude of predicted change is small. Combined with the landscape's medium value and susceptibility, significant effects on the part of the LCA in Section 6 are unlikely.
		Directly impacted by operation of pylons SW50-SW65.	Operation - small	Operation - not significant	The northern part of The Fens LCA would be directly impacted by the new 400 kV overhead line (pylons SW50-SW65), but this would not fundamentally alter the perception or character of the landscape. Existing wind turbines, an overhead line between Tydd St. Giles and Gorefield, and other discordant elements already influence this highly productive and functional landscape and reduce the size/scale of change likely to occur. The overall magnitude of predicted change is small. Combined with the landscape's medium value and susceptibility, significant effects on the part of the LCA in Section 6 are unlikely.
Wisbech Settled Fen	Value – Medium Susceptibility – Medium	Directly impacted by construction of pylons SW66-SW73.	Construction - small	Construction - not significant	The northern part of Wisbech Settled Fen would be directly impacted by construction activity associated with pylons SW66-SW73. A working area would be required around each pylon, which would be accessed by temporary routes

Receptor	Value and susceptibility of the landscape	Impact	Magnitude of Change	Significance	Rationale
					and bellmouths. Most work would occur at ground level, with some limited at-height tasks requiring mobile cranes, minimising the scale of change. A satellite compound would also be needed. The construction activity would add to existing movement and disturbance in this settled and intensively farmed landscape but would not fundamentally alter its character or how it is perceived. Overall, the magnitude of predicted change is small. Combined with the landscape's medium value and susceptibility, significant effects on the part of the LCA in Section 6 are unlikely.
		Directly impacted by operation of pylons SW66-SW73.	Operation - small	Operation - not significant	The northern part of Wisbech Settled Fen would be directly impacted by the new 400 kV overhead line (pylons SW66-SW73) but this would not fundamentally alter its character or how it is perceived. Existing wind turbines, three overhead lines and the existing Walpole Substation already affect the northernmost part of the LCA and reduce the size/scale of change likely to occur. The overall magnitude of predicted change is small. Combined with the landscape's medium value and susceptibility, significant effects on the part of the LCA in Section 6 are unlikely.
Kings Lynn and West Norfolk Landscape Character Areas (LCA)					
LCA D3 Terrington St John	Value – Medium	Directly impacted by	Construction - small	Construction - not significant	The western part of LCA D3 Terrington St John would be directly impacted by the construction

Receptor	Value and susceptibility of the landscape	Impact	Magnitude of Change	Significance	Rationale
	Susceptibility – Medium	construction of pylons SW74-SW81.			of pylons SW74-SW81. A working area would be required around each pylon, which would be accessed by temporary routes and bellmouths. Most work would occur at ground level, with some limited at-height tasks requiring mobile cranes, minimising the scale of change. The RLCT would also be indirectly affected by construction of New Walpole B Substation and the works to modify the existing 4ZM 400 kV overhead line in Section 7 to the east. The construction activity would add to the existing movement and disturbance in this settled landscape to the north of Wisbech but would not fundamentally alter but would not fundamentally alter its character or how it is perceived. The overall magnitude of predicted change is small. Combined with the landscape's medium value and susceptibility, significant effects on the part of the LCA in Section 6 are unlikely.
	Value – Medium Susceptibility – Medium	Directly impacted by operation of pylons SW74-SW81.	Operation - small	Operation - not significant	LCA D3 Terrington St John would be directly impacted by the presence of the Project. The new 400 kV overhead line (pylons SW74-SW81) would run through the westernmost part of the LCA north of Wisbech. The character of this area is already impacted by several overhead lines converging at the existing Walpole Substation in Section 7, and other discordant elements, reducing the perceived size/scale of change. The new 400 kV overhead line would add to these urbanising elements but would not fundamentally alter the character or

Receptor	Value and susceptibility of the landscape	Impact	Magnitude of Change	Significance	Rationale
					perception of the landscape. The overall magnitude of predicted change is small. Combined with the landscape's medium value and susceptibility, significant effects on the part of the LCA in Section 6 are unlikely.
LCA D4 Emneth, West Walton and Walsoken	Value – Medium Susceptibility – Medium	Indirectly affected by construction of pylons SW74 - SW82 (approximately).	Construction - small	Construction - not significant	There would be no direct impacts on LCA D4 Emneth, West Walton and Walsoken other than some very minor road works to facilitate access along Dixon's Drove, which forms the northern boundary of the LCA to the north of West Walton. While construction activity associated with the new 400 kV overhead line (pylons SW74-SW82 approximately), New Walpole B Substation and modification of the existing 4ZM 400 kV overhead line in Section 7 would be present in views out of the LCA, it would not fundamentally alter the character or perception of the landscape. This is because it is already affected by proximity to the edge of Wisbech, several overhead lines, and other discordant elements and features, which reduces the overall size/scale of change. The overall magnitude of predicted change is small. Combined with the landscape's medium value and susceptibility, significant effects on the part of the LCA in Section 6 are unlikely.
		Indirectly affected by operation of pylons SW74 -	Operation - small	Operation - not significant	There would be no direct impacts on this LCA. While the New Walpole B substation and the new 400 kV overhead line (pylons SW74-SW82 approximately) may be present in views out

Receptor	Value and susceptibility of the landscape	Impact	Magnitude of Change	Significance	Rationale
		SW82 (approximately).			from the LCA, they would not fundamentally alter the character or perception of the landscape. This is because it is already affected by proximity to Wisbech, several overhead lines, and other discordant elements and features, which reduces the overall size/scale of change. The overall magnitude of predicted change is small. Combined with the landscape's medium value and susceptibility, significant effects on the part of the LCA in Section 6 are unlikely.

2.8 Monitoring

- 2.8.1 No landscape monitoring is currently proposed for Section 6, 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 Fenland District Council (2014), Fenland Local Plan (Adopted May 2014). [online] Available at: https://www.fenland.gov.uk/media/12064/Fenland-Local-Plan-Adopted-2014/pdf/Fenland_Local_Plan-Adopted_2014. (Accessed 16 January 2025)
- Ref 2 Fenland District Council (2022), Fenland Local Plan 2021-2040 Draft Local Plan Consultation (August 2022). [online] Available at: https://www.fenland.gov.uk/media/18814/Draft-Local-Plan-August-2022/pdf/Draft_Local_Plan_for_Consultation_Aug_2022.pdf?m=1661177156537 (Accessed 16 January 2025)
- Ref 3 Borough Council of King's Lynn and West Norfolk (2025). King's Lynn and West Norfolk Local Plan 2021-2040 Adopted March 2025. [online]. Available at: https://www.west-norfolk.gov.uk/info/20079/planning_policy_and_local_plan/1207/local_plan_2021-2040#:~:text=The%20current%20Local%20Plan%20was%20adopted%20in%20March,for%20the%20borough%20%28up%20to%2015%20years%20ahead%29. [Accessed 05 May 2025]
- Ref 4 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 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 Natural England (2024) National Character Area Profiles [online]. Available at: <https://nationalcharacterareas.co.uk/> [Accessed 20 September 2024].
- Ref 8 Landscape Institute and Institute for Environmental Management and Assessment (IEMA) (2013) Guidelines for Landscape and Visual Impact Assessment – 3rd Edition (GLVIA3).
- Ref 9 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 10 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 11 Kings Lynn and West Norfolk Borough Council (2007) Landscape Character Assessment [online] Available at: https://www.west-norfolk.gov.uk/info/20185/planning_policy_research/383/landscape_character_assessment
- Ref 12 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 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 British Standard (BS) 5837:2012: Trees in relation to Design, Demolition and Construction – Recommendations.

3. Visual

Contents

3.	Visual	3-1
3.1	Introduction	3-1
3.2	Legislation and Policy Framework	3-4
	Regional and Local Policy	3-4
3.3	Scope of Assessment	3-5
3.4	Assessment Methodology	3-5
	Approach	3-5
	Assessment Assumptions and Limitations	3-7
3.5	Baseline Conditions	3-7
	Study Area	3-7
	Data Collection	3-8
	Existing Baseline	3-8
	Future Baseline	3-10
3.6	Design, Control and Additional Mitigation Measures	3-11
	Design Mitigation Measures	3-11
	Control Mitigation Measures	3-11
	Additional Mitigation Measures	3-12
3.7	Preliminary Assessment of Effects	3-13
	Likely Significant Effects	3-13
	Likely Non-Significant Effects	3-21
3.8	Monitoring	3-40
	Table 3.1 Supporting documentation	3-2
	Table 3.2 Preliminary summary of non-significant Visual effects – Section 6	3-24
	References	3-41

3. Visual

3.1 Introduction

- 3.1.1 This chapter presents the Preliminary Environmental Information (PEI) in relation to the Visual assessment for the Refined Weston Marsh Substation Siting Zone to New Walpole B Substation Section (Section 6) of the Grimsby to Walpole Project (the Project). 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 **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 **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 6 (section 3.4). A detailed description of the assessment methods and scope, applicable to the whole Project, is contained in **PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**;
 - v. A description of the environmental baseline within the Section 6 Study Area relevant to the Visual assessment (section 3.5);
 - vi. A description of mitigation measures included for the purposes of the Visual assessment reported within the PEI Report (section 3.6). Further information regarding design development can be found in **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 Visual effects arising during construction and operation of the Project within Section 6, 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).
- 3.1.2 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
Topic Specific Supporting Documentation	
PEI Report Volume 2 Part B Section 6 Figures	Figure 3.1 Visual Receptors and Viewpoints Figure 3.2 Zone of Theoretical Visibility (ZTV)
PEI Report Volume 3 Part B Appendix 3A Proposed Viewpoints	This appendix provides background baseline information of the representative viewpoints selected within the Study Area.
PEI Report Volume 3 Part B Appendix 3B Visual Baseline	This appendix provides an overview of the visual baseline, explanation of proposed viewpoint selection and initial baseline information for the community areas within the Study Area.
Project Supporting Documentation	
PEI Report Volume 2 Part B Section 6 Chapter 1 Overview of the Section and Description of the Project	A summary of the works within Section 6, including permanent infrastructure, temporary construction works, and operational activities.
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).
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 PEI Report and ES.
PEI Report Volume 3 Part A Appendix 2Ci Local Plan Policy: Section Specific	An outline of the potentially relevant local planning policy allocations affecting each of the specific Sections of the Project.
PEI Report Volume 3 Part A Appendix 2Cii Local Plan Policy: Route-wide	Details of planning policies applicable route-wide within the relevant Local Authority areas.
PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered	Provides a summary of the main alternatives considered in relation to the Project during the design development process, including the main reasons for selecting the chosen option.
PEI Report Volume 2 Part A Chapter 4 Approach to Preliminary Environmental Information	Sets out the Environmental Impact Assessment (EIA) approach and general methodology that has been used in developing the PEI Report for the Project.
PEI Report Volume 2 Part A Chapter 5 Project Description	An overarching description of the Project and its key components, including available construction information.
PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice	Sets out control and management measures that will be undertaken during construction of

Supporting Information	Description
	the Project if granted consent. The final Code of Construction Practice (CoCP) will be submitted in support of the Development Consent Order (DCO) application.

- 3.1.3 There are interrelationships between the potential effects on Visual and other environmental topics. Therefore, please also refer to the following chapters within **PEI Report Volume 2 Part B** and **Part C**:
- i. **PEI Report Volume 2 Part B Section 2 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. **PEI Report Volume 2 Part B Section 2 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. **PEI Report Volume 2 Part B Section 2 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. **PEI Report Volume 2 Part B Section 2 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. **PEI Report Volume 2 Part B Section 2 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. **PEI Report Volume 2 Part B Section 2 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. **PEI Report Volume 2 Part B Section 2 Chapter 13 Summary** which provides a concise, consolidated summary of the likely significant effects reported for all topics, based upon the preliminary assessment.
 - viii. **PEI Report Volume 2 Part C Route-wide Chapter 10 Cumulative Effects** presents a preliminary assessment of cumulative effects upon common receptors across environmental topics identified within PEI Report Volume 2 Part B (intra-project). It 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 **PEI Report Volume 2 Part A Chapter 2 Legislative, Regulatory and Planning Policy Context** 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. Fenland Local Plan (Adopted May 2014) (Ref 1):
 - Policy LP16 - Delivering and Protecting High Quality Environments across the District: Proposals will be managed in such a way that it protects and improves the diverse natural environment of the District and preserves and enhances its rich built and cultural heritage.
- ii. Fenland Local Plan 2021-2040 Draft Local Plan Consultation (August 2022) (Ref 2):
 - Policy LP6 - Renewable and Low Carbon Energy Infrastructure: Proposals will identify, manage and mitigate any existing or proposed risks to views as a result of the project; and
 - Policy LP28 – Landscape: Proposals will seek to ensure that development protects and where possible enhances the intrinsic value of the local landscape and views.
- iii. King's Lynn and West Norfolk Local Plan 2021 - 2040 (Adopted March 2025) (Ref 3):
 - Policy LP21 - Environment, Design and Amenity: states that development must protect and enhance the amenity of the wider environment and identifies criteria against which proposals will be assessed, including visual amenity.
 - Policy LP24 - Renewable Energy: Developments will be assessed to determine whether the energy benefits outweigh the impact individually or cumulatively with regard visual impacts, amongst other factors.
 - LP26 – Protection of Local Open Space: When assessing planning applications for development, the Council will have careful regard to the value of any area of open space, based upon factors including visual amenity and landscape character.
- iv. South East Lincolnshire Local Plan 2011 – 2036 (adopted 2019) (Ref 4):
 - Policy 27 - 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 for 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 the submission 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 Visual chapter is provided in **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 **PEI Report Volume 3 Part A Appendix 4D Summary of Stakeholder Engagement**.
- 3.3.2 Non statutory consultation feedback has been addressed within the **Grimsby to Walpole Stage 1 Consultation Feedback Report**.
- 3.3.3 The scope of the construction and operation assessment covers the following receptor types:
- i. Communities - People living in and moving around communities, working within communities where the setting is important to their quality of work and engaging in recreational activities, including people 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 route, 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 **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 7) “*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 7), 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 **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, 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 (Ref 9) to document the existing visual characteristics of Section 6. The baseline for the representative viewpoints is presented in the Visual section of **PEI Report Volume 3 Part B Appendix 3A Proposed Viewpoints**.
- 3.4.7 In accordance with GLVIA 3 (Ref 7), 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 considered together to form an overall judgment regarding the significance of visual effects.
- 3.4.8 The Visual section of **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 7), 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 **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 7), 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 **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.

- 3.4.12 In accordance with paragraph 6.43 of 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 visual effect, guided by the indicative criteria set out in the Visual section of **PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.
- 3.4.13 Professional judgement and experience are applied to take on board the many different variables which need to be considered and are given different weight according to site-specific and location-specific considerations.
- 3.4.14 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 12). 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

- 3.4.15 All general assumptions and limitations for the topic are listed within **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 6.
- 3.4.16 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.

3.5 Baseline Conditions

Study Area

- 3.5.1 The Study Area for the preliminary assessment is shown on **PEI Report Volume 2 Part B Section 6 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 line¹. This distance was informed by the ZTV, the scale and appearance of the pylons (as detailed in **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 of the Project. 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.

¹ The Study Area for the preliminary assessment is measured from the LoD 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.

- 3.5.2 The Study Area for the preliminary cumulative Visual assessment extends 10 km from the LoD for the new 400 kV overhead line. This radius was established to evaluate potential cumulative Visual impacts in conjunction with other existing, consented, and/or proposed developments.
- 3.5.3 The ZTV map, which incorporates screening elements such as buildings and woodland, is presented in **PEI Report Volume 2 Part B Section 6 Figure 3.2 Zone of Theoretical Visibility (ZTV)**. Based on pylon locations provided by design engineers, the ZTV identifies areas where the proposed 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 and ZTV production is presented in the Visual section of **PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.
- 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 updated ZTVs as the Project develops.

Data Collection

- 3.5.6 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;
 - Fenland Local Plan (Adopted May 2014) (Ref 1);
 - Fenland Local Plan 2021-2040 Draft Local Plan Consultation (August 2022) (Ref 2);
 - King's Lynn and West Norfolk Local Plan 2021 - 2040 (Adopted March 2025) (Ref 3).
- 3.5.7 Site surveys were carried out during several visits under differing weather conditions between spring 2023 and summer 2024.

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 **PEI Report Volume 2** and **Volume 3** respectively:

- i. **PEI Report Volume 2 Part B Section 6 Figure 3.1 Visual Receptors and Viewpoints;**
- ii. **PEI Report Volume 3 Part B Appendix 3A Proposed Viewpoints;**
- iii. **PEI Report Volume 3 Part B Appendix 3B Visual Baseline;** and
- iv. **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 6. 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. Cowbit;
 - ii. Fleet (VP112);
 - iii. Gedney;
 - iv. Gedney Hill;
 - v. Gorefield (VP95);
 - vi. Holbeach (VP93, VP113);
 - vii. Leverington;
 - viii. Little Sutton;
 - ix. Long Sutton;
 - x. Newton-in-the-Isle (VP96, VP97, VP98, VP99, VP100);
 - xi. Parson Drove;
 - xii. Sutton Bridge;
 - xiii. Sutton St Edmund (VP94);
 - xiv. Sutton St James (VP111);
 - xv. The Moultons (VP90, VP91, VP115, VP118, VP119);
 - xvi. Tydd St Mary (VP108);
 - xvii. Tydd St. Giles (VP107, VP109, VP110);
 - xviii. Walsoken;
 - xix. Weston (VP116, VP117);
 - xx. West Walton (VP101, VP102, VP104);and
 - xxi. Whaplode (VP92, VP114).
- 3.5.11 For people living within Spalding (VP86, VP87, VP88, VP117) and Wisbech, the susceptibility to visual change is medium due to the built up nature of those communities, while the characteristics of the landscape indicate that the value of the views is assessed as medium.
- 3.5.12 Descriptions of the baseline visual amenity of these community areas are provided in **PEI Report Volume 3 Part B Appendix 3B Visual Baseline**. This includes a description of the 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
- 3.5.13 People using the following recreational routes and receptors have been identified within Section 6.
- 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. In Section 6, the trail crosses the Study Area between Sutton St Edmund and Holbeach. As the trail passes under the existing 400 kV overhead line near Holbeach Fen, pylons are prominent in views. Within Section 6, the value of the sequential views is considered to be of medium value due to the presence of existing detractors.

- ii. Nene Way - A 177 km route which follows the River Nene through Northamptonshire to the Wash and passes through Section 6 between Wisbech and Sutton Bridge. Views from this section of the footpath vary, but are dominated by views of industrial area along the River Nene in Wisbech, views of numerous overhead lines as they cross the River Nene to the south of Foul Anchor and past wind farms and the industrial area to the south of Sutton Bridge. As views contribute to the landscape setting enjoyed by people using the path, their susceptibility to the Project is high. The value of views is medium, moderated by the presence of the detractors listed.
- iii. National Cycle Route 1 – A 2000 km cycle route between Dover and John O’Groats up the eastern side of England and Scotland. The route is located within Sections 2, 4, 5, 6 and 7 of the Project. In Section 6, the route crosses the flat landscape between Wisbech and Holbeach. It follows the minor road network, passing beneath the existing 400 kV overhead line between Newton and Tydd St Giles. Pylons are visible from varying distances across the landscape for people using the cycle route in this Section. As views contribute to the landscape setting enjoyed by people using these sections of the cycle route, their susceptibility to the Project is high. Within Section 6, the value of the sequential views is considered to be medium due to the presence of existing detractors.

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 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 **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 6 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. An Arboricultural Impact Assessment will record incidents of ash dieback, which in turn will inform the detailed landscape assessment presented in the ES.

3.6 Design, Control and Additional Mitigation Measures

Design Mitigation Measures

- 3.6.1 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 13) applicable to routing of new overhead lines and the 'Horlock Rules' (Ref 14), 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 15) and **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 6. This has further contributed to the avoidance or reduction of the potential environmental impacts of the Project. Specific examples relevant to the assessment include amendments to locations of access tracks and bellmouths and overhead line proposed alignment to minimise loss of mature 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 Mitigation 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 **Volume 2 Part B Sections 1-7 Chapter 4: Ecology and Biodiversity**) and will accompany the ES and DCO application.
- 3.6.4 A detailed mitigation plan will be produced at the ES stage. This will include proposals for planting including indicative species mixes and will be presented as part of the LEMP.

Control Mitigation Measures

- 3.6.5 Control and management measures, comprising management activities and techniques, will be implemented during construction of the Project to limit effects through adherence to good site practices and achieving legal compliance.
- 3.6.6 A Preliminary Code of Construction Practice (CoCP) is provided in **PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice**. Measures contained in the Preliminary CoCP that are relevant to the control and management of impacts that could affect the visual assessment are:
- 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 Outline Landscape and Ecological management Plan 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 British Standard (BS) 5837:2012: Trees in relation to Design, Demolition and Construction Recommendations (Ref 16). 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 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;
- 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; and
- 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.

Additional Mitigation Measures

- 3.6.7 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.
- 3.6.8 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.
- 3.6.9 As set out within **PEI Report Volume 2 Part B Section 6 Chapter 1 Overview of the Section and Description of the Project** and illustrated on **PEI Report Volume 2 Part B Section 6 Figure 1.3 Permanent and Operational Features** the preliminary additional mitigation measures embedded into the design of Section 6 for Visual includes:
 - i. Areas of woodland planting to replace those affected by the Project which would also help to filter views for people as they move around their communities; and
 - ii. Introduction of tree planting on field boundaries and roadsides to filter views of the Project for people as they move around their communities, for example along Hurdletree Bank in Whaplode and Grangehill Road in Tydd St Giles.
- 3.6.10 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.
- 3.6.11 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 Section 6 Study Area, as a result of construction and/or operational activities.
- 3.7.2 The preliminary assessment of effects reported below takes into account the Design Mitigation Measures, Control Mitigation Measures and Additional Mitigation Measures (where they have already been included in the design), as previously described.
- 3.7.3 For a summary of the likely significant effects please refer to **PEI Report Volume 2 Part B Section 6 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 **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 5). As agreed in the Scoping Opinion adopted by the Secretary of State on 10 September 2024 (Ref 5), 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 PEI Report it is an adverse effect unless stated otherwise.
- 3.7.6 Reference is made in the assessment 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 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

- 3.7.8 Changes in the character and perception of a view could occur during construction due to the physical effects on landscape character. Effects would arise from activities such as vegetation removal and presence of construction compounds, storage areas, access tracks, plant (including mobile cranes), vehicles and personnel. However,

these effects would be temporary and reversible once the works are complete, and the site is reinstated².

Communities

- 3.7.9 No communities have been identified as experiencing likely significant effects during construction of the Project in Section 6.

Recreational Routes and Receptors

Greenwich Meridian Trail

- 3.7.10 The Greenwich Meridian Trail is located within Section 6 and is also located within Section 2 New Grimsby West Substation to New Lincolnshire Connection Substation A and Section 4 New Lincolnshire Connection Substation B to Refined Weston Marsh Substation Siting Zone. The preliminary assessment of the effects on people using the Greenwich Meridian Trail presented below considers the part of the Trail that is located within the Study Area for Section 6.
- 3.7.11 People using the Greenwich Meridian Trail have a high susceptibility to change arising from the Project while the characteristics of the landscape in Section 6 indicate that the value of the sequential views experienced is judged to be medium. Users of the Greenwich Meridian Trail would have close range views of pylon construction along Section 6, between pylons SW33 and SW46, where the trail follows field boundaries adjacent to the Project. The trail also crosses the Project near pylon SW34. Taller construction equipment would be visible over a longer stretch as people approach from both the north and south. While this impact is limited to a short section of the trail, it would result in a medium magnitude of change and result in likely localised significant effects.
- 3.7.12 When considering the construction phase of the Project in its entirety across all Sections, the overall magnitude of predicted change would remain medium. When combined with the value, which varies from medium to high along its length, and high susceptibility, the Project would give rise to a likely significant effect.

Nene Way

- 3.7.13 People using the Nene Way have a high susceptibility to change arising from the Project while the characteristics of the landscape in Section 6 indicate that the value of the sequential views experienced is judged to be medium.
- 3.7.14 Users of the Nene Way would have close range views of pylon construction in Section 6, between pylons SW73 and SW74 which are the river crossing pylons and will be significantly taller than other pylons along the route, where the Project crosses the River Nene. Taller construction equipment would be visible over a longer stretch as people approach from both the north and south. While this impact is limited to a short section of the trail, it would result in a medium magnitude of change and result in likely localised significant effects.

² 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

- 3.7.15 The potential impacts that could result from the operation of the Project are the effects on 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 Twelve community areas of the 22 community areas have been identified as being significantly affected during operation of the Project in Section 6. 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.

Fleet

- 3.7.17 The community of Fleet 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.
- 3.7.18 The parish would be directly impacted by the operation of approximately 1.6 km of overhead line including pylons SW35-SW40 and would therefore have close proximity views of the Project, as well as indirectly affected by views of pylons in Section 6 to the west and south. Although views are already affected by the existing 132 kV overhead line and by the existing 400 kV overhead line to the north, 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 would be noticeable in views in the central part of this community area. Overall, this would result in a medium magnitude of change and likely significant effects.

Gedney

- 3.7.19 The community of Gedney Parish is considered highly susceptible to visual change resulting from the Project, while the characteristics of the landscape indicate that the value of the views across the parish is judged to be medium.
- 3.7.20 The parish would be directly impacted by the operation of approximately 500 m of overhead line including pylon SW41 and would therefore have close proximity views of the Project, as well as indirectly affected by views of pylons in Section 6 to the west and south. Although views are already affected by the existing 132 kV overhead line and by the existing 400 kV overhead line to the north, 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 would be noticeable in views in the southern part of this community area. Overall, this would result in a medium magnitude of change and likely significant effects.

Gedney Hill

- 3.7.21 The community of Gedney Hill Parish is considered highly susceptible to visual change resulting from the Project, while the characteristics of the landscape indicate that the value of the views across the parish is judged to be medium.
- 3.7.22 Although not directly impacted, the new 400 kV overhead line would be noticeable in views to the north of this community area. Views are already affected by the existing 132 kV overhead line to the south and east, however, the Project would be much closer in proximity and would spread the effects of overhead line infrastructure across a wider area, increasing the numbers of pylons visible for people living and moving around the parish. Overall, this would result in a medium magnitude of change and likely localised significant effects in the northern parts of this community.

Holbeach

- 3.7.23 The community of Holbeach 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.
- 3.7.24 The parish would be directly impacted by the operation of approximately 2 km of overhead line including pylons SW29-SW34 and would therefore have close proximity views of the Project, as well as indirectly affected by views of pylons in Section 6 to the northwest towards Spalding and southeast towards Tydd St Giles. Although views are already affected by the existing 132 kV overhead line and by the existing 400 kV overhead line to the north, 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 would be noticeable in views in the central part of this community area. Overall, this would result in a medium magnitude of change and likely significant effects.

Newton-in-the-Isle

- 3.7.25 The community of Newton-in-the-Isle 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.
- 3.7.26 The parish would be directly impacted by the operation of approximately 3.9 km of overhead line including pylons SW62-SW72 and would therefore have close proximity views of the Project, as well as indirectly affected by views of pylons in Section 6 to the west towards Sutton St Edmund and southeast towards Ingleborough. Although views are already affected by the existing 132 kV overhead line and by the existing 400 kV overhead line to the north, 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 would be noticeable in views in the northern part of this community area. Overall, this would result in a medium magnitude of change and likely significant effects.

Sutton St Edmund

- 3.7.27 The community of Sutton St Edmund 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.

- 3.7.28 Although not directly impacted, the new 400 kV overhead line would be noticeable in views to the north of this community area. Views are already affected by the existing 132 kV overhead line to the south, however, the Project would be much closer in proximity and would spread the effects of overhead line infrastructure across a wider area, increasing the numbers of pylons visible for people living and moving around the parish. Overall, this would result in a medium magnitude of change and likely localised significant effects in the northern parts of this community.

Sutton St James

- 3.7.29 The community of Sutton St James 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.
- 3.7.30 The parish would be directly impacted by the operation of approximately 3 km of overhead line including pylons SW42-SW49 and would therefore have close proximity views of the Project, as well as indirectly affected by views of pylons in Section 6 to the northwest towards Whaplode St Catherine and south towards Tydd St Giles. Although views are already affected by the existing 132 kV overhead line and 400 kV overhead line to the north, 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 would be noticeable in views in the south of this community area. Overall, this would result in a medium magnitude of change and likely significant effects.

The Moultons

- 3.7.31 The Moultons Parish is located within Section 6, however a large part of the community, including the settlement of Moulton Seas End, is also located within Section 5 Refined Weston Marsh Substation Siting Zone. 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 6.
- 3.7.32 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.
- 3.7.33 The parish would be directly impacted by the operation of approximately 1.9 km of overhead line including pylons SW13-SW17 and would therefore have close proximity views of the Project, as well as potentially indirectly affected by views of Weston March Substation Siting Zone, and pylons to the east towards Spalding and southeast towards Whaplode St Catherine within Section 6. Although views are already affected by the existing 132 kV overhead line to the south and by the existing 400 kV overhead line to the north, 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 would be noticeable in views in the central part of this community area. Overall, this would result in a medium magnitude of change and likely significant effects.
- 3.7.34 When considering the operation phase of the Project in its entirety across all Sections, the overall magnitude of predicted change remains medium. Although Weston Marsh Substation A and Weston Marsh Substation B may be located within this parish, mitigation planting would help to screen views from visual receptors within

the community. When combined with the medium value and high susceptibility, the Project would give rise to a likely significant effect.

Tydd St Giles

- 3.7.35 The community of Tydd St Giles 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.
- 3.7.36 The parish would be directly impacted by the operation of approximately 4 km of overhead line including pylons SW50-SW62 and would therefore have close proximity views of the Project, as well as indirectly affected by views of pylons in Section 6 to the northwest towards Whaplode St Catherine and east towards Walpole B Substation. Although views are already affected by the existing 132 kV overhead line which follows the southern boundary of the parish and 132 kV and 400 kV overhead line to the north, 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 would be noticeable in views in the south of this community area. Overall, this would result in a medium magnitude of change and likely significant effects.

Weston

- 3.7.37 Weston Parish is located within Section 6, however a large part of the community including parts of the main settlement of Weston are also located within Section 5 Refined Weston Marsh Substation Siting Zone. 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 6.
- 3.7.38 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.
- 3.7.39 The parish would be directly impacted by the operation of approximately 2.5 km of overhead line including pylons SW1-SW2 and SW7-SW12 and would therefore have close proximity views of the Project, as well as potentially indirectly affected by views of Walpole B Substation and pylons to the west towards Spalding and southeast towards Whaplode St Catherine in Section 6. Although views are already affected by the existing 132 kV overhead line to the south and by the existing 400 kV overhead line to the north, 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 as it routes to the west and south of the village of Weston. The new 400 kV overhead line would be noticeable in views in the central part of this community area. Overall, this would result in a medium magnitude of change and likely significant effects.
- 3.7.40 When considering the operation phase of the Project in its entirety across all Sections, the overall magnitude of predicted change remains medium. Although Weston Marsh Substation A and Weston Marsh Substation B may be located within this parish, mitigation planting would help to screen views from visual receptors within the community. When combined with the medium value and high susceptibility, the Project would give rise to a likely significant effect.

West Walton

- 3.7.41 West Walton Parish is located within Section 6, however a large part of the community, including the settlement of Walton Highway, is also located within Section 7 New Walpole B Substation. The preliminary assessment of the effects on people living and moving around West Walton Parish presented below considers the part of the Community that is located within the Study Area for Section 6.
- 3.7.42 The community of West Walton Parish is considered highly susceptible to visual change resulting from the Project, while the characteristics of the landscape indicate that the value of the views across the parish is judged to be medium.
- 3.7.43 The parish would be directly impacted by the operation of pylons SW74-SW83 and would therefore have close proximity views of the Project, as well as potentially indirectly affected by views of Walpole B Substation to the east and pylons to the west towards Tydd St Giles. Although views are already affected by the existing 132 kV overhead line and existing 400 kV overhead line to the east, 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 as it routes between the settlements of Ingleborough and West Walton. The new 400 kV overhead line would be noticeable in views in the central part of this community area. Overall, this would result in a medium magnitude of change and likely significant effects.
- 3.7.44 When considering the operation phase of the Project in its entirety across all Sections, the overall magnitude of predicted change remains medium. Although Walpole B Substation may be located within this parish, mitigation planting would help to screen views from visual receptors within the community. When combined with the medium value and high susceptibility, the Project would give rise to a likely significant effect.

Whaplode

- 3.7.45 Whaplode Parish is located within Section 6, however part of the community is also located within Section 5 Refined Weston Marsh Substation Siting Zone.
- 3.7.46 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 6.
- 3.7.47 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.
- 3.7.48 The parish would be directly impacted by the operation of approximately 4 km of overhead line including pylons SW18-SW28 in Section 6 and would therefore have close proximity views of the Project and indirectly affected by pylons to the northwest towards Spalding and southeast towards Tydd St Giles. Although views are already affected by the existing 132 kV overhead line and 400 kV overhead line to the north, 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 would be noticeable in views in the central part of this community area. Overall, this would result in a medium magnitude of change and likely significant effects.

- 3.7.49 When considering the operation phase of the Project in its entirety across all Sections, the overall magnitude of predicted change remains to medium. This is due to the effects associated within Section 6 where the Project crosses this community and receptors would have close proximity views of the Project. When combined with the medium value and high susceptibility, the Project would give rise to a likely significant effect.

Recreational Receptors

Greenwich Meridian Trail

- 3.7.1 The Greenwich Meridian Trail is located within Section 6 and is also located within Section 2 New Grimsby West Substation to New Lincolnshire Connection Substation A and Section 4 New Lincolnshire Connection Substation B to Refined Weston Marsh Substation Siting Zone. The preliminary assessment of the effects on people using the Greenwich Meridian Trail presented below considers the part of the Trail that is located within the Study Area for Section 6.
- 3.7.2 People using the Greenwich Meridian Trail have a high susceptibility to change arising from the Project while the characteristics of the landscape in Section 6 indicate that the value of the sequential views experienced is judged to be medium. Users of the Greenwich Meridian Trail would have close range views of the new 400 kV overhead line for approximately 4 km between pylons SW33 and SW46, where the trail follows field boundaries adjacent to the Project, the trail passing under the Project near pylon SW34. Although this landscape has existing 132 kV and 400 kV overhead lines and pylons would not be a new element, the Project would spread the effects of overhead line infrastructure across a wider area and increase the numbers of pylons visible. This would result in a medium magnitude of change and result in likely localised significant effects.
- 3.7.3 When considering the operation phase of the Project in its entirety across all Sections, the overall magnitude of predicted change would remain medium. When combined with the value which varies from medium to high along its length and high susceptibility, the Project would give rise to a likely significant effect.

Nene Way

- 3.7.4 People using the Nene Way have a high susceptibility to change arising from the Project while the characteristics of the landscape in Section 6 indicate that the value of the sequential views experienced is judged to be medium.
- 3.7.5 Users of the Nene Way would have close range views of the new 400 kV overhead line in Section 6, between pylons SW73 and SW74, where the Project crosses the River Nene, and would therefore have close proximity views of the Project. These taller crossing pylons would be visible over a longer stretch as people approach from both the north and south. Although this landscape has existing 132 kV and 400 kV overhead lines and pylons would not be a new element, the Project would spread the effects of overhead line infrastructure across a wider area and increase the numbers of pylons visible. This would result in a medium magnitude of change and result in likely localised significant effects.

Likely Non-Significant Effects

- 3.7.6 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.
- 3.7.7 There are some visual receptors where the effects are likely to be not significant when considering only impacts within Section 6, 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 6 and which other Sections of the Project would result in a greater effect.

Construction

Communities

- 3.7.8 Although not likely to have significant effects in Section 6, two communities would however be potentially significantly affected by the Project in Section 5 Refined Weston Marsh Substation Siting Zone and one community potentially significantly affected by the Project in Section 7 New Walpole B Substation.
- The Moultons
- 3.7.9 The Moultons Parish is located within Section 6, however a large part of the community, including the settlement of Moulton Seas End, is also located within Section 5 Refined Weston Marsh Substation Siting Zone.
- 3.7.10 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 6.
- 3.7.11 The community of The Moultons Parish is considered highly susceptible to visual change resulting from the Project, while the characteristics of the landscape indicate that the value of the views across the parish is judged to be medium.
- 3.7.12 The parish would be directly impacted by the construction of 1.9 km of overhead line including pylons SW13-SW17 and would therefore have close proximity views of the Project, as well as indirectly affected by views towards construction activity associated with pylons in Section 6 to the west and southeast. Although there would be open views towards construction activities to the centre of the community area, due to the flat topography the effects of construction would be localised to the fields immediately surrounding the Project. Taller equipment would be perceptible over a wider part of the community area, however, these effects would be temporary in nature. The magnitude of change is considered to be small and effects on this community area during construction would likely be not significant.
- 3.7.13 When considering the construction phase of the Project in its entirety across all Sections, the overall magnitude of predicted change increases to large. This is due to the effects associated within construction of the substations within Section 5 Refined Weston Marsh Substation Siting Zone. Although the locations of these are currently subject to ongoing siting and design work, one or both of the substations could be located within the parish. When combined with the medium value and high susceptibility, the Project would give rise to a likely significant effect.

Weston

- 3.7.14 Weston Parish is located within Section 6, however a large part of the community including parts of the main settlement of Weston are also located within Section 5 Refined Weston Marsh Substation Siting Zone. 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 6.
- 3.7.15 The community of Weston Parish is considered highly susceptible to visual change resulting from the Project, while the characteristics of the landscape indicate that the value of the views across the parish is judged to be medium.
- 3.7.16 The parish would be directly impacted by the construction of pylons SW1-SW2 and SW7-SW12 and would therefore have close proximity views of the Project, as well as indirectly affected by views towards construction activity associated with pylons in Section 6 to the west and southeast. Although there would be open views towards construction activities to the centre of the community area, due to the flat topography and presence of vegetation and buildings, the effects of construction would be localised to the fields immediately surrounding the Project. Taller equipment would be perceptible over a wider part of the community area, however, these effects would be temporary in nature. The magnitude of change is considered to be small and effects on this community area during construction would likely be not significant.
- 3.7.17 When considering the construction phase of the Project in its entirety across all Sections, the overall magnitude of predicted change increases to large. This is due to the effects associated within construction of Weston Marsh Substation A and Weston Marsh Substation B. Although locations of these are currently unknown, one or both of the substations could be located within the parish. When combined with the medium value and high susceptibility, the Project would give rise to a likely significant effect.

West Walton

- 3.7.18 West Walton Parish is located within Section 6, however a large part of the community, including the settlement of Walton Highway, is also located within Section 7 New Walpole B Substation. The preliminary assessment of the effects on people living and moving around West Walton Parish presented below considers the part of the Community that is located within the Study Area for Section 6.
- 3.7.19 The community of West Walton Parish is considered highly susceptible to visual change resulting from the Project, while the characteristics of the landscape indicate that the value of the views across the parish is judged to be medium.
- 3.7.20 The parish would be directly impacted by the construction of pylons SW74-SW83 and would therefore have close proximity views of the Project, as well as indirectly affected by views towards construction activity associated with pylons in Section 6 to the west. Although there would be open views towards construction activities to the centre of the community area near Ingleborough, due to the flat topography the effects of construction would be localised to the fields immediately surrounding the Project. Taller equipment would be perceptible over a wider part of the community area, however, these effects would be temporary in nature. The magnitude of change is considered to be small and effects on this community area during construction would likely be not significant.

- 3.7.21 When considering the construction phase of the Project in its entirety across all Sections, the overall magnitude of predicted change increases to large. This is due to the effects associated within construction of Walpole B Substation. 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 6

Receptor	Value of Views and Susceptibility of Receptor	Impact	Magnitude of Change	Significance	Rationale
Communities					
Cowbit	Value of Views – Medium Susceptibility – High	Indirectly affected by views of construction activities and presence during operation of pylons in Section 6.	Construction – very small	Construction – not significant	Due to the flat landform and intervening villages within the parishes of Weston and the Moultons, 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. The magnitude of change is considered to be very small and effects on this community area would likely be not significant during construction.
			Construction – very small	Construction – not significant	At 4 km, the new overhead line may be perceptible but seen in the context of the existing 132 kV overhead line which is more prominent in views as it passes through the northern edge of this community area. The Project would not fundamentally alter the composition or character of the views currently experienced. The magnitude of change is considered to be very small and effects on this community area during operation would likely be not significant.
Fleet	Value of Views – Medium	Directly impacted by the construction and	Construction – small	Construction – not significant	Although there would be open views towards construction activities to the centre

Receptor	Value of Views and Susceptibility of Receptor	Impact	Magnitude of Change	Significance	Rationale
	Susceptibility – High	operation of approximately 1.6 km of overhead line including pylons SW35-SW40 in Section 6 and indirectly affected by pylons to the northwest towards Spalding and southeast towards Tydd St Giles.			<p>of the community area, due to the flat topography the effects of construction would be localised in the area to the east of Holbeach St John. Taller equipment would be perceptible over a wider part of the community area, however, these effects would be temporary in nature. Visual effects of accesses 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 would likely be not significant.</p>
Gedney	Value of Views – Medium Susceptibility – High	Directly impacted by the construction and operation of approximately 500 m of overhead line including pylon SW41 in Section 6 and indirectly affected by pylons to the northwest towards Whaplode St Catherine and south towards Tydd St Giles.	Construction – small	Construction – not significant	<p>Although there would be open views towards construction activities to the centre of the community area, due to the flat topography the effects of construction would be localised in the area to the east of Whaplode St Catherine. Taller equipment would be perceptible over a wider part of the community area, however, these effects would be temporary in nature. Visual effects of accesses 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 would likely be not significant.</p>

Receptor	Value of Views and Susceptibility of Receptor	Impact	Magnitude of Change	Significance	Rationale
Gedney Hill	Value of Views – Medium Susceptibility – High	Indirectly affected by views of construction activities and presence during operation of pylons in Section 6.	Construction – small	Construction – not significant	<p>Although there would be open views towards construction activities from the north of the community, due to the flat topography the effects of construction would be limited to the areas around New Fen Dike. Taller equipment would be perceptible, however, these effects would be temporary in nature. Visual effects of accesses 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 would likely be not significant.</p>
Gorefield	Value of Views – Medium Susceptibility – High	Indirectly affected by views of construction activities and presence during operation of pylons in Section 6.	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 likely be not significant during construction.</p>
			Operation – Small	Operation – not significant	<p>At 2.2 km, the new overhead line may be perceptible but seen in the context of the existing 132 kV overhead line which is more prominent in views as it passes through the northern edge of this community area. The</p>

Receptor	Value of Views and Susceptibility of Receptor	Impact	Magnitude of Change	Significance	Rationale
					<p>Project would not fundamentally alter the composition 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 would likely be not significant.</p>
Holbeach (VP93, VP113)	Value of Views – Medium Susceptibility – High	Directly impacted by the construction and operation of approximately 2 km of overhead line including pylons SW29-SW34 in Section 6 and indirectly affected by pylons to the northwest towards Spalding and southeast towards Tydd St Giles. A satellite compound for construction is located within the parish near SW31.	Construction – small	Construction – not significant	<p>Although there would be open views towards construction activities to the centre of the community area, due to the flat topography the effects of construction would be localised in the area to the east of Whaplode St Catherine. A satellite construction compound is located near Whaplode St Catherine. Although visible, this would be temporary and only visible within a very small area of the parish. Taller equipment would be perceptible over a wider part of the community area, however, these effects would be temporary in nature. Visual effects of accesses 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 would likely be not significant.</p>
Leverington	Value of Views – Medium	Indirectly affected by views of construction activities and presence	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</p>

Receptor	Value of Views and Susceptibility of Receptor	Impact	Magnitude of Change	Significance	Rationale
	Susceptibility – High	during operation of pylons in Section 6.			close proximity and would be temporary in nature. The magnitude of change is considered to be very small and effects on this community area likely be not significant during construction.
			Operation – small	Operation – not significant	At 2.2 km, the new overhead line may be perceptible but seen in the context of the existing 132 kV overhead line which is more prominent in views as it passes through the northern edge of this community area. The Project would not fundamentally alter the composition or character of the views currently experienced. The magnitude of change is considered to be small and effects on this community area during operation would likely be not significant.
Little Sutton	Value of Views – Medium Susceptibility – High	Indirectly affected by views of construction activities and presence during operation of pylons in Section 6.	Construction – very small	Construction – not significant	The tops of taller construction equipment may be perceptible but would be temporary in nature and at distance. The magnitude of change is considered to be very small and effects on this community area during construction would likely be not significant.
			Operation – very Small	Operation – not significant	At 4.1 km to the closest visual receptors within the community area, the taller components of the Project may be

Receptor	Value of Views and Susceptibility of Receptor	Impact	Magnitude of Change	Significance	Rationale
					<p>perceptible but seen beyond the existing 400 kV and 132 kV overhead lines to the south which would remain the dominant feature in views and therefore 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 would likely be not significant.</p>
Long Sutton	Value of Views – Medium Susceptibility – High	Indirectly affected by views of construction activities and presence during operation of pylons in Section 6.	Construction – very small	Construction – not significant	<p>The tops of taller construction equipment may be perceptible but would be temporary in nature and at distance.</p> <p>The magnitude of change is considered to be very small and effects on this community area during construction would likely be not significant.</p>
			Operation – very small	Operation – not significant	<p>At 3.4 km to the closest visual receptors within the community area, the taller components of the Project may be perceptible but seen beyond the existing 132 kV overhead line which would remain the dominant feature in views and therefore 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</p>

Receptor	Value of Views and Susceptibility of Receptor	Impact	Magnitude of Change	Significance	Rationale
					area during operation would likely be not significant.
Newton-in-the-Isle	Value of Views – Medium Susceptibility – High	Directly impacted by the construction and operation of approximately 3.9 km of overhead line including pylons SW62-SW72 in Section 6 and indirectly affected by pylons to the west towards Sutton St Edmund and southeast towards Ingleborough.	Construction – small	Construction – not significant	<p>Although there would be open views towards construction activities to the centre of the community area, due to the flat topography the effects of construction would be localised in the area to the south of Moulton. Taller equipment would be perceptible over a wider part of the community area, however, these effects would be temporary in nature. Visual effects of accesses 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 would likely be not significant.</p>
Parson Drove	Value of Views – Medium Susceptibility – High	Indirectly affected by views of construction activities and presence during operation pylons in Section 6.	Construction – very small	Construction – not significant	<p>The tops of taller construction equipment may be perceptible but would be temporary in nature and at distance.</p> <p>The magnitude of change is considered to be very small and effects on this community area during construction would likely be not significant.</p>
			Operation – very small	Operation – not significant	At 3.6 km to the closest visual receptors within the community area, the taller components of the Project may be perceptible but seen beyond the existing 132 kV overhead line which would remain

Receptor	Value of Views and Susceptibility of Receptor	Impact	Magnitude of Change	Significance	Rationale
					<p>the dominant feature in views and therefore 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 would likely be not significant.</p>
Spalding (VP86, VP88, VP117)	Value of Views – Medium Susceptibility – Medium	Directly impacted by the construction and operation of approximately 1 km of overhead line including pylons SW4-SW6 in Section 6 and indirectly affected by pylons to the east towards Claylake and to the northeast towards Weston.	Construction – very small	Construction – not significant	<p>Although there would be open views towards construction activities to the eastern edge of the community area, due to the flat topography and filtering from buildings and vegetation, the effects of construction would be localised in the area to the south of High Road. Taller equipment would be perceptible over a wider part of the community area, however, these effects would be temporary in nature. Visual effects of accesses would be limited to the immediate fields.</p> <p>The magnitude of change is considered to be very small and effects on this community area during construction would likely be not significant.</p>
			Operation - small	Operation - not significant	<p>The new 400 kV overhead line would be noticeable in views east but only from a localised part of this community area. Views to the northeast are already affected by the existing 2WS overhead line and therefore the Project would not fundamentally alter</p>

Receptor	Value of Views and Susceptibility of Receptor	Impact	Magnitude of Change	Significance	Rationale
					<p>the composition or character of the views currently experienced. Being a primarily urban community area the majority of views would be unaffected.</p> <p>The magnitude of change is considered to be small and effects on this community area during operation would likely be not significant.</p>
Sutton Bridge	Value of Views – Medium Susceptibility – High	Indirectly affected by views of construction activities and presence during operation of pylons in Section 6.	Construction – very small	Construction – not significant	<p>The tops of taller construction equipment may be perceptible but would be temporary in nature and at distance.</p> <p>The magnitude of change is considered to be very small and effects on this community area during construction would likely be not significant.</p>
			Operation – very small	Operation – not significant	<p>At 4 km to the closest visual receptors within the community area, the taller components of the Project may be perceptible but seen beyond the existing 400 kV and 132 kV overhead lines which would remain the dominant feature in views and therefore 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</p>

Receptor	Value of Views and Susceptibility of Receptor	Impact	Magnitude of Change	Significance	Rationale
					area during operation would likely be not significant.
Sutton St Edmund (VP94)	Value of Views – Medium Susceptibility – High	Indirectly affected by views of construction activities and presence during operation of pylons in Section 6.	Construction – small	Construction – not significant	<p>Although there would be open views towards construction activities from the north of the community, due to the flat topography the effects of construction would be limited to the areas around New Fen Dike. Taller equipment would be perceptible, however, these effects would be temporary in nature. Visual effects of accesses 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 would likely be not significant.</p>
Sutton St James (VP111)	Value of Views – Medium Susceptibility – High	Directly impacted by the construction and operation of approximately 3 km of overhead line including pylon SW42-SW49 in Section 6 and indirectly affected by pylons to the northwest towards Whaplode St Catherine and south towards Tydd St Giles.	Construction – small	Construction – not significant	<p>Although there would be open views towards construction activities to the south of the community area, due to the flat topography the effects of construction would be localised in the area to the south of Sutton St James. Taller equipment would be perceptible over a wider part of the community area, however, these effects would be temporary in nature. Visual effects of accesses 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 would likely be not significant.
The Moultons (VP90, VP91, VP115, VP118, VP119)	Value of Views – Medium Susceptibility – High	Directly impacted by the construction and operation of approximately 1.9 km of overhead line including pylons SW13-SW17 in Section 6 and potentially indirectly affected by Weston Marsh Substation A and Weston Marsh Substation B in Section 5, pylons to the east towards Spalding and southeast towards Whaplode St Catherine.	Construction – small	Construction – not significant	<p>Although there would be open views towards construction activities to the centre of the community area, due to the flat topography the effects of construction would be localised in the area to the south of Moulton. Taller equipment would be perceptible over a wider part of the community area, however, these effects would be temporary in nature. Visual effects of accesses 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 would likely be not significant.</p>
Tydd St Mary	Value of Views – Medium Susceptibility – High	<p>Directly impacted by a construction route during construction which would require temporary works to create passing places.</p> <p>Indirectly affected by views of pylons to the west towards Holbeach and south towards Tydd St Giles.</p>	Construction – small	Construction – not significant	<p>Although construction vehicles would pass through Tydd St Mary and some temporary works required to roads to create passing places, the effects would be very localised. The tops of taller construction equipment may be perceptible but would be temporary in nature and at distance.</p> <p>The magnitude of change is considered to be very small and effects on this community area during construction would likely be not 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 and south but only from a localised part of this community area to the south of existing overhead lines. Views from the main settlement are already affected by the existing 132 kV and 400 kV overhead line and therefore 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 small and effects on this community area during operation would likely be not significant.</p>
Tydd St. Giles	Value of Views – Medium Susceptibility – High	Directly impacted by the construction and operation of approximately 4 km of overhead line including pylons SW50-SW61 in Section 6 and indirectly affected by pylons to the northeast towards Holbeach and east towards Walpole.	Construction – small	Construction – not significant	<p>Although there would be open views towards construction activities to the centre of the community area, due to the flat topography the effects of construction would be localised in the area to the south of Tydd St Giles. Taller equipment would be perceptible over a wider part of the community area, however, these effects would be temporary in nature. Visual effects of accesses 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 would likely be not significant.</p>

Receptor	Value of Views and Susceptibility of Receptor	Impact	Magnitude of Change	Significance	Rationale
Walsoken	Value of Views – Medium Susceptibility – High	Indirectly affected by views of construction activities and presence during operation of pylons in Section 6 and 7.	Construction – very small	Construction – not significant	Due to the flat landform and intervening vegetation and buildings within Walton Highway and West Walton, 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. The magnitude of change is considered to be very small and effects on this community area likely be not significant during construction.
			Operation – small	Operation – not significant	At 2.2 km, the new overhead line may be perceptible but seen in the context of the existing 132 kV overhead line which is more prominent in views as it passes through the northern edge of this community area. The Project would not fundamentally alter the composition or character of the views currently experienced. The magnitude of change is considered to be small and effects on this community area during operation would likely be not significant.
Weston	Value of Views – Medium Susceptibility – High	Directly impacted by the construction and operation of approximately 2.5 km of overhead line including	Construction – small	Construction – not significant	Although there would be open views towards construction activities to the centre of the community area, due to the flat topography and presence of vegetation and buildings, the effects of construction would

Receptor	Value of Views and Susceptibility of Receptor	Impact	Magnitude of Change	Significance	Rationale
		pylons SW1-SW2 and SW7-SW12, as well as indirectly affected by pylons in Section 6 to the west and southeast.			<p>be localised to the fields immediately surrounding the Project. Taller equipment would be perceptible over a wider part of the community area, however, these effects would be temporary in nature.</p> <p>The magnitude of change is considered to be small and effects on this community area during construction would likely be not significant</p>
Whaplode (VP92, VP114)	Value of Views – Medium Susceptibility – High	<p>Directly impacted by the construction and operation of approximately 4 km of overhead line including pylons SW18-SW28 in Section 6 and indirectly affected by pylons to the northwest towards Spalding and southeast towards Tydd St Giles.</p> <p>Indirectly affected by the presence of a satellite construction compound near SW31.</p>	Construction – small	Construction – not significant	<p>Although there would be open views towards construction activities to the centre of the community area, due to the flat topography and intervening screening from scattered vegetation the effects of construction would be localised in the area to the west of Whaplode St Catherine. There would be indirect effects from the presence of the satellite construction compound to the east of Whaplode St Catherine although effects would be temporary and for a small area of the parish. Taller equipment would be perceptible over a wider part of the community area, however, these effects would be temporary in nature. Visual effects of accesses 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 would likely be not significant.
Wisbech	Value of Views – Medium Susceptibility – Medium	Indirectly affected by construction of Walpole B Substation and pylons in Section 6 and 7.	Construction – very small	Construction – not significant	<p>Taller equipment may be perceptible but would be distant and these effects 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 would likely be not significant.</p>
			Operation – very small	Operation - not significant	<p>At 3 km to the closest visual receptors within the community area, the taller components of the Project may be perceptible but seen in the context of existing 132 kV and 400 kV overhead lines and therefore the Project would not fundamentally alter the composition or character of the views currently experienced. Being a primarily urban community area the majority of views would be unaffected.</p> <p>The magnitude of change is considered to be very small and effects on this community area during operation would likely be not significant.</p>

Receptor	Value of Views and Susceptibility of Receptor	Impact	Magnitude of Change	Significance	Rationale
Recreational Routes and Receptors					
National Cycle Route 1	Value of Views – Medium Susceptibility – High	Indirectly affected by construction and operation of pylons in Section 6 and 7, and Walpole B Substation. In Section 6, the route crosses the Project between pylons SW62 and SW68 on High Road between Newton and Tydd St Giles.	Construction – small	Construction – not significant	Although in close proximity, views of access roads and working areas associated with the proposed 400 kV overhead line in Section 6 would be filtered by vegetation and buildings until in very close proximity and views would be transient. Taller equipment may be visible above vegetation but would be temporary in nature. As only a very short section would be in close proximity and views filtered by vegetation, the magnitude of change is considered to be small and effects on people using the cycle route likely be not significant during construction.
			Operation - small	Operation - not significant	Although the Project would introduce pylons into views from the cycle route within Section 6, these would be seen in the context the 132 kV overhead line which also passes between Newton and Tydd St Giles close to the Project. The Project would not fundamentally change the character of views from the cycle route in Section 6. The magnitude of change is considered to be small and effects on people using the cycle route during operation would likely be not significant.

3.8 Monitoring

- 3.8.1 No monitoring is currently proposed as part of the Visual assessment for Section 6, although a five-year aftercare period for mitigation planting would be implemented as set out in the Preliminary CoCP.

References

- Ref 1 Fenland District Council Local Plan (2014), Fenland Local Plan (Adopted May 2014). [online] Available at: https://www.fenland.gov.uk/media/12064/Fenland-Local-Plan-Adopted-2014/pdf/Fenland_Local_Plan-Adopted_2014. [Accessed 16 January 2025].
- Ref 2 Fenland District Council (2022), Fenland Local Plan 2021-2040 Draft Local Plan Consultation (August 2022). [online] Available at: https://www.fenland.gov.uk/media/18814/Draft-Local-Plan-August-2022/pdf/Draft_Local_Plan_for_Consultation_Aug_2022.pdf?m=1661177156537 [Accessed 16 January 2025]
- Ref 3 Borough Council of King's Lynn and West Norfolk (2025). King's Lynn and West Norfolk Local Plan 2021-2040 Adopted March 2025. [online]. Available at: https://www.west-norfolk.gov.uk/info/20079/planning_policy_and_local_plan/1207/local_plan_2021-2040#:~:text=The%20current%20Local%20Plan%20was%20adopted%20in%20March,for%20the%20borough%20%28up%20to%2015%20years%20ahead%29. [Accessed 05 May 2025]
- Ref 4 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 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 Landscape Institute and Institute for Environmental Management and Assessment (IEMA) (2013) Guidelines for Landscape and Visual Impact Assessment – 3rd Edition (GLVIA3).
- Ref 8 Landscape Institute and Institute for Environmental Management and Assessment (2024). Technical Guidance Note 01/24 Notes and Clarifications on aspects of the 3rd Edition Guidelines on Landscape and Visual Impact Assessment [Online]. Available at: https://www.landscapeinstitute.org/wp-content/uploads/2024/08/LITGN-2024-01-GLVIA3-NC_Aug-2024.pdf [Accessed: 27.08.24].
- Ref 9 Landscape Institute (2019). Technical Guidance Note (TGN) 06/19 Visual Representation of Development Proposals [online]. Available at: https://www.landscapeinstitute.org/wp-content/uploads/2019/09/LI_TGN-06-19_Visual_Representation-1.pdf [Accessed 20 September 2024].
- Ref 10 Landscape Institute (2019). Technical Guidance Note (TGN) 02/19 Residential Visual Amenity Assessment [online]. Available at:

<https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2019/03/tgn-02-2019-rvaa.pdf> [Accessed 20 September 2024]

- Ref 11 Planning Inspectorate (2024) Advice Note 17: Cumulative Effects Assessment Relevant to Nationally Significant Infrastructure Projects (AN17) [online]. Available at: <https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-cumulative-effects-assessment> [Accessed 25 September 2024].
- Ref 12 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 13 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 14 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 15 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 16 British Standard (BS) 5837:2012: Trees in relation to Design, Demolition and Construction – Recommendations.

4. Ecology and Biodiversity

Contents

4.	Ecology and Biodiversity	4-1
4.1	Introduction	4-1
4.2	Legislation and Policy Framework	4-3
	Legislation and National Policy	4-3
	Regional and Local Policy	4-4
	Biodiversity Net Gain	4-5
4.3	Scope of Assessment	4-5
4.4	Assessment Methodology	4-6
	Assessment Assumptions and Limitations	4-7
4.5	Baseline Conditions	4-7
	Study Area and Survey Areas	4-7
	Data Collection	4-8
	Existing Baseline	4-10
	Future Baseline	4-28
4.6	Design, Control and Additional Mitigation Measures	4-29
	Design and Embedded Mitigation Measures	4-29
	Control Mitigation Measures	4-30
	Additional Mitigation	4-37
4.7	Preliminary Assessment of Effects	4-37
	Likely Significant Effects	4-38
	Likely Non-Significant Effects	4-48
4.8	Monitoring	4-62

Table 4.1	Supporting documentation	4-2
Table 4.2	Study Areas for key ecological features for Section 6	4-8
Table 4.3	Sites designated for their biodiversity value their qualifying features and distance from the Section 6 draft Order Limits	4-12
Table 4.4	Notable fish species identified within the Section 6 Study Area	4-26
Table 4.5	Notable aquatic macrophyte species identified within the Section 6 Study Area	4-27
Table 4.6	Summary of non-significant Ecology and Biodiversity effects – Section 6	4-49

References	4-63
------------	------

4. Ecology and Biodiversity

4.1 Introduction

- 4.1.1 This chapter presents the Preliminary Environmental Information (PEI) in relation to the Ecology and Biodiversity assessment for the Refined Weston Marsh Substation Siting Zone to New Walpole B Substation Section (Section 6) of the Grimsby to Walpole Project (the Project). 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 **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 **PEI Report 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 6 (section 4.4). A detailed description of the assessment methods and scope, applicable to the whole Project, is contained in **PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**;
 - v. A description of the environmental baseline within the Section 6 Study Area relevant to the Ecology and Biodiversity assessment (section 4.5);
 - vi. A description of mitigation measures included for the purposes of the Ecology and Biodiversity assessment reported within the PEI Report (section 4.6). Further information regarding design development can be found in **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 Ecology and Biodiversity effects arising during construction and operation/maintenance of the Project within Section 6, based upon the assessment completed to date (section 4.7); and
 - viii. An outline of the likely proposed monitoring requirements in relation to Ecology and Biodiversity (section 4.8).
- 4.1.2 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
Topic Specific Supporting Documentation	
PEI Report Volume 2 Part B Section 6 Figures	<p>Figure 4.1 Sites Statutorily Designated for their International Biodiversity Importance</p> <p>Figure 4.2 Sites Statutorily Designated for their National and County Biodiversity Importance</p> <p>Figure 4.3 Sites Non-Statutorily Designated for their County Biodiversity Importance</p>
PEI Report Volume 3 Part B Section 6 Appendix 4A Bird Survey Data 2022-24	Reports the suite of bird survey data collected at the time of the PEI Report production, including species recorded and counts.
Project Supporting Documentation	
PEI Report Volume 2 Part B Section 6 Chapter 1 Overview of the Section and Description of the Project.	A summary of the works within Section 6, including permanent infrastructure, temporary construction works, and operational activities.
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 of the Environmental Statement (ES).
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 PEI Report and ES.
PEI Report Volume 3 Part A Appendix 2Ci Local Plan Policy: Section Specific	An outline of the potentially relevant local planning policy allocations affecting each of the specific sections of the Project.
PEI Report Volume 3 Part A Appendix 2Cii Local Plan Policy: Route-wide	Details of planning policies applicable route-wide within the relevant Local Authority areas.
PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered	A summary of the main alternatives considered in relation to the Project during the design development process, including the main reasons for selecting the chosen option.
PEI Report Volume 2 Part A Chapter 4 Approach to Preliminary Environmental Information	Sets out the Environmental Impact Assessment (EIA) approach and general methodology that has been used in developing the PEI Report for the Project.
PEI Report Volume 2 Part A Chapter 5 Project Description	An overarching description of the Project and its key components, including available construction information.

**PEI Report Volume 3 Part A Appendix 5A
Preliminary Code of Construction Practice**

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.

4.1.3 There are interrelationships between the potential effects on Ecology and Biodiversity and other environmental topics. Therefore, please also refer to the following chapters within **PEI Report Volume 2 Part B** and **Part C**:

- i. **PEI Report Volume 2 Part B Section 6 Chapter 6 Water Environment** 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. **PEI Report Volume 2 Part B Section 6 Chapter 7 Geology and Hydrogeology** includes effects identified by the geology and hydrogeology assessment that may affect ecological receptors.
- iii. **PEI Report Volume 2 Part B Section 6 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. **PEI Report Volume 2 Part B Section 6 Chapter 10 Noise and Vibration** includes detail of the potential noise and vibration effects within Section 1 which are used to inform assessment of effects upon sensitive ecological features.
- v. **PEI Report Volume 2 Part B Section 6 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. **PEI Report Volume 2 Part B Section 6 Chapter 13 Summary** provides a concise, consolidated summary of the likely significant effects reported or all topics, based upon the preliminary assessment.
- vii. **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.

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 **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 4.1**.

Regional and Local Policy

4.2.2 Regional and local plans or policies relevant to this assessment are as follows:

- i. South Holland District (Lincolnshire): South East Lincolnshire Local Plan 2011-2036 (Adopted March 2019) (Ref 1);
 - Policy 3 Design of New Development: development proposals will demonstrate how issues including (but not limited to) the incorporation of existing hedgerows and trees and the provision of appropriate new landscaping to enhance biodiversity, green infrastructure, flood risk mitigation and urban cooling, will be secured.
 - 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.
- ii. Fenland Local Plan (Adopted May 2024) (Ref 2);
 - Policy LP16 Delivering and Protecting High Quality Environments across the District: proposals for all new development will only be permitted where it can be demonstrated that amongst other factors, they protect and enhance biodiversity on and surrounding the proposal site, taking into account locally designated sites, in accordance with Policy LP19.
 - Policy LP19 The Natural Environment: sets out how Fenland District Council, working in partnership with all relevant stakeholders, will conserve, enhance and promote the biodiversity and geological interest of the natural environment throughout Fenland.
- iii. King's Lynn & West Norfolk Borough Council Local Plan 2021-2040 (Adopted March 2025) (Ref 3):
 - Policy LP19 Environmental Assets - Green Infrastructure, Landscape character, Biodiversity and Geodiversity: which notes that proposals incorporating nature-based solutions such as natural capital and/or green infrastructure to protect and enhance biodiversity will be encouraged. This policy stipulates that development should comply with the mitigation hierarchy, to avoid, mitigate or compensate adverse impacts on biodiversity, as well as seeking to enhance sites through the creation of features of new biodiversity interest.

Proposals for development will be informed by, and seek opportunities to reinforce the distinctive character areas and potential habitat creation areas identified in the King's Lynn and West Norfolk Landscape Character Assessment and other character assessments.
 - Policy LP23 Green Infrastructure: all new development must ensure there is no adverse effect on a European Protected Site through the provision of appropriate measures, in accordance with Policy LP27. All development will contribute proportionally to the delivery of green infrastructure;
 - Policy LP27 Habitats Regulations Assessment (HRA): proposals for development must not adversely affect the integrity of European sites either alone, or in-combination with other plans and projects, unless the tests set

out under the Conservation of Habitats and Species Regulations (2017) (as amended) are met.

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, 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 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 by 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 **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 **PEI Report Volume 3 Part A Appendix 4D Summary of Stakeholder Engagement**.
- 4.3.2 Non statutory consultation feedback has been addressed in the **Grimsby to Walpole Stage 1 Consultation Feedback Report**.
- 4.3.3 The scope of the Ecology and Biodiversity assessment for Section 6 includes the consideration of the effects of construction and operation/maintenance 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;
 - 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;
 - iii. Ancient Woodland - habitat loss, habitat modification and fragmentation and change in surface water and air 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 and notable species (e.g. Species of Principal Importance (SPIs)) which are either confirmed present or potentially present within the Section 6 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 birds;
 - breeding birds;
 - badger;
 - bats;
 - otter;
 - water vole;
 - fish;
 - aquatic macroinvertebrates and macrophytes; and
 - other notable species.
- 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, method, relevant guidance, key assumptions and limitations for the Ecology and Biodiversity assessment are set out in **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 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 **PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.
- 4.4.4 The current assessment presented in this 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 Ecology and Biodiversity are listed within **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 6.
- 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 Area and Survey Areas

- 4.5.1 The desk Study Areas for the Ecology and Biodiversity assessment of Section 6 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. 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 6 have also been informed by published guidance and professional judgement. As with the desk Study Area, 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, where the Project could result in impacts upon habitats or species.
- 4.5.4 The field Survey Areas for key ecological features (hereafter referred to as 'the Survey Areas') relevant to this assessment, including associated methods and status of surveys, are set out in **PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.

Table 4.2 Study Areas for key ecological features for Section 6

Study Area (distance from Section 6 draft Order Limits)	Feature
30 km	Special Areas of Conservation (SAC), Special Protection Areas (SPAs) 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 up to national 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).
2 km	Non-statutory designated sites of nature conservation value e.g. Local Wildlife Sites, 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) and Cambridgeshire and Peterborough Environmental Records Centre (CPERC) (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 species and INNS).
- 4.5.6 Online data resources have comprised:

i. the Natural England website (Ref 9) for information on statutory designated sites of nature conservation interest;

ii. the MAGIC website (Ref 7) to identify the location (and details) of statutorily designated sites, ancient woodland, 'HPI's (including Priority River Habitat) and for any granted European Protected Species Licence applications;

iii. the Joint Nature Conservation Committee (JNCC) website (Ref 10) for site information and designation details of SACs, SPAs and Ramsar sites;

iv. aerial imagery (Google Maps);

- v. Environment Agency Ecology and Fish Data for species records of fish, macroinvertebrate and macrophytes species (Ref 11); and
- vi. Environment Agency Catchment Data Explorer for data on WFD water bodies and water catchments (Ref 12).

4.5.7 In addition to these desk-based data, 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, 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 **PEI Report 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 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 PEI Report being developed. The survey data being collected is as follows:

- i. Habitat survey using the UK Habitat (UK Hab) Classification (Ref 13) 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 birds;
 - breeding birds;
 - badger;
 - bats;
 - otter; and
 - water vole
- iv. INNS survey.

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 to date. The baseline section should be read in conjunction with the following supporting Figures and Appendices as found within PEI Report **Volume 2** and **Volume 3** respectively.
- i. **PEI Report Volume 2 Part B Section 6 Figure 4.1 Sites Statutorily designated for their International Biodiversity Importance;**
 - ii. **PEI Report Volume 2 Part B Section 6 Figure 4.2 Sites Statutorily designated for their National and County Biodiversity Importance;**
 - iii. **PEI Report Volume 2 Part B Section 6 Figure 4.3 Sites Statutorily designated for their County Biodiversity Importance;** and
 - iv. **PEI Report Volume 3 Part B Section 6 Appendix 4A Bird Survey Data 2022-2024.**

Section Overview

- 4.5.12 A description of the works within Section 6 is provided within **PEI Report Volume 2 Part B Section 6 Chapter 1 Overview of the Section and Description of the Project**. In summary, Section 6 of the Project includes approximately 27 km of proposed 400kV overhead line between the Refined Weston Marsh Substation Siting Zone (Section 5) to the New Walpole B Substation (Section 7). At the northern extent of Section 6, the proposed overhead line is routed between the town of Spalding and the village of Weston and continues in a south-east direction through rural areas towards Newton in the Isle, before crossing the River Nene.
- 4.5.13 The habitats within the Section 6 Study Area are dominated by large, open arable fields with boundary ditches, small watercourses and roads. Some large drains are present, including South Holland Main Drain and North Level Main Drain. The majority of land within the draft Order Limits within Section 6 is below 30 m above sea level.

Designated Sites

- 4.5.14 No site (nor part of any site) statutorily designated for its biodiversity value is present within the Section 6 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 6 Study Area is provided in **Table 4.3**, which includes a summary of the main qualifying features and their relative distances from the Section 6 draft Order Limits at the closest point.
- 4.5.15 The Wash and North Norfolk Coast SAC and the Wash SPA and Ramsar site falls within 10 km of the Section 6 draft Order Limits. In addition, Nene Washes SPA and Ramsar site and Ouse 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.
- 4.5.16 There are three SSSIs (Surfleet Lows SSSI, The Wash SSSI and Islington Heronry SSSI) and two LNR's (The Shrubberies LNR and Vernatts LNR) within the Section 6 Study Area (i.e. located within 5 km of the draft Order Limits and/or where the Impact Risk Zones (IRZ's) overlap). The IRZ's for Surfleet Lows SSSI, The Wash SSSI and Islington Heronry partially overlap with the Section 6 draft Order Limits.

- 4.5.17 There are 15 sites non-statutorily designated for their biodiversity value as Local Wildlife Sites (LWSs) (Lincolnshire) or County Wildlife sites (CWSs) (Cambridgeshire and Norfolk) within the 2 km of the draft Order Limits of Section 6. Of these, the River Nene CWS is crossed by the overhead line, with pylons located in proximity to the watercourse, and Honnington House Farm CWS is located within 0.1 km from the draft Order Limits.

Table 4.3 Sites designated for their biodiversity value their qualifying features and distance from the Section 6 draft Order Limits

Site	Status	Area (ha)	Brief description of site	Distance and direction from draft Order Limits
Internationally designated (Statutory)				
Nene Washes	SPA	1,519	<p>Qualifying features of the SPA:</p> <ul style="list-style-type: none"> • Bewick's swan (<i>Cygnus columbianus bewickii</i>) – non-breeding • Black-tailed godwit (<i>Limosa limosa limosa</i>) – breeding • Gadwall (<i>Mareca strepera</i>) – breeding • Gadwall (<i>Mareca strepera</i>) – non-breeding • Garganey (<i>Anas querquedula</i>) – breeding • Pintail (<i>Anas acuta</i>) – non-breeding • Shoveler (<i>Spatula clypeata</i>) – breeding • Shoveler (<i>Spatula clypeata</i>) – non-breeding • Teal (<i>Anas crecca</i>) – non-breeding • Wigeon (<i>Mareca penelope</i>) – non-breeding 	11.7 km south-west
Nene Washes	Ramsar site	1,519	<p>Designated under:</p> <p>Ramsar Criterion 2: Important assemblage of nationally rare breeding birds. A wide range of raptors throughout the year. Nationally scarce plants and invertebrates.</p> <p>Ramsar Criterion 6: Species/populations occurring at levels of international importance.</p> <p>Species with peak counts in winter:</p> <p>Bewick's swan (<i>Cygnus columbianus bewickii</i>)</p> <p>Species/populations identified subsequent to designation for possible future consideration under Criterion 6</p> <p>Species with peak counts in spring/autumn:</p> <ul style="list-style-type: none"> • Black-tailed godwit (<i>Limosa limosa islandica</i>) <p>Species with peak counts in winter:</p>	11.7 km south-west

Site	Status	Area (ha)	Brief description of site	Distance and direction from draft Order Limits
			<ul style="list-style-type: none"> Northern pintail (<i>Anas acuta</i>) 	
Ouse Washes	SPA	2,403	<p>Qualifying features of the SPA:</p> <ul style="list-style-type: none"> Bewick's swan (<i>Cygnus columbianus bewickii</i>) - A037, – non-breeding Black-tailed godwit (<i>Limosa limosa limosa</i>) – breeding Gadwall (<i>Mareca strepera</i>) – breeding Garganey (<i>Anas querquedula</i>) – breeding Hen harrier (<i>Circus cyaneus</i>) – non-breeding Mallard (<i>Anas platyrhynchos</i>) – breeding Pintail (<i>Anas acuta</i>) – non-breeding Ruff (<i>Calidris pugnax</i>) – breeding Shoveler (<i>Spatula clypeata</i>) – breeding Shoveler (<i>Spatula clypeata</i>) – non-breeding Teal (<i>Anas crecca</i>) – non-breeding Whooper swan (<i>Cygnus cygnus</i>) – non-breeding Wigeon (<i>Mareca penelope</i>) – non-breeding Breeding bird assemblage Waterbird assemblage 	17.2 km south-west
Ouse Washes	Ramsar site	2,403	<p>Designated under:</p> <p>Ramsar Criterion 1: one of the most extensive areas of seasonally-flooding washland of its type in Britain.</p> <p>Ramsar Criterion 2: The site supports several nationally scarce plants, including small water pepper (<i>Polygonum minus</i>), whorled water-milfoil (<i>Myriophyllum verticillatum</i>), greater water parsnip (<i>Sium latifolium</i>), river waterdropwort (<i>Oenanthe fluviatilis</i>), fringed water-lily (<i>Nymphoides peltata</i>), long-stalked pondweed (<i>Potamogeton praelongus</i>), hair-like pondweed (<i>Potamogeton trichoides</i>), grass-wrack pondweed (<i>Potamogeton compressus</i>),</p>	17.2 km south-west

Site	Status	Area (ha)	Brief description of site	Distance and direction from draft Order Limits
			<p>tasteless water-pepper (<i>Polygonum mite</i>) and marsh dock (<i>Rumex palustris</i>). Invertebrate records indicate that the site holds relict fenland fauna, including the British Red Data Book species large darter dragonfly (<i>Libellula fulva</i>) and the rifle beetle (<i>Oulimnius major</i>). The site also supports a diverse assemblage of nationally rare breeding waterfowl associated with seasonally-flooding wet grassland.</p> <p>Ramsar Criterion 5: Assemblages of international importance</p> <p>Species with peak counts in winter:</p> <ul style="list-style-type: none"> • 59133 waterfowl (5 year peak mean 1998/99-2002/2003) <p>Ramsar Criterion 6: Species/populations occurring at levels of international importance.</p> <p>Species with peak counts in winter:</p> <ul style="list-style-type: none"> • Bewick's swan (<i>Cygnus columbianus bewickii</i>) • Pintail (<i>Anas acuta</i>) • Shoveler (<i>Spatula clypeata</i>) • Teal (<i>Anas crecca</i>) • Whooper swan (<i>Cygnus cygnus</i>) • Wigeon (<i>Mareca penelope</i>) • Gadwall (<i>Anas strepera strepera</i>) <p>Species/populations identified subsequent to designation for possible future consideration under Criterion 6</p> <p>Species with peak counts in winter:</p> <ul style="list-style-type: none"> • Mute swan (<i>Cygnus olor</i>) • Common pochard (<i>Aythya ferina</i>) • Black-tailed godwit (<i>Limosa limosa islandica</i>) 	
The Wash and North	SAC	107,718	Designated features of the SAC:	9 km north-east

Site	Status	Area (ha)	Brief description of site	Distance and direction from draft Order Limits
Norfolk coast			<ul style="list-style-type: none"> • H1110 Sandbanks which are slightly covered by sea water all the time • H1140 Mudflats and sandflats not covered by seawater at low tide • H1150 Coastal lagoons • H1160 Large shallow inlets and bays • H1170 Reefs • H1310 Salicornia and other annuals colonising mud and sand • H1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) • H1420 Mediterranean and thermo-Atlantic halophilous scrubs (<i>Sarcocornetea fruticosi</i>) • S1355 Otter, (<i>Lutra lutra</i>) • S1365 Harbour (common) seal, (<i>Phoca vitulina</i>) 	
The Wash	SPA	63,135	<p>Qualifying features of the SPA:</p> <ul style="list-style-type: none"> • Bar-tailed godwit (<i>Limosa lapponica</i>) – non-breeding • Bewick's swan (<i>Cygnus columbianus</i>) – non-breeding • Black-tailed godwit (<i>Limosa limosa islandica</i>) – non-breeding • Common scoter (<i>Melanitta nigra</i>) – non-breeding • Common tern (<i>Sterna hirundo</i>) - breeding • Curlew (<i>Numenius arquata</i>) – non-breeding • Dark-bellied brent goose (<i>Branta bernicla bernicla</i>) – non-breeding • Dunlin (<i>Calidris alpina alpina</i>) – non-breeding • Gadwall (<i>Mareca strepera</i>) – non-breeding • Wigeon (<i>Mareca penelope</i>) – non-breeding • Goldeneye (<i>Bucephala clangula</i>) – non-breeding 	8.9 km north-east

Site	Status	Area (ha)	Brief description of site	Distance and direction from draft Order Limits
			<ul style="list-style-type: none"> • Grey plover (<i>Pluvialis squatarola</i>) – non-breeding • Knot (<i>Calidris canutus</i>) – non-breeding • Little tern (<i>Sternula albifrons</i>) - breeding • Oystercatcher (<i>Haematopus ostralegus</i>) – non-breeding • Pink-footed goose (<i>Anser brachyrhynchus</i>) – non-breeding • Pintail (<i>Anas acuta</i>) – non-breeding • Redshank (<i>Tringa totanus</i>) – non-breeding • Sanderling (<i>Calidris alba</i>) – non-breeding • Shelduck (<i>Tadorna tadorna</i>) – non-breeding • Turnstone (<i>Arenaria interpres</i>) – non-breeding <p>Waterbird assemblage</p>	
The Wash	Ramsar site		<p>Designated under:</p> <p>Ramsar Criterion 1: Large shallow bay comprising very extensive saltmarshes, major intertidal banks of sand and mud, shallow water and deep channels.</p> <p>Ramsar Criterion 3: 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>Ramsar Criterion 5: 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>Ramsar Criterion 6 – species/populations occurring at levels of international importance.</p> <p>Species with peak counts in spring/autumn:</p> <ul style="list-style-type: none"> • Oystercatcher (<i>Haematopus ostralegus</i>) – Wintering 	8.9 km north-east

Site	Status	Area (ha)	Brief description of site	Distance and direction from draft Order Limits
			<ul style="list-style-type: none"> • Grey plover (<i>Pluvialis squatarola</i>) - Wintering • Knot (<i>Calidris canutus</i>) – Wintering • Sanderling (<i>Calidris alba</i>) • Curlew (<i>Numenius arquata arquata</i>) – Breeding • Redshank (<i>Tringa totanus</i>) • Turnstone (<i>Arenaria interpres</i>) <p>Species with peak counts in winter:</p> <ul style="list-style-type: none"> • Pink-footed goose (<i>Anser brachyrhynchus</i>) • Dark-bellied brent goose (<i>Branta bernicla</i>) • Shelduck (<i>Tadorna tadorna</i>) • Pintail (<i>Anas acuta</i>) • Dunlin (<i>Calidris alpina</i>) • Bar-tailed godwit (<i>Limosa lapponica</i>) <p>Species/populations identified subsequent to designation for possible future consideration under Criterion 6</p> <p>Species with peak counts in spring/autumn:</p> <ul style="list-style-type: none"> • Ringed plover (<i>Charadrius hiaticula</i>) • Black-tailed godwit (<i>Limosa limosa islandica</i>) <p>Species with peak counts in winter:</p> <ul style="list-style-type: none"> • Golden plover (<i>Pluvialis apricaria</i>) • Northern lapwing (<i>Vanellus vanellus</i>) – Breeding 	
Nationally designated (Statutory)				
Islington Heronry	SSSI	1.2	A small, isolated stand of mature oaks surrounded by fenland which supports the largest colony of grey herons (<i>Ardea cinerea</i>) in Norfolk. There is an average of about 80 occupied nests each year and the adjacent dykes provide ideal feeding conditions for the birds. Several species of woodland birds, such as great	8.4 km east

Site	Status	Area (ha)	Brief description of site	Distance and direction from draft Order Limits
			spotted woodpecker (<i>Dendrocopos major</i>), are also present in the wood and represent isolated populations separated from nearby woods by many kilometres of farmland.	
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 dependent 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.	8.9 km north-east
Surfleet Lows	SSSI	3.8	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>), hairy 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.	4.6 km west
The Shrubberies	LNR	N/A	Old parkland and pasture of a type now rare in the Fens with fine oak and other large trees. Some 49 species of birds and 12 species of butterflies have been recorded. There is a pond with a wooded island and adjoining marshy areas with fringing alders. The grassland is grazed by cattle and sometimes cut for hay. An acre of land was planted with native trees in 1989.	4.5 km north

Site	Status	Area (ha)	Brief description of site	Distance and direction from draft Order Limits
Vernatts	LNR	1.4	Council and volunteer run nature reserve transformed from wasteland. Area now has a woodland walk with bluebells and is a small haven for wildlife.	2.3 km west
County designated (Non-statutory)				
Honnington House Farm	CWS	10.1	Grazing marsh is present at this location.	<0.1 km south
Leverington Gull	CWS	2.8	The site qualifies as a CWS because it supports at least 0.5ha of National Vegetation Classification (NVC) community S4 Common Reed swamp.	1.9 km south
North Level Main Drain at Tydd Gate	CWS	11.2	The site qualifies as CWS because it supports at least 0.05ha of NVC MG5 grassland. It also supports frequent numbers of at least 3 strong neutral grassland indicator species and a population of a locally rare plant species, autumn lady's-tresses (<i>Spiranthes spiralis</i>).	0.4 km north
River Nene	CWS	N/A	A major river which is not grossly modified by canalisation. At least three species of pondweed (<i>Potamogeton</i>) which are nationally scarce are found within along with other species rare in the county	Runs through the Section 6 draft Order Limits
Arnold's Meadow	LWS	2.6	Half of the area of this triangular-shaped reserve is taken up by a hay meadow, the centre of which is flooded in autumn and winter. The remaining half consists of three areas of water: a moat round an island and two shallow ponds. The reserve is bounded by mature hedgerows and trees, with a small wooded area in the northern corner.	1.9 km south-west
Blue Gowt Drain, West	LWS	N/A	Section of the Blue Gowt Drain, and both banks, near the northern edge of Spalding.	2 km north-west

Site	Status	Area (ha)	Brief description of site	Distance and direction from draft Order Limits
Marsh Road				
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.	1.1 km west
Guy Wells Pit	LWS	0.6	This former clay pit is an area of standing water surrounded by reedbed, some fairly dense scrub and trees with both standing and fallen dead wood.	1.2 km north-east
Little South Holland Drain	LWS	N/A	Drainage ditch connected to South Holland main drain.	0.7 km south
Moulton Park and River	LWS	10.9	Large green space area.	0.3 km north
Pinchbeck Marsh	LWS	N/A	Large area of arable land between the Vernatt's Drain and the River Welland.	1.5 km west
River Welland Spalding	LWS	N/A	River that runs through Spalding and is connected to the Coronation channel. Water flows out towards the Wash.	1.7 km west
Slys Connection	LWS	N/A	Area runs along a drainage ditch.	1.7 km west
Tydd Gote Bank	LWS	2.7	Banks running alongside a drainage ditch connected to the River Nene. Lowlands meadows found on-site. Connected to North Level Main Drain at Tydd Gote (CWS). -	0.7 km north
Vernatts Drain	LWS	N/A	Drainage channel that runs through arable land close to the River Welland.	1.7 km west

Habitats

Habitats of Principal Importance

4.5.18 The following HPI have been identified within the Section 6 Study Area:

- i. Coastal and Floodplain Grazing Marsh;
- ii. Woodland (if meets priority habitat criteria);
- iii. Lowland meadow;
- iv. Fen;
- v. Traditional orchard; and
- vi. Hedgerows (if meets priority habitat criteria).

Ancient Woodland

4.5.19 Based upon available data sources, no ancient woodland is present within the Section 6 Study Area.

Terrestrial Habitats

4.5.20 Where the UKHab surveys have been completed within the Section 6 Survey Area, the primary habitat type was cropland, which is of negligible ecological importance.

4.5.21 The surrounding arable field margins, hedgerows, patches of low diversity scrub and ditches provide important connectivity through the landscape and are therefore considered to be of Local importance.

4.5.22 A small woodland parcel was located within the draft Order Limits at Newton which is also considered to be of Local importance.

4.5.23 Areas of modified grassland were also recorded throughout the Section 6 Survey Area, some of which are classified as Coastal and Floodplain Grazing Marsh (at Weston; within fields between Holbeach St Johns and Tydd St Giles; and along the River Nene). Coastal and Floodplain Grazing Marsh is recognised as a HPI and is assessed as being of National importance due to its ecological significance and contribution to biodiversity.

4.5.24 Urban areas were found along the route which are of negligible ecological value.

4.5.25 Survey work will continue in 2025, to characterise the terrestrial habitat types which are present within the Section 6 Survey Area, their constituent flora and fauna and to confirm the condition of relevant habitats. Survey findings will inform the design of appropriate mitigation and the assessment of impacts and effects to be reported within the ES.

Aquatic Habitats

4.5.26 The proposed overhead line route crosses the River Nene, which is of National importance; and two main field drains (South Holland Main Drain and North Level Main Drain), which play a role in local hydrology and provides habitat for aquatic and riparian species. The main drains are therefore assessed as being of County importance.

- 4.5.27 A network of smaller ditches/drains which are of Local importance would also be traversed along the overhead line route.
- 4.5.28 One pond has been identified within the Section 6 draft Order Limits, and approximately 40 ponds are located within the wider Survey Area. These are also considered to be of Local importance.
- 4.5.29 Survey work will continue through 2025, to characterise the aquatic habitat types which are present within the Section 6 Survey Area, their constituent flora and fauna and to confirm the condition of relevant habitats. Survey findings will inform the details of appropriate mitigation and the assessment of impacts and effects to be reported within the ES.

Water Framework Directive (WFD) Waterbodies

- 4.5.30 The Section 6 draft Order Limits cross the three WFD waterbodies which are:
- South Holland Main Drain (GB205032050405);
 - North Level Main Drain (GB205032050395); and
 - Nene Water Body (GB530503200200).
- 4.5.31 Further details of these WFD waterbodies are provided within **PEI Report Volume 2 Part B Section 6 Chapter 6 Water Environment and Flood Risk**.

Protected and Notable Species

- 4.5.32 Surveys are being undertaken following the methodology included within the **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 Section 6 draft Order Limits and a wider zone of influence which is also described within this supporting Appendix. As previously stated, survey work for protected and notable species is currently incomplete and will continue through 2025.

Terrestrial Invertebrates

- 4.5.33 The habitats within the Section 6 Survey Area largely comprise agricultural land which is of limited value to terrestrial invertebrates. However, hedgerow habitats also recorded within the Section 6 draft Order Limits provide potential for a more diverse assemblage of terrestrial invertebrates.
- 4.5.34 Any areas within the Section 6 Survey Area that are identified during the 2024/25 habitat surveys as potentially suitable to support species of conservation concern will be subject to a scoping survey in 2025, to assess their potential importance to invertebrates. Following on from this, targeted surveys would be undertaken if required, to inform the assessments reported in the ES, and any specific mitigation requirements.

Great Crested Newt

- 4.5.35 The desk study records indicate a population of great crested newts (GCN) is present in Tydd St Giles, located approximately 1.2 km north of the draft Order Limits.
- 4.5.36 GCN surveys to date have included various waterbodies across several locations within the Section 6 Survey Area. Surveys have specifically included Habitat

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

- 4.5.37 A total of 40 ponds are present within the Section 6 Survey Area, of which 19 have been surveyed to date. Most ponds surveyed to date returned negative eDNA results, despite some ponds having good or average HSI scores.
- 4.5.38 The only positive eDNA findings were in the Sutton St Edmond area, where two ponds to the south of the draft Order Limits indicated great crested newt presence. The nearest of these was located within a garden pond approximately 20 m from a proposed temporary access route; and the other approximately 700 m south of the stringing area for a proposed pylon.
- 4.5.39 Seasonal survey work will continue in 2025 to confirm the status of great crested newt, and the survey results will be used to inform the assessment of impacts and effects and the details of appropriate mitigation to be presented within the ES.

Reptiles

- 4.5.40 Desk study research has indicated that there are records of grass snake within the Section 6 Study Area, near Spalding.
- 4.5.41 The general habitats within the remaining Section 6 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 these habitats by reptiles is likely to be localised, any communities within Section 6 are likely to be of no more than Local importance for common reptile species.
- 4.5.42 Survey work will continue in 2025 to inform the full assessment of impacts and effects and the details of appropriate mitigation to be presented in the ES.

Wintering Birds

- 4.5.43 Surveys for wintering birds were carried out within the Section 6 Study Area between November 2022 and March 2023. Surveys involved a whole route driven transect (once in January 2023 and in March 2023). Data relevant to Section 6 Order Limits were recorded, including a 500 m buffer to account for the mobility of birds and the limited coverage of survey extents.
- 4.5.44 No Vantage Point (VP) surveys or walked transects were completed in the Section 6 Survey Area. Only the whole route driven transect partially covered the Section 6 Survey Area. Consequently there was limited data available within the Section 6 Survey Area.
- 4.5.45 Within the ornithological survey data for Section 6, the species found to be present in winter (noting limitations on survey coverage) are presented in **PEI Report Volume 3 Part B Section 6 Appendix 4A Bird Survey Data 2022-24, Table 4A.1**. Only two species were recorded: brent goose (*Branta bernicla*) and mute swan (*Cygnus olor*). Brent goose is Amber listed (Ref 14) and is also a Section 41 species (Ref 15). Both species are considered to be of Local or Less than Local importance (**Table A4.3**).

¹ 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.

- 4.5.46 Further avian work was undertaken during winter 2024/25 and will be analysed (along with all of the avian survey data) to inform the full assessment of impacts and effects and the details of any appropriate mitigation to be presented in the ES.

Breeding Birds

- 4.5.47 Surveys for breeding birds were carried out between March 2024 and July 2024. A total of four transects (Transects 13 to 16) covered the Section 6 Survey Area.
- 4.5.48 For breeding bird data, the number 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.
- 4.5.49 Data presented represent only those species of conservation concern as defined by red or amber listed species (Ref 14) Section 41 species and Schedule 1 species of the Wildlife and Countryside Act 1981.
- 4.5.50 Breeding season data, showing the species and the numbers of territories recorded from Transects 13 to 16 in Section 6 are presented in **PEI Report Volume 3 Part B Section 6 Appendix 4A Bird Survey Data 2022-24, Table 4A.2**. Skylark (*Alauda arvensis*) were the most common breeding bird recorded across the Section 6 Survey Area. Other farmland specialists included corn bunting (*Emberiza calandra*), grey partridge (*Perdix perdix*), linnet (*Linaria cannabina*), starling (*Sturnus vulgaris*), stock dove (*Columba oenas*), whitethroat (*Curruca communis*) and yellowhammer (*Emberiza citrinella*). Species more associated with wetland habitat were also recorded breeding such as oystercatcher (*Haematopus ostralegus*), avocet (*Recurvirostra avosetta*) and little ringed plover (*Charadrius dubius*). Across the breeding species, there are nine Red-listed, 14 Amber-listed, three Schedule 1 species (barn owl (*Tyto alba*), avocet and little ringed plover), and 10 Section 41 species. The majority of recorded species are considered to be of Local importance. Avocet and little ringed plover are considered to be of County importance, based upon a combination of survey records, local distribution and Birds of Conservation Concern (BoCC) status (see **PEI Report Volume 3 Part B Section 6 Appendix 4A Bird Survey Data 2022-24, Table 4A.3**).
- 4.5.51 Upon assessment of the Year 1 breeding bird survey results, further survey work will be required in 2025. Therefore, the results presented in **PEI Report Volume 3 Part B Section 6 Appendix 4A Bird Survey Data 2022-24** are incomplete. Once available, the full survey results will be presented and assessed within the ES.
- 4.5.52 It is important to note that this section considers the importance of a species in the context of the geographical extent of Section 6 only. An initial route-wide assessment is included in **PEI Report Volume 2 Part C Route-wide Assessment Chapter 4 Ecology and Biodiversity**.

Badger

- 4.5.53 Desk study survey records included that there were over 20 records of badger within the Section 6 Study Area. These included recorded setts and signs of badger activity and badger casualties on roads throughout the area.
- 4.5.54 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.

- 4.5.55 Four potential main badger setts were recorded within the Section 6 Survey Area. The results of the badger surveys will be presented in a Confidential Appendix to the ES.
- 4.5.56 Given its common status and widespread distribution within the county, Badger is assessed as being of Local importance.
- 4.5.57 Surveys are ongoing in 2025 to inform the full assessment of impacts and effects and the details of appropriate mitigation to be presented in the ES.

Bats

- 4.5.58 Local Records Centre data returned records which included records of brown long-eared (*Plecotus auritus*), soprano pipistrelle (*Pipistrellus pygmaeus*) and daubenton's (*Myotis daubentonii*) within the Section 6 Study Area. Two of these records were known roosts within the draft Order Limits. One was a daubenton's roost located at TF3617, between pylons SW40 and SW43 and the other was a soprano pipistrelle roost at TF3220, between pylons SW23 and SW26.
- 4.5.59 There were no existing European Protected Species Mitigation Licence (EPSML) applications for bats within the Section 6 Study Area.
- 4.5.60 Initial surveys for bats were carried out between May and October 2024.
- 4.5.61 The field surveys completed to date have confirmed that bat species present within the Section 6 Survey Area include common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle, *Myotis* sp., Nathusius pipistrelle (*Pipistrellus nathusii*), serotine (*Eptesicus serotinus*), Leisler's bat (*Nyctalus leisleri*), noctule (*Nyctalus noctula*), daubenton's, brown long-eared and barbastelle (*Barbastella barbastellus*). The activity surveys indicate that hedgerows and woodland edges are being utilised by foraging and commuting bats along the proposed overhead line route.
- 4.5.62 Survey work was also undertaken in winter 2024/25 and will continue in spring/summer 2025 to confirm the 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 and effects to be presented within the ES. It should be noted that at the time of writing this PEI Report, results from the winter 2024/2025 surveys were not available.
- 4.5.63 At this stage no buildings or structures are known to be within the Section 6 draft Order Limits. If any buildings or structures are identified within the Section 6 draft Order Limits and potential impacts to bats are identified, these will be surveyed accordingly.

Otter

- 4.5.64 Desk study survey records included over 20 records of otter within the Section 6 Study Area. These included live individuals and signs of otter activity and otter casualties on roads throughout the area.
- 4.5.65 Initial surveys for Otter were carried out between March 2024 and October 2024.
- 4.5.66 Within the Section 6 Survey Area, no breeding sites or resting sites were recorded. However, the habitats recorded were suitable for commuting and foraging otter and multiple field signs of otter have been identified within the Section 6 Survey Area, including spraints. An individual otter was recorded between proposed pylon

locations SW61 and SW62 in the locality of the North Level Main Drain. Where suitable otter habitat exists, surveys will be completed to confirm presence/absence.

- 4.5.67 Given its recovering status and importance within the county, where otter is present, the species is assessed as being of County importance.
- 4.5.68 Survey work will continue in 2025 to inform the full assessment of impacts and effects and the details of appropriate mitigation measures to be presented in the ES.

Fish

- 4.5.69 Desk study research has identified Environment Agency (EA) records of two notable fish species within the Section 6 Study Area. These are European eel (*Anguilla Anguilla*) and spined loach (*Cobitis taenia*) (**Table 4.4**).
- 4.5.70 Survey work will be undertaken in 2025 to confirm the status of fish within the Section 6 Study Area and to inform the assessment of impacts and effects and the design of any appropriate mitigation, which will be presented with the survey results in the ES.

Table 4.4 Notable fish species identified within the Section 6 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 only minor watercourses being directly affected and low number of eels considered likely to be present.
Spined loach	<i>Cobitis taenia</i>	Global Red List Post 2001 – Least Concern, Annex II of the Habitats Directive, UKBAP 2007, Section 41 NERC Act 2006 and Appendix III of Bern Convention 1979	Local, due to the minor watercourses being affected and low number of spined loach considered likely to be present.

Aquatic Macroinvertebrates

- 4.5.71 No notable aquatic macroinvertebrate species have been identified as present within the Section 6 Study Area based upon the completed desk study.
- 4.5.72 Supplementary survey work will be undertaken in 2025 to confirm the status of aquatic macroinvertebrates within the Section 6 Survey Area, and 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.

Aquatic Macrophytes

- 4.5.73
- Based upon desk study research (data search), no notable aquatic macrophyte species have been identified as present within the Section 6 Study Area. Nonetheless, the River Nene CWS (which runs through the site) is known to support at least three nationally rare species of pondweed (*Potamogeton* sp.) including flat-stalked pondweed (**Table 4.5**).

Table 4.5 Notable aquatic macrophyte species identified within the Section 6 Study Area

Common name	Scientific name	Designation/Status	Importance
Flat-stalked pondweed	<i>Potamogeton friesii</i>	Nationally scarce, Global Red List Post 2001 – Near Threatened, England Red List Post 2001 - Vulnerable	Local, due to the minor watercourses being affected and small population likely to be present.

- 4.5.74
- Survey work will be undertaken in 2025 to confirm the status of aquatic macrophytes, to inform the full assessment of impacts and effects and the details of any appropriate mitigation measures to be presented within the ES.

Water Vole

- 4.5.75
- Desk study records included over than 400 records of water vole within the Section 6 Study Area. These included sightings of individuals and signs of water vole activity including droppings and burrows throughout the area, but mainly in the locality around South Holland Main Drain and Little South Holland Drain.
- 4.5.76
- Initial surveys for water vole were carried out between March 2024 and October 2024.
- 4.5.77
- Within the Section 6 Survey Area, water vole were found to be present in at least six locations along watercourses including Lowland Drain North. Evidence included numerous field signs of water vole including latrines, burrows and feeding signs.
- 4.5.78
- Where suitable water vole habitat exists, surveys will be completed to confirm presence/absence.
- 4.5.79
- Given its declining status and importance within the county, where water vole is present, the species is assessed as being of County importance.
- 4.5.80
- Survey work is continuing in 2025 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

- 4.5.81
- The desk study returned records for brown hare (*Lepus europaeus*), harvest mouse (*Micromys minutus*) and hedgehog (*Erinaceus europaeus*) within the Section 6 Study Area.

- 4.5.82 Habitats within the Survey Area are suitable for SPI including brown hare, common toad and hedgehog, which are of Local importance.
- Survey work will continue in 2025 to inform the full assessment of impacts and effects and the details of appropriate mitigation measures to be presented within the ES.

Invasive Non-Native Species

- 4.5.83 Desk study research has identified the presence of a total of six invasive non-native plant species within Section 6 Study Area. These were Himalayan balsam (*Impatiens glandulifera*), Nuttall's waterweed (*Elodea nuttallii*), New Zealand pigmyweed (*Crassula helmsii*), variegated yellow archangel (*Lamium galeobdolon subsp. argentatum*), hollyberry cotoneaster (*Cotoneaster bullatus*) and Montbretia (*Crocsmia x crocosmiiflora*), all of which are listed under Schedule 9 of the Wildlife and Countryside Act 1981, with the exception of Nuttall's waterweed, which is listed under the Invasive Alien Species (Enforcement and Permitting) Order 2019.
- 4.5.84 The desk study also identified the presence of four animal INNS within the Section 6 Study Area: grey squirrel (*Sciurus carolinensis*), American mink (*Mustela vison*), Chinese mitten crab (*Eriocheir sinensis*) and Muntjac deer (*Muntiacus reevesi*). All of these species are listed on Schedule 9 of the Wildlife and Countryside Act; and grey squirrel and Muntjac deer are additionally listed on the Invasive Alien Species Order.
- 4.5.85 No specific INNS survey has been undertaken to date, however field observations have been made during other ecological surveys undertaken within the Survey Area. No INNS have been recorded within the Section 6 Survey Area to date.
- 4.5.86 Further planned habitat and species surveys, such as those for aquatic habitats and invertebrates, will include the recording of invasive non-native species. The results of these surveys will be presented in the ES.

Future Baseline

- 4.5.87 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.
- 4.5.88 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 **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.
- 4.5.89 Habitats within the Section 6 draft Order Limits and Study Area comprise mainly arable farmland currently under cultivation.
- 4.5.90 In addition to the main habitat coverage, field boundaries are in places defined by hedgerows, ditches and farm tracks. Section 6 crosses one river (River Nene).

- 4.5.91 Existing ecological features are unlikely to materially change in the future e.g. cropland, field boundaries, and ditches. Those areas of known change will be assessed, where necessary, as part of the surveys in 2025.
- 4.5.92 Relative to the current baseline, the value of priority ecological features present within the Section 6 Study Area 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.
- 4.5.93 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 **PEI Report Volume 2 Part A Chapter 4 Approach to PEI 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 **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.
- 4.6.3 The Section 6 draft Order Limits on which this assessment is based have been located to avoid designated sites, HPIs and important receptors as far as practicable. This is in accordance with the Planning Inspectorate's Advice Note Ten: Habitats Regulations Assessment relevant to nationally significant infrastructure projects, Version 9 (November 2022) (Ref 18), the Habitats Regulations 2017 (Ref 20).
- 4.6.4 Following selection of the preferred route corridor, as outlined in the CPRSS, ecological specialists have been integral to ongoing design refinement of works within Section 6. This has further contributed to the avoidance or reduction of the potential environmental impacts of the Project. Examples of such measures include the refined positioning of pylons and access routes to avoid or reduce direct and indirect impacts on notable species and habitats, including woodland and trees.
- 4.6.5 At sensitive crossing locations (e.g. rivers), existing access routes would be used as far as possible 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, would 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 included within **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 Project will be run in 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 **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 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.

- 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 Environmental Statement 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 Environmental Clerk of Works (ENvCoWs). 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 ENvCoWs. 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 with invasive species (both terrestrial and aquatic), such as Japanese knotweed and Himalayan balsam, will be thoroughly cleaned. Water used to clean vehicles, when necessary, will be discharged or emptied into the contaminated area 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

Ecological Clerk of Works (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. Three boxes will be provided for any confirmed breeding site that is to be permanently or temporarily impacted by the proposed works. Two boxes will be provided for each breeding site impacted.
- 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 (March 16th-June 16th 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 Environment Agency).
- 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 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. 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.
- 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.

Operation and Maintenance

- 4.6.10 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).
- 4.6.11 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.

- 4.6.12 During the operation and maintenance 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.
- 4.6.13 Additionally, habitats created or enhanced by the Project and embedded within the design, will be managed in accordance with the LEMP.

Additional Mitigation

- 4.6.14 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.
- 4.6.15 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.
- 4.6.16 As set out within **PEI Report Volume 2 Part B Section 6 Chapter 1 Overview of the Section and Description of the Project** and illustrated on **PEI Report Volume 2 Part B Section 6 Figure 1.3 Permanent and Operation Features**, initial measures within Section 6 include:
- i. Habitat replacement for woodland and coastal floodplain grazing marsh; and
 - ii. Potential badger sett mitigation areas (mitigation requirements to be confirmed following surveys)
- 4.6.17 Any mitigation or compensation measures to be included within the Project will be informed by further design development and consultation with the relevant stakeholders, including engagement with statutory consultees.
- 4.6.18 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 6 Study Area, as a result of construction, maintenance and/or operational activities.
- 4.7.2 As discussed in **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 the Project. The precautionary principle has been applied, such that where information about a particular receptor is incomplete or uncertain, then it significant effects have not been excluded. Therefore, at this stage, most of the ecological receptors identified in the baseline of this 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 **PEI Report Volume 2 Part B Section 6 Chapter 13 Summary**. A supplementary summary of all non-significant effects is also included within this Section in **Table 4.6**, based upon the assessment scope detailed in **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 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 international sites are the Wash SPA and Ramsar site, and the Wash and North Norfolk coast SAC, all located approximately 8.9 km north-east of the Section 6 draft Order Limits at their closest point.
- 4.7.8 In addition, Nene Washes SPA and Ramsar site and Ouse Washes SPA and Ramsar site (where bird species with large foraging ranges are noted as, or one of, the qualifying features) are located approximately 11.7 km and 17.2 km from the Section 6 draft Order Limits respectively, at their closest points.
- 4.7.9 According to Natural England guidance (Ref 21), only those main component species of Internationally designated sites, which have an overlapping IRZ with Section 6 draft Order Limits, are considered to be functionally linked. '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 Special Areas of Conservation (SAC)/Special Protection Area (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 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 Section 6 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 in 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 these sites 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 Section 6 draft Order Limits, in relation to primarily wintering pink-footed goose. Further assessment is required, once 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 HRA (to be submitted with the ES), and significant effects cannot be excluded at this stage in the assessment.
- 4.7.13 Species of the Ouse Washes SPA and Ramsar site includes birds as qualifying features. The IRZ for the SPA and Ramsar site overlaps with the Section 6 draft Order Limits, in relation to primarily wintering pink-footed goose. Further assessment is required once 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 HRA (to be submitted with the ES), and significant effects cannot be excluded at this stage in the assessment.
- 4.7.14 The Impact Risk Zones (IRZ's) for the nationally designated Surfleet Lows SSSI (designated for its wet alluvial meadow habitats), 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) and Islington Heronry (designated for its colony of grey herons) partially overlap with the Section 6 Refined Siting Zone.
- 4.7.15 The Wash SSSI is located 8.9 km north-east of the Section 6 draft Order Limits. There are potential hydrological links between the project and this SSSI, however, given the separation distances and the pollution prevention measures within the Preliminary 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 to be functionally linked. 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 Islington Heronry SSSI is located 8.4 km east of the Section 6 draft Order Limits. It is anticipated that the heron colony may use habitats within the wider area for foraging and there is potential for some of the land to be functionally linked. 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.

- 4.7.17 Taking into account the pollution prevention measures within the Preliminary CoCP (such as GG15, GG16, GG17) significant effects upon the remaining nationally designated sites within the Section 6 Study Area (i.e. Surfleet Lows SSSI, The Shrubberies LNR and Vernatts LNR) are not anticipated and therefore these sites are included within **Table 4.6**.
- 4.7.18 There are two CWSs that are located within the Section 6 draft Order Limits or within 0.1 km of them. These are the River Nene watercourse, which is crossed by the Project, and grazing marsh present at Honnington House Farm. Due to the proximity of the draft Order Limits to these CWSs there is a risk of adverse effects on habitats (e.g. through water pollution and/or air quality deposition) as well as potentially on any fauna (e.g. bats, otter and water vole) associated with these sites. Standard pollution control measures would be implemented in accordance with the Preliminary CoCP (GG15, GG16, GG17 and W01 to W11). However, further survey work will establish the nature and importance of any receptors associated with these CWS's that may be affected by the works. On a precautionary basis, significant effects cannot be excluded at this stage of the assessment.
- 4.7.19 Due to the distance from the Section 6 draft Order Limits and embedded control measures set out within the Preliminary CoCP, no significant effects are predicted for the remaining 13 LWS's located within 2 km of the Section 6 draft Order Limits and these are therefore included within **Table 4.6**.

Habitats

Terrestrial Habitats

- 4.7.20 Initial habitat survey results indicate that the majority of habitat within the Section 6 Survey Area is cultivated cropland with negligible biodiversity importance. Areas of this habitat would be lost during construction of temporary works area (e.g. compounds and haul roads) and pylons, including stringing areas.
- 4.7.21 Some areas of HPI will be directly affected by the proposed works, including the Coastal and Floodplain Grazing Marsh in the Weston area, the Sutton St James area and near the River Nene. All pylons have been located outside these habitats where practicable, with the exception of pylon SW2.
- 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 ground works and/or in-channel 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 (GG06, GG07, GG15, GG16 and W01 to W11). 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, arable field margins, scrub and small woodland parcels valued at Local level would be crossed by the proposed overhead line. Temporary severance of hedgerows would occur during construction, where existing hedgerows are crossed by haul road routes. Existing tracks and roads would be utilised where practicable, however these may require widening, and temporary haul roads would be reinstated upon completion of construction.

- 4.7.24 Survey work will continue through to 2025 to characterise the terrestrial habitat types, and their constituent flora and fauna, within the Section 6 Survey Area. These surveys will also confirm the condition of relevant habitats and inform the design of appropriate mitigation or compensation measures and the assessment of impacts and effects, which will be reported within the ES.
- 4.7.25 In the absence of supplementary survey findings and confirmed additional mitigation measures, significant effects due to impacts upon terrestrial habitats within the Section 6 Study Area cannot be excluded at this stage of the assessment.

Aquatic Habitats

- 4.7.26 The River Nene Main River is crossed by the Section 6 draft Order Limits. There are also a number of other watercourses, ditches and ponds located within or close to the draft Order Limits, including South Holland Main Drain and North Level Main Drain.
- 4.7.27 Direct impacts upon aquatic habitats within the Section 6 Study Area would include those associated with overhead line watercourse crossings. However, these have been minimised through the setting back of pylons from the channel and marginal habitats. The stringing of the overhead line could potentially result in temporary loss or damage to watercourses and ditches within the Draft Order Limits, with the potential for 80 crossing points, however the stringing methodology will seek to minimise any potential direct impacts to watercourses during construction and any impacts are likely to be temporary.
- 4.7.28 Within Section 6, the construction of approximately 113 temporary access crossings would result in direct impacts upon watercourses. The design of these elements will seek to minimise impacts through reducing the footprint of these works as far as practicable and appropriate culvert design. Based upon the implementation of best practice construction methods and reinstatement of the impacted habitats post construction (see Preliminary CoCP measures W01 to W11), associated effects are likely to be temporary.
- 4.7.29 Drainage installations for any Sustainable Drainage Systems (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 6 includes 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 noted above, survey work will continue through to 2025 to characterise the aquatic habitat types, and their constituent flora and fauna, within the Section 6 Survey Area. 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 effects, which will be reported 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 Section 6 Study Area cannot be excluded at this stage of the assessment.

Protected and Notable Species

Terrestrial Invertebrates

- 4.7.32 Survey results to date indicate that the majority of habitats (i.e. cropland) within the Section 6 draft Order Limits have limited value to terrestrial invertebrates. However, hedgerow habitats also recorded within the Section 6 Survey Area may have suitability to support a more diverse invertebrate assemblage.
- 4.7.33 Potential impacts upon terrestrial invertebrates include habitat loss, habitat fragmentation and death/injury through the loss of habitats and severance of hedgerows.
- 4.7.34 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), and maintenance of hedgerow connectivity (B08).
- 4.7.35 A scoping survey will be undertaken in 2025 to assess those habitats recorded in 2024/25 as potentially suitable for terrestrial invertebrates, to assess their potential importance. Following on from this, targeted surveys would be undertaken if required, to inform the assessment of impacts and effects and design of appropriate mitigation, which will be reported within the ES.
- 4.7.36 On a precautionary basis, significant effects on terrestrial invertebrates cannot be excluded at this stage of the assessment.

Great Crested Newt

- 4.7.37 Survey results to date for ponds within the Section 6 Study Area indicate that populations of great crested newt are present within the Tydd St Giles Fen area.
- 4.7.38 No ponds would be lost during construction, however a temporary access route is proposed approximately 20 m from a pond with positive eDNA for great crested newt. Potentially suitable terrestrial habitat for great crested newts up to 500 m away from ponds including hedgerows and grassland would be directly impacted through habitat loss/severance during construction, due to the establishment of construction compounds and access routes and within the footprint of pylons. Additionally, there is a risk of machinery and traffic killing or injuring great crested newts if they are present within the draft Order Limits during construction activities.
- 4.7.39 Where impacts upon great crested newt cannot be avoided, a licence from Natural England would be required to permit derogation (as outlined in Preliminary CoCP management measure B01). Indicative locations for mitigation are provided on **PEI Report Volume 2 Part B Section 6 Figure 1.3 Permanent and Operation Features**.
- 4.7.40 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).
- 4.7.41 Survey work will continue in 2025 to inform the assessment of impacts and effects and the details of appropriate mitigation to be presented in the ES. Further survey findings will also be used to confirm any licencing and enhancement requirements.

- 4.7.42 On a precautionary basis, significant effects on great crested newt cannot be excluded at this stage of the assessment.

Reptiles

- 4.7.43 The majority of habitats within the Section 6 draft Order Limits suitable for reptiles are limited in extent, being confined to field boundaries and the margins of ditches.
- 4.7.44 There are potential impacts through habitat loss and risk of killing and/or injury of reptiles during construction.
- 4.7.45 Where impacts upon reptiles cannot be avoided, measures would be implemented to prevent a breach of legislation. These measures are outlined in the Preliminary CoCP and include two stage habitat manipulation of suitable habitats, with an ECoW appointed to oversee works (B05). Any species translocation (if required) would be undertaken in accordance with a strict method statement (B09).
- 4.7.46 Additional relevant measures within the Preliminary CoCP which would reduce potential impacts include implementation of Management Plans (GG06), reinstatement of hedgerows (GG08), establishment of protective areas (GG09) and maintenance of hedgerow connectivity (B08).
- 4.7.47 Seasonal survey work will continue in 2025 to confirm the status of reptiles. The survey results will be used to inform the assessment of impacts and effects and the details of any appropriate mitigation and enhancement to be presented in the ES.
- 4.7.48 On a precautionary basis, significant effects on reptiles cannot be excluded at this stage of the assessment.

Birds: Breeding and Wintering

- 4.7.49 Surveys for wintering birds carried out between November 2022 and March 2023 were limited within the Section 6 Survey Area and consequently, there are little data available to understand the extent of wintering bird use within this Section (see **PEI Report Volume 3 Part B Section 2 Appendix 4A Bird Survey Data 2022-24, Table 4A.1**).
- 4.7.50 Surveys for breeding birds, carried out between March 2024 and July 2024, indicated an expected assemblage of farmland specialist and generalist species across the Section 6 draft Order Limits (**PEI Report Volume 3 Part B Section 6 Appendix 4A Bird Survey Data 2022-24, Table 4A.2 and Table 4A.3**).
- 4.7.51 Although measure B02 in the Preliminary CoCP would ensure the impacts of construction works upon active nests would be mitigated, the construction works within the Section 6 draft Order Limits 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.
- 4.7.52 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 (LV04).
- 4.7.53 It should be noted that bird surveys are incomplete, and survey work will continue over the winter of 2024/2025 and the spring/summer of 2025 to confirm the status of wintering and breeding birds respectively, and to inform the assessment of impacts

and effects and the design of appropriate mitigation and enhancement, which will be further developed and presented within the ES.

- 4.7.54 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.

Badger

- 4.7.55 Four potential main badger setts were recorded within the Section 6 Survey Area and there is potential for direct impacts through the loss of some of these setts. Specifically, hedgerow and areas of woodland habitats would require clearance during construction to establish on-site haul roads and construction compounds and within the footprint of the proposed pylons.
- 4.7.56 There is also potential for general disturbance impacts during construction from noise and vibration, temporary site lighting, human presence and potentially an increase in vehicle-animal collisions. In addition, there are legal restrictions regarding certain construction works (e.g. piling) which could take place close to active setts.
- 4.7.57 As outlined in Preliminary CoCP measure B13, in the first instance, reasonable avoidance measures will be incorporated to avoid impacting known badger setts. If however direct impacts on badger setts cannot be avoided, a licence from Natural England would be sought to permit derogation (as outlined in Preliminary CoCP measure B01). Mitigation measures may include the provision of artificial setts within the Order Limits where main setts would be closed.
- 4.7.58 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), lighting restrictions (LV04) and closing of excavations overnight to avoid entrapment (B03).
- 4.7.59 Survey work continued during winter 2024/2025 to confirm the status of badger and will be used to inform the assessment of impacts and effects, and any appropriate mitigation and enhancement measures, which will be developed fully and presented within the ES.
- 4.7.60 On a precautionary basis, significant effects on badger cannot be excluded at this stage of the assessment.

Bats

- 4.7.61 Surveys in 2024 confirmed that the bats foraging and commuting within the Section 6 Survey Area and indicated that bats were associated with hedgerows and woodland edges along the overhead line route.
- 4.7.62 There is potential for both permanent and temporary loss of roosting, foraging and commuting habitat for bats and severance of commuting routes, and would likely be impacts from disturbance such as noise, vibration and lighting during construction. Specifically, hedgerow and areas of woodland habitats would require clearance during construction to establish of on-site hauls roads and within the footprint of proposed pylons.
- 4.7.63 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 would be required to permit derogation (as outlined in Preliminary CoCP measure B01).

- 4.7.64 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).
- 4.7.65 The survey work in 2024 and 2025 will be used to confirm the assemblage of foraging and commuting bats and the presence/absence of bat roosts within or close to the Section 6 draft Order Limits. The outputs of these surveys will be used to confirm the status of bats and the assessment reported within the ES.
- 4.7.66 On a precautionary basis, significant effects on bats cannot be excluded at this stage of the assessment.

Otter

- 4.7.67 No breeding sites or resting sites were recorded within the Section 6 Survey Area but multiple field signs of otter have been identified, including spraints, and an individual otter was recorded between the proposed pylon locations SW61 and SW62 in the locality of the North Level Main Drain.
- 4.7.68 Where suitable habitat for otter is present, there is the potential for disturbance through noise, vibration, increased human presence and site lighting. Habitat loss and degradation could potentially occur due to the construction of temporary access crossing and/or pollution of habitats. There would also a risk of machinery and traffic killing or injuring otters if they are present during construction activities.
- 4.7.69 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 (see Preliminary CoCP measure B01).
- 4.7.70 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.
- 4.7.71 Survey work will continue in 2025 to confirm the status of otter and will be used to inform the assessment of impacts and effects, and the details of any appropriate mitigation and enhancement, which will be developed fully and presented within the ES.
- 4.7.72 On a precautionary basis, significant effects on otter cannot be excluded at this stage of the assessment.

Fish

- 4.7.73 Notable fish species were recorded within the Section 6 Study Area.
- 4.7.74 There is a risk that habitats supporting protected and notable fish species would be impacted during construction of overhead line, including installation of supporting structures and associated haul roads. Short-term impacts 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.
- 4.7.75 As outlined by Preliminary CoCP measure B10, where any in channel watercourse works are required, works would 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).
- 4.7.76 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.
- 4.7.77 Survey work in 2025 will be used to confirm the status of species present and inform the assessment of impacts and effects, and the details of any appropriate mitigation and enhancement, which will be developed fully and presented within the ES.
- 4.7.78 A precautionary approach has therefore been taken and significant effects on fish cannot be excluded at this stage of the assessment.

Aquatic Macroinvertebrates

- 4.7.79 There are no records for notable and/or protected aquatic macroinvertebrate species within Section 6 Study Area.
- 4.7.80 There is a risk protected and notable aquatic macroinvertebrate species would be impacted during construction of overhead line, including installation of supporting structures and associated haul roads, through habitat loss, fragmentation, disturbance and/or incidental mortality.
- 4.7.81 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).
- 4.7.82 Survey work will be carried out in 2025 to confirm the status of this taxon and inform assessment of construction related effects and the 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 results will be presented in the ES along with the full assessment of impacts and effects.
- 4.7.83 A precautionary approach has been taken and significant effects on aquatic macroinvertebrates cannot be excluded at this stage of the assessment.

Aquatic Macrophytes

- 4.7.84 There are no records of notable and/or protected aquatic macrophyte species within the Section 6 Study Area.
- 4.7.85 There is a risk of construction works impacting watercourses and associated aquatic macrophytes (including pondweed species known to occur in the River Nene) 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).
- 4.7.86 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).
- 4.7.87 Survey work carried out in 2025 will be used to confirm the status of aquatic macrophytes and inform the assessment of impacts and effects and any appropriate mitigation and enhancement, which will be developed fully and presented within the ES.
- 4.7.88 On a precautionary basis, significant effects on aquatic macrophytes cannot be excluded at this stage of the assessment.

Water Vole

- 4.7.89 Initial surveys indicate that water vole are present within at least six locations within the Section 6 Survey Area.
- 4.7.90 Where suitable water vole habitat exists there is a risk of construction works impacting watercourses and associated riparian habitat causing damage to burrows and incidental mortality of water vole. 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).
- 4.7.91 If impacts to water vole burrows cannot be avoided, a licence from Natural England would be sought to permit derogation (as outlined in Preliminary CoCP measure B01).
- 4.7.92 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) and lighting restrictions (LV04). 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.
- 4.7.93 Survey work will continue in 2025 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.
- 4.7.94 On a precautionary basis, significant effects on water vole cannot be excluded at this stage of the assessment.

Operation and Maintenance

- 4.7.95 The following section provides an assessment of significant effects related to Ecology and Biodiversity for operation and maintenance taking into consideration mitigation measures that will be implemented, as described in section 4.6.

Designated Sites

- 4.7.96 The Wash SPA, Ramsar site and SSSI, Nene Washes SPA and Ramsar, the Ouse Washes SPA and Ramsar site and Islington Heronry SSSI are designated (or partially 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.
- 4.7.97 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.
- 4.7.98 European designated sites within the Zol of the Project are 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 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

- 4.7.99 As noted above in relation to designated sites, the collision risk with the overhead line within the Section 6 Survey Area will need to be fully assessed once further winter and breeding bird data have been collected.
- 4.7.100 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

- 4.7.101 For completeness, **Table 4.6** 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 4.6 Summary of non-significant Ecology and Biodiversity effects – Section 6

Receptor	Impact	Receptor Importance	Duration	Embedded Mitigation/ Rationale	Likely Significance of Effect
Construction					
Surfleet SSSI, The Shrubberies LNR, Vernatts LNR	Habitat loss	National	Permanent or Temporary	Due to the distance of these sites from the Section 6 draft Order Limits there would 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 and/or 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
Leverington Gull CWS, North Level Main Drain at Tydd Gate CWS, Arnolds Meadow LWS, Blue Gowt Drain, West Marsh Road LWS, Coronation Channel LWS, Guy Wells Pit LWS, Little South Holland Drain LWS, Moulton Park and River LWS, Pinchbeck Marsh LWS, River Welland LWS, Slys Connection LWS, Tydd Gote Bank	No impact	County	Permanent or Temporary	Due to the distances between these receptors and the Section 6 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 would be required.	Not Significant

LWS, Vernatts Drain LWS					
Hedgehog, brown hare, harvest mouse	Habitat loss, incidental harm or mortality	Local	Permanent or Temporary	The following control measures detailed within the Preliminary CoCP would prevent harm to hedgehog, harvest mouse and brown hare during construction: G06, B01, B03. Habitats would also be reinstated post construction (GG08).	Not Significant
Invasive Non-Native Species (INNS)	Spread of INNS during construction activities	N/A	Permanent or Temporary	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					
Surfleet SSSI, The Shrubberies LNR, Vernatts LNR	No impact	National	Permanent or Temporary	Due to the distance between these receptors and the Section 6 draft Order Limits and also the lack of ecological or hydrological connectivity, there is not considered to be a pathways to effect. Therefore no mitigation is required.	Not Significant
River Nene CWS and Honnington House Farm CWS	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	Not Significant

				of vegetation within and adjacent to assets (e.g. substations, pylons, access routes).	
Leverington Gull CWS, North Level Main Drain at Tydd Gate CWS, Arnolds Meadow LWS, Blue Gowt Drain, West Marsh Road LWS Coronation Channel LWS, Guy Wells Pit LWS, Little South Holland Drain LWS, Moulton Park and River LWS, Pinchbeck Marsh LWS, River Welland LWS, Slys Connection LWS, Tydd Gote Bank LWS, Vernatts Drain LWS	No Impact	County	Permanent or Temporary	Due to the distances between these receptors and the Section 6 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
Habitats: River Nene	Contamination during maintenance works	National	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). National Grid would consult with the relevant regulatory body where	Not Significant

				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.	
Habitats: Coastal and Floodplain Grazing Marsh HPI	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
Habitats – woodland, arable field margins, hedgerows, patches of low diversity scrub and ditches/drains	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 as the management of vegetation within and adjacent to assets (e.g. substations, pylons, access routes).	Not Significant
Habitats: South Holland Main Drain and North Level Main Drain	Contamination during maintenance works	County	Temporary	The likelihood of contamination is considered to be minimal assuming appropriate management. During	Not Significant

				<p>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>	
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	Not Significant

				of vegetation within and adjacent to assets (e.g. substations, pylons, access routes).	
Great crested newt	Habitat loss, killing or injury.	County	Temporary or 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	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
Reptiles	Killing or injury during maintenance works	Local	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 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
	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 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	Not Significant

				infrastructure) are anticipated to be small in scale and of an intermittent nature and therefore broadly comparable to current agricultural operations or less.	
Bats	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 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	Country	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
	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	Not Significant

				comparable to current agricultural operations or less.	
	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 local flora and fauna of works near controlled waters.</p>	Not Significant
Fish	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	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	Not Significant

				<p>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>	
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	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

				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.	
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
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	Not Significant

				would be identified and mitigated accordingly.	
	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 local flora and fauna of works near controlled waters.</p>	Not Significant
Brown hare, hedgehog, harvest mouse	No impact	Local	N/A	The nature of maintenance works are anticipated to be small in scale and of an intermittent nature and therefore broadly comparable to	Not Significant

			current agricultural operations or less.	
Invasive Non-Native Species (INNS)	Spread of INNS during maintenance activities	N/A	Permanent or Temporary	<p>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 time would be identified and mitigated accordingly.</p> <p>Not Significant</p>

4.8 Monitoring

- 4.8.1 Monitoring requirements, that may be required for the Project following the implementation of mitigation to ensure mitigation is successful and meets the requirements or permits/licences, will be 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 South East Lincolnshire Joint Strategic Planning Committee (the Joint Committee)(2019). South East Lincolnshire Local Plan 2011-36 [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 October 2024]
- Ref 2 Fenland District Council (2014). The Fenland Local Plan [online]. Available at: https://www.fenland.gov.uk/media/10010/Fenland-Local-Plan-May-2014/pdf/Fenland_Local_Plan1.pdf?m=1590591524653 [Accessed October 2024]
- Ref 3 Borough Council of King's Lynn and West Norfolk (2025). King's Lynn and West Norfolk Local Plan 2021-2040 Adopted March 2025. [online]. Available at: https://www.west-norfolk.gov.uk/info/20079/planning_policy_and_local_plan/1207/local_plan_2021-2040#:~:text=The%20current%20Local%20Plan%20was%20adopted%20in%20March,for%20the%20borough%20%28up%20to%2015%20years%20ahead%29. [Accessed 05 May 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 18 October 2024].
- 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 18 October 2024].
- 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 18 October 2024].
- 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 October 2024].
- Ref 10 Joint Nature Conservation Committee (JNCC) website [online]. Available at: <https://jncc.gov.uk/> [Accessed 3 October 2024].
- Ref 11 Environment Agency Ecology & Fish Data Explorer [online]. Available at: <https://environment.data.gov.uk/ecology/explorer/> [Accessed October 2024].
- Ref 12 Environment Agency Catchment Data Explorer [online]. Available at: <https://environment.data.gov.uk/catchment-planning/> [Accessed October 2024].

- Ref 13 UKHab (2018.2022). The UK Habitat Classification System [online]. Available at: <https://ukhab.org/> [Accessed 01 March 2024].
- 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 15 October 2024].
- 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 15 October 2024].
- Ref 18 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].
- 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 and Department for Environment, Food & Rural Affairs (2022). Protected species and development: advice for local planning authorities [online]. Available at: <https://www.gov.uk/guidance/protected-species-how-to-review-planning-applications> [Accessed 3 June 2024].

5. Historic Environment

Contents

5.	Historic Environment	5-1
5.1	Introduction	5-1
5.2	Legislation and Policy Framework	5-3
	Regional and Local Policy	5-3
5.3	Scope of Assessment	5-4
5.4	Assessment Methodology	5-5
	Assessment Assumptions and Limitations	5-6
5.5	Baseline Conditions	5-6
	Study Area	5-6
	Data collection	5-7
	Existing Baseline	5-7
	Future Baseline	5-18
5.6	Design, Control and Additional Mitigation Measures	5-18
	Design Mitigation Measures	5-18
	Control Mitigation Measures	5-18
	Additional Mitigation Measures	5-20
5.7	Preliminary Assessment of Effects	5-21
	Likely Significant Effects	5-22
	Likely Non-Significant Effects	5-26
5.8	Monitoring	5-44

Table 5.1	Supporting documentation	5-2
Table 5.2	Designated heritage assets within the 3 km Section 6 Study Area	5-9
Table 5.3	Designated heritage assets of high value within the 3-5 km Section 6 Study Area	5-9
Table 5.4	Non-designated heritage assets within the 1 km Section 6 Study Area	5-10
Table 5.5	Preliminary summary of non-significant Historic Environment effects – Section 6	5-35

References	5-45
------------	------

5. Historic Environment

5.1 Introduction

- 5.1.1 This chapter presents the Preliminary Environmental Information (PEI) in relation to the Historic Environment assessment for the Refined Weston Marsh Substation Siting Zone to New Walpole B Substation Section (Section 6) of the Grimsby to Walpole Project (the Project). 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 **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 Historic Environment assessment (section 5.3). Further detail is provided within **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 6 (section 5.4). A detailed description of the assessment methods, applicable to the whole Project, is contained in **PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**;
 - v. A description of the environmental baseline within the Section 6 Study Area relevant to the Historic Environment assessment (section 5.5);
 - vi. A description of mitigation measures included for the purposes of the Historic Environment assessment reported within the PEI Report (section 5.6). Further information regarding design development can be found in **PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered** and in the **Grimsby to Walpole Design Development Report**;
 - vii. The likely significant and non-significant Historic Environment effects arising during construction and operation of the Project within Section 6, based upon the assessment completed to date (section 5.7); and
 - viii. The processes and monitoring that will be undertaken to ensure the appropriate management and control of Historic Environment (section 5.8).
- 5.1.2 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
Topic Specific Supporting Documentation	
PEI Report Volume 2 Part B Section 6 Figures	Figure 5.1 Designated Heritage Assets; Figure 5.2 Non-designated Heritage Assets
PEI Report Volume 3 Part B Section 6 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).
PEI Report Volume 3 Part B Section 6 Appendix 5B Preliminary Summary of Non-Significant effects	A table summarising the preliminary assessment of likely non-significant effects on heritage assets within the assessment Study Area. The assessment of likely non-significant effects will be updated and amended as required for the ES.
Project Supporting Documentation	
PEI Report Volume 2 Part B Section 6 Chapter 1 Overview of the Section and Description of the Project	A summary of the works within Section 6, including permanent infrastructure, temporary construction works, and operational activities.
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.
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 PEI Report and ES.
PEI Report Volume 3 Part A Appendix 2Ci Local Plan Policy: Section Specific	An outline of the potentially relevant local planning policy allocations affecting each of the specific sections of the Project.
PEI Report Volume 3 Part A Appendix 2Cii Local Plan Policy: Route-wide	Details of planning policies applicable route-wide within the relevant Local Authority areas.
PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered	A summary of the main alternatives considered in relation to the Project during the design development process, including the main reasons for selecting the chosen option.
PEI Report Volume 2 Part A Chapter 4 Approach to Preliminary Environmental Information	Sets out the Environmental Impact Assessment (EIA) approach and general methodology that has been used in developing the PEI Report for the Project.

Supporting Information	Description
PEI Report Volume 2 Part A Chapter 5 Project Description	An overarching description of the Project and its key components, including available construction information.
PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice	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.

- 5.1.3 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 **PEI Report Volume 2 Part B**:
- i. **PEI Report Volume 2 Part B Section 6 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. **PEI Report Volume 2 Part B Section 6 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. **PEI Report Volume 2 Part B Section 6 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. **PEI Report Volume 2 Part B Section 6 Chapter 13 Summary** which provides a concise, consolidated summary of the likely significant effects reported or all topics, based upon the preliminary assessment; and
 - v. **PEI Report Volume 2 Part C Route-Wide Chapter 10 Cumulative Effects** which 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 **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 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 1):
 - Policy 29 The Historic Environment: distinctive elements of the South East Lincolnshire historic environment will be conserved and, where appropriate, enhanced.
- ii. The Fenland Local Plan (Adopted May 2014) (Ref 2):
 - Policy LP18 Historic Environment: the policy seeks to protect, conserve and enhance the historic environment. Proposals that are deemed to have an effect on any heritage asset will be required to assess the significance and assets and identify the impact of the project and a clear justification of the works must be provided.
- iii. Fenland Local Plan 2021 – 2040: Draft Local Plan Consultation (Ref 3)
 - Policy LP7 Design: All development must achieve high quality sustainable design and be based on a sound understanding of the context, integrating into the surroundings and responding to local history, culture and heritage.
 - Policy LP23 Historic Environment: the draft policy seeks to protect, conserve and enhance heritage assets and their settings. Development must respect, and enhance or reinforce where appropriate, the local character and distinctiveness of the area in which it would be situated, particularly in areas of high heritage value.
- iv. The King's Lynn and West Norfolk Local Plan 2021-2040 (Adopted March 2025) (Ref 4):
 - Policy LP19 Environmental Assets - Green Infrastructure, Landscape character, Biodiversity and Geodiversity: This policy stipulates that development should comply with the mitigation hierarchy, to avoid, mitigate or compensate adverse impacts on biodiversity, geodiversity and heritage, as well as seeking to enhance sites through the creation of features of new biodiversity interest.
 - Policy LP20 Environmental Assets - Historic Environment: stipulates that the historic environment will be conserved and enhanced through high quality design which sustains, and where appropriate, enhances the special interest, character and significance of assets and their settings. Amongst other factors, the impact of development proposals on the significance of heritage assets and their setting will be considered in accordance with case law, legislation and the National Planning Policy Framework (NPPF).
 - Policy LP24 Renewable Energy: states that developments will be assessed to determine whether the energy benefits outweigh the impact individually or cumulatively upon aspects including designated and un-designated heritage assets, including the setting of assets.

5.3 Scope of Assessment

- 5.3.1 The scope of the assessment has been informed by the Scoping Opinion (Ref 5) provided by the Planning Inspectorate on behalf of the Secretary of State, following the submission 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 Historic Environment chapter is provided in **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 **PEI Report Volume 3 Part A Appendix 4D Summary of Stakeholder Engagement**.

5.3.2 Non statutory consultation feedback has been addressed within the **Grimsby to Walpole Stage 1 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 6 Study Areas); 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 6 Study Areas); 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 **PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**. This includes a description of how heritage value, magnitude of impact and significance of effects are all described and assigned to the assessment. A summary of the key components of the assessments, assumptions and limitations relating to Section 6 is 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 **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 7) with reference to the NPPF Annex 2 Glossary (Ref 8), consultation, regional variation and individual qualities;
- ii. Identification of the magnitude of impacts arising from the construction of the new connecting overhead line 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 **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 **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 will be 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 **PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.

5.4.5 The following limitation has been identified for the assessment within this section specifically: HLC data for Cambridgeshire was not available to inform the preliminary assessment included within this PEI Report. This will be assessed in the ES.

5.4.6 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.

5.5 Baseline Conditions

Study Area

5.5.1 The preliminary assessment for the Historic Environment 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 **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 have been assessed where there is potential for their setting 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 assessment of the baseline conditions:
- i. the National Heritage List for England (NHLE), held by Historic England, for designated assets;
 - ii. Lincolnshire, Cambridgeshire and Norfolk 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 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 **PEI Report Volume 2** and **Volume 3** respectively:
- i. **PEI Report Volume 2 Part B Section 6 Figure 5.1 Designated Heritage Assets;**
 - ii. **PEI Report Volume 2 Part B Section 6 Figure 5.2 Non-designated Heritage Assets;** and
 - iii. **PEI Report Volume 3 Part B Section 6 Appendix 5A Known Heritage Assets.**
- 5.5.5 Designated heritage assets are referenced with their NHLE reference number (e.g. NHLE 1010947).
- 5.5.6 Non-designated assets are referenced using the relevant HER's unique identifier number (e.g. MLI240 for Lincolnshire, MNF for Norfolk and MCB for Cambridgeshire).
- 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. AEC600).

Geology and Topography

- 5.5.8 Section 6 is located in National Character Area 46 - The Fens, which extend across southern Lincolnshire, Cambridgeshire and Norfolk. The Fens are characterised by low-lying, flat and expansive landscape, with wide views to the horizon (Ref 9).
- 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 Tidal Flat Deposits have been identified by the BGS across the Fenlands as a mixture of tidal flat muds, peat and intertidal sands. In addition, evidence of peat deposits are interbedded within the intertidal mud deposits and intertidal sands. The distribution of peat deposits in the Fenlands is intermittent and largely confined to the western and southern margin of the Fenlands where peat has accumulated through marine regressions.
- 5.5.11 At the northern end of Section 6, to the west of Weston, the bedrock geology is recorded as Jurassic mudstone of the Oxford Clay Formation, formed between 166.1 and 157.3 million years ago, changing to the Jurassic mudstone and siltstone of the West Walton Formation (formed between 163.5 and 157.3 million years ago) north of Moulton and extending south east to Tydd St Giles Fen. The bedrock geology breaks into Ampthill Clay mudstone (formed between 163.5 and 157.3 million years ago) south of Sutton St James which continues to the end of Section 6 approximately 2.6 km east of the River Nene. Superficial deposits across Section 6 comprise clay and silt Tidal Flat deposits formed between 11.8 thousand years ago and the present (Ref 10).

Designated Heritage Assets

- 5.5.12 There are no World Heritage Sites or Registered Battlefields within the 3 km or 3-5 km Section 6 Study Areas.
- 5.5.13 Located within the 3 km Section 6 Study Area, there are 230 designated heritage assets, summarised in **Table 5.2**, with none located within the draft Order Limits. Eight scheduled monuments are located within the 3 km Section 6 Study Area and include a Roman settlement and a medieval moated site, but predominantly represent church yard and boundary crosses. Of the 216 listed buildings in this Study Area, three grade I, 20 grade II* and 101 grade II listed buildings are all located within Spalding Conservation Area, which also includes the registered park and garden. The remaining listed buildings are predominantly located within the three other conservation areas, namely, Moulton, Tydd St Mary and Tydd Gote. Other villages with concentrated groups of listed buildings include Newton on the Isle, Tydd St Giles and West Walton. Other listed buildings are scattered throughout the rural landscape comprising occasional isolated farms, houses and former manors.

Table 5.2 Designated heritage assets within the 3 km Section 6 Study Area

Designation	Number of assets within Study Area	Number of assets within the draft Order Limits
Scheduled monument	8	0
Conservation area	4	0
Grade I listed building	11	0
Grade II* listed building	26	0
Grade II listed building	179	0
Grade I registered park and garden	0	0
Grade II* registered park and garden	0	0
Grade II registered park and garden	1	0

5.5.14 Ten designated heritage assets of high value have been identified within the 3-5 km Section 6 Study Area and their designations are listed in **Table 5.3**.

Table 5.3 Designated heritage assets of high value within the 3-5 km Section 6 Study Area

Designation	Number of assets within Study Area
Scheduled monument	3
Grade I listed building	5
Grade II* listed building	2
Grade I registered park and garden	0
Grade II* registered park and garden	0

5.5.15 No designated heritage assets of high value located beyond 5 km 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 Study Area will be considered further in the assessment presented in the ES.

Non-designated Heritage Assets

5.5.16 A total of 333 non-designated heritage assets have been identified within the 1 km Section 6 Study Area, of which 34 assets are located within, or overlap with, the draft Order Limits. A total of 120 non-designated buildings have been identified which remain extant within the 1 km Section 6 Study Area. A further 51 buildings have been identified where they are no longer extant, including the demolished sites of some former buildings which are located within the draft Order Limits. A summary of the types of non-designated heritage assets identified is provided in **Table 5.4** and discussed, where appropriate, in the archaeological and historical background below.

Table 5.4 Non-designated heritage assets within the 1 km Section 6 Study Area

Asset Type	Number of assets within Study Area	Number of assets within the draft Order Limits
Cropmarks	23	11
Earthworks (including roddons and sea defences)	11	5
Saltern Site	6	0
Settlement/Occupation features	18	7
Deserted medieval village	0	0
Moated Site	4	0
Ridge and Furrow	0	0
Parkland	3	0
Farmstead or buildings extant	120	1
Farmstead or buildings demolished	51	2
Military Remains	3	1
Roads/trackways/railways/canals	1	5
Woodland/Covert	0	0
Ecclesiastical	4	0
Industrial	0	0
Find spot	55	2

- 5.5.17 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

- 5.5.18 Evidence of Palaeolithic (500,000 to 10,000 BC) activity is rare nationally, with *in situ* remains particularly rare and the slightly more frequent find spots of stone tools providing most of the evidence for a human presence during the period. Glaciers of the Anglian Ice Age extended across Cambridgeshire, scouring the landscape and depositing the superficial glacial till deposits across Section 6.

- 5.5.19 Prehistoric activity in the Fens is likely to be largely masked by thick layers of alluvial and peat deposits. Whilst much of the northern areas of the fenlands were dominated by marshlands, areas of southern Lincolnshire, northern Cambridgeshire and Norfolk 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 Upper Barroway Drove Beds (3000-2000 BP). This area of the Fens is known as the 'Silt Fens'.
- 5.5.20 Examples of deeply deposited early prehistoric remains have been recorded at Cowbit, located approximately 5 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. Due to these thick deposits of silt, masking potential prehistoric sites, no heritage assets dating to the prehistoric period have been identified within the draft Order Limits or with the 1 km Section 6 Study Area.
- 5.5.21 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. Much of these settlements were established on much higher raised areas of silt, known as roddens.
- 5.5.22 As the sea regressed towards the east, the Silt Fens were quickly colonised, with Roman settlement undertaken on an area of higher silt roddens. A large amount of pottery, dating from the early Roman period through to the Middle Saxon period, has been widely recorded on these roddens indicating that there was long-term settlement of these higher silts.
- 5.5.23 Roman settlement close to the area around Weston, has been previously identified as lying within a zone of post-Roman flooding and marine inundation. Due to this flooding and deposition of deep alluvial deposits close to Weston, identification of Roman archaeological remains is difficult within this area. Whilst Roman remains are masked close to Weston, archaeological remains dating to the period have been identified close to Whaplode and Moulton, probably situated on a higher island of land in the Fens.
- 5.5.24 Towards the centre of Section 6, the Project crosses an extensive archaeological landscape which extends through Whaplode Fen and Holbeach, between the villages of Whaplode St Catherine, Holbeach St James and Sutton St James. Within this area eleven individual archaeological assets have been identified, wholly or partially within the draft Order Limits, primarily in the form of cropmarks identified from aerial photography. The cropmarks provide evidence for buried archaeological features comprising small rural settlements, enclosures, field systems and drove ways, which have either been attributed to Romano-British settlement activity or are undated.
- 5.5.25 Rural settlement sites have been recorded within the draft Order Limits. These consist of enclosures and possible rectangular fields near Whaplode St Catherine (MLI20382) and rectangular ditched enclosures, with a scatter of 2nd century pottery, west of the Fleet Drain (MLI22253).
- 5.5.26 Associated evidence for an extensively settled Romano-British landscape have also been recorded as cropmarks extending into the draft Order Limits. Some have been interpreted as Romano-British field systems at Holbeach (MLI22214) and at Joy Bank near Fleet (MLI22252), and in the fields immediately adjacent to the draft Order Limits at Holbeach (MLI22217). Other cropmarks represent linear features, drove ways and former watercourses (MLI20384, MLI20385 and MLI20386).

- 5.5.27 Within the wider 1 km Section 6 Study Area a significant Romano-British settlement, south of Shell Bridge, has been designated as a scheduled monument (NHLE 1004982) and is located approximately 2.4 km south west of the draft Order Limits. Three areas of domestic occupation have been recorded from cropmarks and during archaeological investigations, including hut circles, clay lined pits, enclosures, at least one saltern and drove ways.
- 5.5.28 Smaller Romano-British rural settlement enclosures have also been recorded within the 1 km Section 6 Study Area. These have been located west of the Project near Spalding (MLI98569, MLI80615); to the west of Weston (MLI92281); approximately 375 m south west of the draft Order Limits near Whaplode (MLI22190); on Holbeach Fen (MLI22228); cropmarks of ditched enclosures and a sparse scatter of 2nd century pottery fragments at Sycamore Farm and close to Holbeach (MLI22206); a settlement and field systems (MLI20380 and MLI22251), cropmarks indicating small irregular enclosures, surrounded by a possible field system with drove road (MLI20446) and evidence of salt-making (MLI22250) at Coy Bridge; and occupational debris recorded at Hurdletree Bank (MLI20381).
- 5.5.29 Further cropmarks identified as likely Roman field systems have been recorded within the wider 1 km Section 6 Study Area (MLI22254 and MLI22247), located close to a previously identified Roman settlement (MLI22254), south of Whaplode St Catherine, and (MLI20449) and small enclosures and an artefact scatter at Langary Gate Road (MLI22249).
- 5.5.30 The eastern areas of the Fens were subject to increased flooding during the 4th century, which have buried many of the Roman settlement remains in this area. It has been suggested that there may be further Roman occupational sites further east across Cambridgeshire and parts of Norfolk, that have not been identified due to deep silt deposits masking these sites.
- 5.5.31 By the Roman period, conditions at the southern end of Section 6 in Norfolk had become much drier, allowing the settlement and farming of the landscape across this part of the Fens. Evidence for a possible Romano-British settlement, located along a roddon, has been recorded within the draft Order Limits (MNF18975). This consists of a spread of Roman pottery, briquetage, slag and animal bone, associated with several possible pits identified during a geophysical survey undertaken for the King's Lynn to Wisbech pipeline, Stage 1. A second small settlement has been recorded in the fields north of West Walton (MNF19048), approximately 410 m south west of the draft Order Limits.
- 5.5.32 Widespread Roman activity is evidenced by artefact scatters and isolated findspots recorded by the HERs and artefacts recovered during fieldwalking for the Fenland Survey. This includes findspots pottery widely recorded within the 1 km Section 6 Study Area (MLI20383, MCB4828, MCB4860, MNF18978, MNF19050, MNF19048, MNF18981 and MNF25853), with several Roman coin hoards also identified (MLI22274 and MLI22264).
- 5.5.33 Early medieval settlement is characterised by dispersed settlements located away from the later medieval and post-medieval villages; many of these are located along the landward edge of the silts (Ref 11).
- 5.5.34 Evidence for Early Saxon activity within the 1 km Section 6 Study Area is limited to Norfolk, where findspots of early Saxon pottery (MNF18967) and charred macrofossils (MNF18943) have been recovered during fieldwalking undertaken for the Fenland Survey.

- 5.5.35 A single Middle Saxon settlement site (MNF18943) has been recorded within the draft Order Limits at the southern end of Section 6, just east of Ingleborough. Fieldwalking initially recorded Middle and Late Saxon pottery scattered along a raised mound or roddon. Subsequent archaeological excavation recorded a series of substantial Middle Saxon, Late Saxon ditches from which domestic rubbish was recovered.
- 5.5.36 Findspots of Middle Saxon pottery have also been recovered during fieldwalking by the Fenland Survey within the 1 km Section 6 Study Area to the north (MNF18958 and MNF19041) and south west of the draft Order Limits (MNF18951, MNF18952 and MNF25853).
- 5.5.37 By the 8th and 9th centuries, the Fens were becoming increasingly inundated by marine transgressions, leading to efforts to control the level of inundations across the area through the construction of sea walls from the Late Saxon period onwards. At Ingleborough, to the east of the River Nene, cropmarks and earthworks (MNF2187), recorded on aerial photographs, have been interpreted as a sea wall. The line of the sea wall crosses the draft Order Limits following the line of Mill Road.
- 5.5.38 Findspots of Late Saxon pottery have been recorded within the 1 km Section 6 Study Area. At the northern end of Section 6 at Holbeach Road, Spalding, 12 sherds of Late Saxon pottery from South Lincolnshire, dating from the 10th to 12th centuries were recovered (MLI80614). A findspot of Late Saxon Stamford Ware pottery (MNF18964) has also been recorded by fieldwalking at the southern end of Section 6, south west of the draft Order Limits, near West Walton.
- 5.5.39 Early medieval Ecclesiastical heritage assets have been recorded within the 1 km Section 6 Study Area, including the grade II* listed St Giles' Church, Tydd St Giles (NHLE 1125926) and associated churchyard (MCB4827).
- 5.5.40 During the medieval period, the Lincolnshire fens were characterised by a settlement pattern of predominantly nucleated villages, connected to each other through a series of drove ways. The villages, established in the 11th and 12th centuries, appear to have been concentrated upon the more elevated silts, with the later, linear settlements developing along drove ways following the courses of ancient roddens.
- 5.5.41 Reclamation of the fenlands throughout the medieval period led to an increase in the arable grazing pastureland, known as 'Newland'. These areas of new pasture were then protected through a series of sea banks and ditches. Intense reclamation occurred in the 13th century on the land surrounding Whaplode and Holbeach, this reduced grazing land here, but led to the development of long straight fields, and droveways in this southern area of the fenlands. Wider evidence of water management within the Silt Fens was uncovered by the Cambridgeshire Archaeological Unit, just outside of Tydd St Giles, and included evidence for wells and drainage ditches.
- 5.5.42 Much of the medieval economy was reliant on major monastic and religious centres, with two major monasteries at Ely and Peterborough, and the Cathedral at Lincoln. The monastery (and later Cathedral) at Ely owned nearly all of the nearby land in the Cambridgeshire fenland. The monastic settlement across the fenlands close to Ely is comprised of a mixture of larger and much smaller detached estates, with a mixture of small grange houses and much larger moated manorial complexes (Ref 11).
- 5.5.43 Extant buildings of medieval date are mainly represented by churches, located mostly within the nucleated villages within the landscape (for example, the grade I listed

Church of St Mary, West Walton (NHLE 1077676) and the grade I listed detached Bell Tower (NHLE 1171875).

- 5.5.44 A designated heritage asset of medieval date has also been recorded within the 3 km Section 6 Study Area, comprising a churchyard cross recorded at St Mary's Churchyard, Whaplode (NHLE 1010673). Several scheduled medieval boundary crosses have also been recorded within the 5 km Section 6 Study Area, including boundary crosses at Old Fen Dike (NHLE 1010672), St Ives Cross (NHLE 1010689), Manor Hill Corner (NHLE 1010688) and White Cross, 80 m north of Poultry Farm (NHLE 1014429).
- 5.5.45 Another feature of the medieval landscape are moated sites. The scheduled moated medieval manorial site, King's Hall moated site, 480 m east of Broadwater House Farm (NHLE 1017217), has been identified north-west of Holbeach and south of Moulton. The moated site belonged to the de Moulton family and is believed to have been established shortly after the Norman conquest in 1066. The monument was a fortified manor, built upon an artificial island of land surrounded by a moat.
- 5.5.46 Several non-designated moated sites have also been recorded within the 1 km Section 6 Study Area in Norfolk. The first, the site of a possible medieval manor immediately north of St Mary's Church, West Walton, comprises a regular moat, identified on aerial photographs and medieval and post-medieval artefacts recovered during fieldwalking (MNF18951). It has been suggested that this moat relates to either the Bishop of Ely's Manor House or Lewes Manor. The second moated site, Lewes/Sculham's medieval manor and chantry chapel (MNF18976), is recorded as a series of earthworks comprising building platforms and the remnants of a moat.
- 5.5.47 The site of Guanock House medieval grange (MLI20505) is also located just to the south of Fleet, within the 1 km Section 6 Study Area.
- 5.5.48 As noted above the draining of the Fens intensified from the 13th century onwards and new sea defences were constructed. In Cambridgeshire an extensive sea bank was constructed along the western side of the River Nene. At Wisbech, within the 5 km Section 6 Study Area, a well-preserved earthwork section of the sea wall, known as 'Roman Bank', survives as a scheduled monument (NHLE 1006887). The sea bank was named 'Roman Bank' by 17th century antiquarians but has been dated to the 13th century. A longer non-designated section of the 'Roman Sea Bank' (MCB16155) extends northwards across the 1 km Section 6 Study Area, crossing the draft Order Limits to the north of Newton. Such sea defences were continually repaired and re-used throughout the medieval and post-medieval periods.
- 5.5.49 At Ingleborough, to the east of the River Nene, two earthen mounds (MNF18567 and MNF18571) have been recorded within the draft Order Limits and may represent medieval breakwaters constructed on the seaward side of the sea wall (MNF2187). A third medieval earthen mound at Ingleborough (MNF19042) is recorded approximately 90 m north of the draft Order Limits.
- 5.5.50 Salt making was an important fenland industry during the medieval period. Evidence for salt extraction sites has been recorded across the Fens, with salterns identified within the 1 km Section 6 Study Area close to Tydd St Giles to the north (MCB24468, MCB4671, MCB4672 and MCB13116) and south (MCB4830, MCB4829) of the draft Order Limits. These salterns produced a further spread of associated finds including bone and burnt stone. All of the salterns produced a mixture of 13th and 14th century pottery and a large amount of briquetage. It is likely these are placed upon roddens with a tidal brook running through them.

- 5.5.51 Medieval settlement remains have been recorded by archaeological investigations within the 1 km Section 6 Study Area at Tydd St Giles, where shallow ditches, a gully marking a plot or property boundary and several cess pits, dated to the 13th-14th centuries (MCB15604), may be associated with settlement alongside a medieval drove way now Kirkgate. At a second site (MCB19892), three enclosure or drainage ditches on a north south alignment and two possible storage pits dated to the 12th to 15th centuries may represent the edge of the settlement.
- 5.5.52 Evidence for medieval field systems also survives within the 1 km Section 6 Study Area, represented by distinctive field boundaries (MLI116244) and the earthwork remains of a dyling field system (MLI22248) recorded near Fleet. An earthwork field system and further possible dylings have also identified at Whaplode, comprising well defined earthwork banks, ditches, ponds and possible house platforms (MLI91448).
- 5.5.53 Evidence for medieval activity and occupation is widespread across the 1 km Section 6 Study Area, particularly in Norfolk where systematic fieldwalking was undertaken for the Fenland Survey. Findspots and artefact scatters have been recorded and include scatters of pottery (MNF28758, MNF18966, MLI23575, MCB12833, MCB18112, MCB10112, MCB18111, MLI22135, MNF18598, MNF19049, MNF19044, MNF19041, MNF18597, MNF18578, MNF18980, MNF18965, MNF18963, MNF18949, MNF18579, MNF18961, MNF18979, MNF18945, MNF55114, MNF18960, MNF 18959 and MNF18957), coins (MNF18596), ceramic building material (CBM) (MNF18942), metal objects (MNF25852), a lead ampulla (MNF28758) and metal work (MNF18942, MNF18944 and MNF18951), recovered from the fields around West Walton.
- 5.5.54 A single medieval pottery findspot (MNF18967) has been recorded within the draft Order Limits, in the fields to the north of West Walton.
- 5.5.55 The rural landscape of the post-medieval period is evidenced by nucleated settlements, enclosed fields and isolated farmsteads situated within the Fenlands. Assets of post-medieval date within the 1 km Section 6 Study Areas predominantly consist of extant and former sites of buildings. The settlements in the 1 km Section 6 Study Area include larger settlements such as the market town of Spalding as well as smaller villages.
- 5.5.56 The settlement of Holbeach was established in the 17th century (MLI20241).
- 5.5.57 There are a range of extant post-medieval buildings in Spalding, concentrated around the historic core of the settlement, which is designated as a conservation area. The buildings predominantly consist of houses of 18th century (E.g. NHLE 1359519; 1359518; 1063947; 1063996) and 19th century date (E.g. NHLE 1063962; 1169641; 1063968), as well as several earlier examples of 17th century houses (NHLE 1308555; 1063991). There are also associated listed walls (NHLE 1359541; 1308522; 1147578) and an outbuilding (NHLE 1063969). Other post-medieval buildings in Spalding Conservation Area include an 18th century grade II* listed School for Girls (NHLE 1306654), 19th century warehouses (NHLE 1063981; 1359529), a former Christian Association and Literary Institute (NHLE 1464585), a police station (NHLE 1169618), a Methodist Church (NHLE 1067614) and a 19th century bridge (NHLE 1063997).
- 5.5.58 The historic fabric of other small settlements survives to varying extents, with several conservation areas covering the historic core of villages, as well as various surviving post-medieval houses and outbuildings, many of which are listed. There are examples of post-medieval listed buildings in the villages of Moulton (for example,

NHLE 1359271; 1064507; 1147281), Tydd St Giles (NHLE 1125928; 1125927; 1161185; 1125929; 1310201) and Newton-in-the-Isle (NHLE 1125957; 1161076; 1125915; 1331977). There are also examples of extant 19th century churches and chapels within the Study Area, including the late 19th century Church of St Paul (NHLE 1306702) in Fulney, which was built to the designs of Sir George Gilbert Scott.

- 5.5.59 The Chatteris Ferry to Wisbech Turnpike Trust (MCB31386) connected Wisbech to Chatteris, extending through the draft Order Limits.
- 5.5.60 Agriculture was a significant industry to the area during the post-medieval period. There are a large number of 19th century farm sites, both extant (for example, NHLE 1147737; NHLE 1308515; NHLE 1161076) (MLI123267) and former sites (for example, MLI124765; MLI118534) within the 1 km Section 6 Study Areas, highlighting the agricultural history of the landscape. Further evidence of post-medieval agriculture was recorded at Tydd St Giles, with a post-medieval field boundary ditch (MCB19929) identified during archaeological investigations. At Heywood, archaeological investigations have identified several drainage ditches associated with farming (MNF43998).
- 5.5.61 Evidence of local milling industries are highlighted through extant tower mills in Moulton (NHLE 1308557) and Ingleborough (NHLE 1077675). The non-designated remains of the foundations of a windmill (MCB4832) have also been identified at Tydd St Giles.
- 5.5.62 Post-medieval activity is noted widely across the 1 km Section 6 Study Area, with artefact spreads, including pottery, CBM and other metal objects at West Walton (MNF19960). Evidence of continued agricultural activity was recorded close to Fleet with a decoy pond recorded in the fields here (MLI23224).
- 5.5.63 The Nene Outfall (MNF42344)/River Nene Navigation (MCB20859) was a canal opened in 1830 between Norfolk and Cambridge and is located within the draft Order Limits. The North Level Drain (MCB27444) extends through the draft Order Limits on a north east to south west alignment. Several train lines were also built across the area, including the Spalding to Holbeach railway line (MLI20232) and the Peterborough, Wisbech and Sutton Bridge branch railway line (MLI19614) located within the draft Order Limits.
- 5.5.64 A number of Second World War features are also recorded in the Study Area including Fulney Park Camp (MLI90562) (the site of a prisoner of war camp), a searchlight site (MCB29644) and the site of a Royal Observer Corps underground post (MNF39561), located adjacent to the draft Order Limits.
- 5.5.65 Undated cropmarks have been identified widely within the draft Order Limits, with several groupings of these identified close to Holbeach (MLI20228, MLI20233, MLIL20385, MLI20440) and at Tydd St Giles (MLI20500).
- 5.5.66 Other undated cropmarks have been identified in the fields close to the settlement of Weston (MLI89823, MLI89822), with cropmarks at Thorpe St Peter (MLI20386) and at Ingleborough (MNF19043), located within the draft Order Limits.
- 5.5.67 Cropmarks of indeterminate date have also been identified widely within the 1 km Section 6 Study Area, with groups of cropmarks identified close to Fleet (MLI20467, MLI20450, MLI201518, MLI20503, MLI20447), at Waplode (MLI20412, MLI20413, MLI20470, MLI20452), at Weston (MLI89081, MLI90801,) at Holbeach (MLI20502,

MLI20468, MLI89353), at Gedney (MLI20469) and at Tydd St Giles (MCB12830 and MCB12580).

- 5.5.68 Undated pits were identified close to a moated site at Weston (MLI116216) and close to Spalding an undated earthen trackway was identified (MLI89824).

Historic Landscape Character

- 5.5.69 Section 6 extends through the counties of Lincolnshire and Cambridgeshire before crossing the River Nene and into Norfolk. Lincolnshire and Norfolk are defined by the Lincolnshire HLC and Norfolk HLC data respectively, provided by the Lincolnshire and Norfolk HERs. The HLC data has identified several broad historic landscape character types within the draft Order Limits, which provide context to the historic landscape the Project is situated within. The HLC for Cambridgeshire is not currently available, however, an assessment of the historic landscape will be included in the ES.
- 5.5.70 The northern area of Section 6 is located within Lincolnshire HLC sub-type Fen 2 (Eastern Fens). This is characterised as an area of reclaimed land, which began during the eighteenth and nineteenth centuries. During this time many new drainage channels were cut and pumping stations constructed to overcome the challenge of draining land that was below sea-level. The reclaimed land was divided into a pattern of rectilinear fields, which have been separated by drains, with much of this evidence still visible within the landscape today.
- 5.5.71 Nucleated settlements are scattered throughout the Fens and are located on ridges of slightly higher ground. A number of linear settlements, and isolated farmsteads are present across the Fens.
- 5.5.72 Much of the planned 18th and 19th century enclosure landscape survives to this day, with only a few hedges demarcating fields surviving. Modern 20th century consolidated fields generally have more surviving elements of hedgerows within their field boundaries than those areas of surviving planned enclosure. Some areas of surviving ancient enclosure focused around the nucleated and dispersed settlements across the Fens.
- 5.5.73 At the southern end of Section 6, the Norfolk HLC characterises the historic landscape as predominantly located within fields defined as of 20th century agriculture HLC type. The 20th century fields are broadly defined surrounding the settlements of Ingleborough, and Walton, and extending across the draft Order Limits. Within these fields earlier enclosure boundaries have been modified and re-organised in the early to mid-20th century to create larger consolidated fields more suitable for mechanised farming.
- 5.5.74 Within the 1 km Section 6 Study Area, to the south of the Project, located to the east of Walton, there are some remnants of 18th and 19th century enclosures. These are remnant field systems of planned enclosures that have not been altered in the 20th and 21st centuries.
- 5.5.75 The assessment of the impact of the Project on the historic landscape will be informed by a detailed historic map regression, further research and consultation with historic environment stakeholders, with the results of the assessment being presented in the ES.

Future Baseline

- 5.5.76 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 completed prior to construction of the Project.
- 5.5.77 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 **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.
- 5.5.78 The baseline details as presented above (including changes to settings 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 and draft Order Limits have been 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 design and siting of substations. These approaches are explained in further detail within the Corridor Preliminary Routeing and Siting Study (CPRSS) (Ref 14) and **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 6. This has further contributed to the avoidance or reduction of the potential environmental impacts of the Project.

Control Mitigation Measures

- 5.6.3 A Preliminary CoCP is provided in **PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice**. General control measures included within the Preliminary CoCP relevant to the Historic Environment assessment of Section 6 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 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), 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 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 the Section 6 draft Order Limits 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 Where it is not possible to implement embedded mitigation, or to avoid impacts to earthwork remains or buried archaeological deposits, 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 the draft Order Limits that may be disturbed or either wholly or partially lost, in accordance with the guidance provided by the Overarching NPS for Energy (EN-1) (Ref 7, section 5.9.17).
- 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.
- 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.

- 5.6.11 Opportunities for further additional mitigation or enhancement will be reviewed as the Project develops and 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.
- 5.6.12 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.
- 5.6.13 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 of the Project upon the heritage assets identified within the Section 6 Study Areas, as a result of construction, operation and/or maintenance activities.
- 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 **PEI Report Volume 2 Part B Section 6 Chapter 13 Summary**. A supplementary summary of all non-significant effects is also included within this section in **Table 5.5**, based upon the assessment scope detailed in **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 **PEI Report Volume 3 Part B Section 6 Appendix 5B Preliminary Summary of 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 should be noted that the assessment which has informed the conclusions presented remains ongoing and is subject to change, due to the ongoing survey activities and further design development of the Project. A full detailed 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 6 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 identified during the construction phase include direct physical impacts on heritage assets within the Section 6 draft Order Limits resulting from construction works e.g. topsoil stripping and groundworks for construction access haul roads, pylon working areas, construction compounds and drainage.
- 5.7.9 Setting impacts 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 four designated heritage assets within the 3 km Section 6 Study Area that have the potential to experience temporary and/or permanent significant effects. These include two scheduled monuments, one grade I listed building and one grade II 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 the Likely Significant Effects section, with the significant effects summarised in **PEI Report Volume 2 Part B Section 6 Chapter 13 Summary**.

Scheduled Monuments within the 3 km Section 6 Study Area

- 5.7.11 The King's Hall moated site scheduled monument (NHLE 1017217), 480 m south east of Broadwater House Farm, is located approximately 770 m south and 550 m west of the draft Order Limits and comprises a raised earthwork island, a surrounding moat and buried archaeological remains relating to the residence of the de Moulton family. The moat in particular has potential to preserve remains, while the artificial island within the moat may seal evidence for earlier land use. The setting of the monument, which contributes to its high value, comprises the former medieval landscape and surrounding agricultural fields which served the manor house and the settlement of Moulton to the north of the monument with which it has an association. The Project will not impact the archaeological remains that comprise the monument. The draft Order Limits are, however, located within the historic and agricultural setting of the monument with views north and east from the monument towards the Project. There is minimal screening from existing hedgerows and farm buildings located to the north and north west of the monument and open agricultural landscape to the east. Construction of the Project may temporarily alter the setting of the monument through construction traffic, plant movement and noise. These temporary and reversible impacts would have a small magnitude of impact and moderate

adverse effect which would be significant. Permanent changes to the setting of the monument arising from the introduction of new pylons and overhead line infrastructure (approximately proposed pylons SW16 to SW23) within the open agricultural landscape that forms the setting of the monument would change the way in which it is experienced and appreciated. This would have a small magnitude of impact, resulting in a moderate adverse effect which is significant.

- 5.7.12 A scheduled Romano-British settlement south of Shell Bridge (NHLE 1004982) is located approximately 2.2 km south west of the draft Order Limits. The monument has high heritage value and is comprised of buried occupational archaeological features including agricultural ditches, huts, posts, stakeholes and pits, with evidence of a drove way also recorded. The setting of the monument is the local Roman agricultural landscape and includes non-designated assets Roman agricultural cropmarks (MLI20443, MLI22251 and MLI20449) and occupational evidence (MLI20446), which are located in close proximity to the draft Order Limits. The Project is located within the wider agricultural setting of the monument. The landscape looking north and east of the monument is flat, with a largely unrestricted views and minimal screening provided by existing vegetation. Given the distance of the asset from the draft Order Limits, it is unlikely that the scheduled monument will experience temporary impacts to its setting due to noise, plant movement or construction traffic during construction. This would result in no change the value of the monument and a neutral effect which would not be significant. Construction of the Project would result in permanent changes to the setting of the monument arising from the introduction of new pylons and overhead line infrastructure (e.g. the section between pylon SW23 and SW52) against the skyline to the north and east of the monument. This change to the monument would alter the way in which it is experienced and appreciated. This would have a small magnitude of impact, resulting in a moderate adverse effect which is significant.

Listed Buildings or Structures within the 3 km Section 6 Study Area

- 5.7.13 Moulton Windmill (NHLE 1308557) is a grade I listed asset located within Moulton Conservation Area. It is located to the south east of the grade I listed Church of All Saints (NHLE 1147325) at the southern edge of Moulton Conservation Area, approximately 1.8 – 2 km north of the draft Order Limits. Built in 1822, it has 8 storeys and is the tallest windmill in the country, at 100 feet high to the top of its ogee cap, being fully restored as an operational wind-driven windmill. Later 19th and 20th century construction took place to the south of the windmill along the B1357 but the flat agricultural landscape to the south east remains largely undeveloped with kinetic views of the windmill apparent moving through the landscape. The setting of the windmill includes its location and historic relationship with the village of Moulton, including the grade II listed millhouse (NHLE 1064505) to its immediate west, as well as the wider agricultural landscape over which it commands views enabled by its construction on what was the outskirts of the village. Temporary construction works and the permanency of the infrastructure in the landscape within the wider agricultural setting (proposed pylons SW13-SW19) of the windmill would have a small magnitude of impact causing a slight change on its value and how it is appreciated, resulting in a moderate adverse effect on an asset of high value that is significant.
- 5.7.14 Ingleborough Mill (NHLE 1077675) is a grade II listed building located just over 1 km north of the village of West Walton and approximately 35 m from the draft Order Limits. The historic cornmill, built in 1824, is constructed from brick and consists of

seven storeys, with a gallery to the fourth storey and windows at all floors including three windows in its south elevation. Its sails were removed in 1940 and it is disused. The setting of the mill consists of the surrounding mill complex with farm buildings and its position in the rural village overlooking the surrounding fields. The proximity of the works for the Project includes a construction access haul road, with trackway to the north of the listed asset, a bellmouth along Mill Road to the south, SUDS to the west, construction access haul road to the south, stringing to the south and west, and the introduction of proposed pylons SW77 – SW79 into the landscape. The temporary construction work and the proposed pylons within the setting of the listed asset, diminishing the mill tower's prominence in the skyline, would introduce a change to the setting that is noticeably different. The temporary construction works such as traffic, noise and dust and the permanency of the infrastructure in the landscape from construction and throughout the operational duration of the Project, will have a medium magnitude of impact altering the wider setting of Ingleborough Mill and changing how the asset is understood and experienced affecting its heritage value. These would result in moderate adverse effects on an asset of medium value which is significant.

High Value Designated Heritage Assets within the 3-5 km Section 6 Study Area

- 5.7.15 No high value designated heritage assets have been assessed where they may experience likely significant effects resulting from the Project.

Non-designated Heritage Assets

- 5.7.16 Some non-designated heritage 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 the Likely Significant Effects section, with the significant effects summarised in **PEI Report Volume 2 Part B Section 6 Chapter 13 Summary** and the non-significant effects summarised in **Table 5.5** and **PEI Report Volume 3 Part B Section 6 Appendix 5B Preliminary Summary of Non-Significant effects**.

Non-designated assets within the 1 km Section 6 Study Area

- 5.7.17 Four non-designated built heritage assets have been identified within the 1 km Section 6 Study Area that may experience significant effects as a result of the Project.
- 5.7.18 Sunset Cottage (King's Hall) (MLI123186) is located just outside the draft Order Limits, approximately 700 m north west of the scheduled monument King's Hall moated site (NHLE 1017217). The draft Order Limits extend around the property along Hog's Gate to the east, Hall Gate to the west, the field to the immediate north of the property as well as partially to the south. The building is shown on the 1887 OS Map contained within its existing boundary with other buildings, possibly a row of former farm outbuildings, located in the field to the north, with their former footprint located within the draft Order Limits. These buildings are named 'King's Hall' on the historic maps, with the farmhouse now known as Sunset Cottage being the only surviving building. The building's immediate setting therefore includes its historic relationship with the field to the immediate north towards which there are unrestricted views from the property. The principal fenestration of the building faces westwards with partial screening provided by trees along Hall Gate, although intervisibility with

the wider landscape across fields would alter seasonally. Hall Gate Farm to the south east was built between 1936 and 1952 introducing large modern farm buildings into the landscape which are largely screened from Sunset Cottage which has limited views towards them. The land within the draft Order Limits forms part of the wider agricultural setting of Sunset Cottage, including the field to its immediate north. Construction for the Project is proposed in close proximity to the building which includes a variety of works which may generate noise, traffic and dust impacts. These would temporarily cause a comprehensive change to the setting of the building which would have a large magnitude of impact which, on a building of low value, would result in a moderate adverse effect that is significant. The introduction of proposed pylons into the landscape to the north west (SW16) and the north east (SW17), either side of the non-designated heritage asset, introduces new infrastructure into views and the setting of the property from the time of construction continuing throughout the operational duration of the Project. The proposed pylons would diminish the setting having a slight impact on how the asset is appreciated. The permanency of the infrastructure in the landscape would have a small magnitude of impact on an asset of low heritage value, resulting in a permanent negligible adverse effect, which is not significant.

- 5.7.19 New England Farm (MLI116358) is a non-designated 19th century farmstead, situated in an isolated location along Delgate Bank, approximately 5 m to the east of the Section 6 draft Order Limits, with the nearest pylon, SW10, proposed about 210 m to the south-west of the farmhouse. Farm buildings (MLI116357) which comprised the former farmstead (MLI124931) complex have been converted and modernised. The principal elevation of the farmhouse is to the west with views across the surrounding fields which contribute to its agricultural setting and heritage value. The setting includes the land within the draft Order Limits, With the proposed pylon SW9 located approximately 340 m directly west of the farm. Construction activities would result in a temporary setting change with stringing for the pylons proposed approximately 120 m to the south west which may be visible from the property. The increases in noise, traffic and dust associated with the nearby construction activities of the Project, as well as the intervisibility with the works, would result in a temporary comprehensive change to the setting and the ability to appreciate and experience it. This would have a large magnitude of impact, on a low value asset, resulting in a moderate adverse effect, which is significant. The addition of the modern infrastructure, from the proposed pylons (SW8 – SW10) and overhead line, to the south and west of the farm would diminish the agricultural setting of the building. This would have a small magnitude of impact slightly impacting on the asset's heritage value affecting the ability to appreciate it. The small magnitude of impact on an asset of low heritage value, would result in a negligible adverse effect, which is not significant.
- 5.7.20 An unnamed farmstead (MLI123272) is located approximately 45 m to the north of the Section 6 draft Order Limits along Hurdletree Bank. The principal elevation of the building faces south and there are views across the agricultural fields which forms part of the setting of the farmhouse. The draft Order limits, and pylons SW23 and SW24 (approximately 280 m south west and 170 m south east) would be visible within views from the property although these are partially screened by hedgerow and vegetation in the garden of the building. There would be a temporary setting change from increased noise and traffic during the construction activities given the close proximity to the heritage asset, including a stringing position to the south west. This would have a large magnitude of impact on an asset of low heritage value, resulting in a moderate adverse effect, which is significant. As part of proposed

mitigation, vegetation screening will be introduced along the south side of Hurdletree Bank. However, given the proximity of the proposed pylons and overhead line in the flat agricultural landscape, it is likely that the infrastructure would still be visible in the views to the south. As such, the addition of the Project in these fields would diminish the agricultural setting of the building by the addition of modern infrastructure into the setting of the asset which would have a slight effect on how the asset is understood and appreciated. The permanency of the infrastructure in the landscape would have a small magnitude of impact on an asset of low heritage value, resulting in a permanent negligible effect which is not significant.

- 5.7.21 The Cottage (MLI123269) is located approximately 25 m to the west of the Section 6 draft Order limits. The Cottage is a non-designated 19th century farmstead with the buildings now converted as a residential property, with a two storey farmhouse and single storey outbuildings. Windows in the property face south and north, with views to the north partially screened by the outbuildings. Proposed construction works would be undertaken in close proximity to the asset, including a bellmouth and the construction route within the draft Order Limits, to the north of the building. This would result in temporary impacts including noise, traffic and dust as well as possible intervisibility with the works. This would result in a comprehensive change to the setting of the asset during the construction activities which would have a large magnitude of impact on an asset of low heritage value, resulting in temporary moderate adverse effect, which is significant. The presence of proposed pylons SW24 and SW25 approximately 340 m to the north west and 310 m north east of the farm would partially diminish the agricultural setting of the farmhouse. The permanency of the infrastructure in the landscape would have a small magnitude of impact slightly altering setting and ability to appreciate it. For an asset of low heritage value, this would result in a permanent negligible adverse effect which is not significant.

Operation

- 5.7.22 Impacts during the operation of the Project that may affect heritage assets would be limited to any restrictions on accessibility to heritage assets.
- 5.7.23 In accordance with the PINS Scoping Response (Ref 5); 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.
- 5.7.24 Although no additional 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.

Likely Non-Significant Effects

Construction

Designated Heritage Assets

- 5.7.25 A number of designated heritage assets, which may experience non-significant effects, have been identified as 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, as set out below. **Table 5.5** then 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 **PEI Report Volume 3 Part B Section 6 Appendix 5B Preliminary Summary of Non-Significant effects**.

Listed Buildings or Structures within the 3 km Section 6 Study Area

- 5.7.26 Broadgate House Farmhouse (NHLE 1308515) is a grade II listed building located approximately 400 m east of the draft Order Limits to the south west of Weston. The house dates to the early 18th century with later modifications, comprising three storeys with its principal elevation facing eastwards onto Broad Gate. To the rear is a long single storey range also dating to the early 18th century. The building and other outbuildings, depicted on the 1838 tithe map, were owned by Sir John Trollope Baronet, with a number of other field apportionments also under his ownership to the west at least as far as the Wheat Mere Drain and the parish boundary. The immediate setting of the farmhouse consists of the associated farm complex and wider surrounding agricultural land with which it has a historical relationship, with woodland to its immediate north which may afford partial screening of views to the north west. While the principal fenestration is to the east, proposed pylons SW4-SW6 are situated within the agricultural fields to the west of the farm, which form part of its historic setting contributing to the property's value. There would be temporary setting changes to the listed building during construction due to increased noise, plant movement and vehicle access. Although intervisibility to and from the property from the fields to the west may be limited with partial views, the construction works would have a small magnitude of impact on the building's heritage value temporarily altering the way in which it is experienced and appreciated. This would have a temporary minor adverse effect on an asset of medium value which is not significant. The permanency of the infrastructure in the landscape from its construction and throughout the operational duration of the Project changes the historic setting of the agricultural landscape to the west of the property with the introduction of new infrastructure into the landscape. Whilst this results in a change to the wider setting of the heritage asset, it would only slightly affect the ability to understand and experience the asset with its principal outlook to the east across open fields maintained. This change would have a small magnitude of impact on the building's heritage value altering the way in which it is experienced and appreciated. This would have a permanent minor adverse effect on an asset of medium value which is not significant.
- 5.7.27 Moulton Conservation Area is located approximately 2.2 km east of the draft Order Limits (SW4) and approximately 1.8 km north of the Project (SW15-SW16) at the north eastern end of Section 6 within the 3 km Study Area. The conservation area includes 16 grade II listed buildings as well as two grade I listed buildings, the Church of All Saints (NHLE 1147325) and Moulton Windmill (NHLE 1308557). The historic settlement of the village was recorded in the Domesday Survey of 1086, indicating an earlier Saxon settlement in the location existed. The Church of All Saints (NHLE 1147325) is the only surviving medieval building in the conservation area, located east of the High Street and surrounded by urbanisation. The value of the church is derived from its architectural interest and its historic relationship with the village, located within the old historic core of the settlement. The spire of the church is visible on roads into the village from the south and south west, and across the wider agricultural landscape, with possible glimpses from the Project of the church spire. Moulton Windmill (NHLE 1308557) is located to the south east of the church at the

southern edge of Moulton Conservation Area, approximately 1.8 km north of the draft Order Limits. Urban development outside of the conservation area along with mature vegetation to the south and west screens views of the Project from and towards the conservation area, with the wider agricultural area forming part of the setting of the conservation area contributing to its character. Any views would be limited with no alteration or change to its overall character or affecting the value of the grade II listed assets within it. There are not anticipated to be any impacts from temporary construction works or the permanency of the infrastructure in the landscape to Moulton Conservation Area or the grade II listed assets within it resulting in no change to their setting or heritage value which, on assets of medium value, results in a neutral effect which is not significant. Temporary construction works and the introduction of new infrastructure in the landscape within the wider setting of the grade I listed Church of All Saints (NHLE 1147325) would constitute a negligible impact having little effect on an asset of high value with no real change in how it is understood or appreciated. This would result in negligible adverse effects, which are not significant. In respect of the grade I listed Moulton Windmill (NHLE 1308557), the assessment for this asset is set out separately under Likely Significant Effects.

- 5.7.28 Clifden House Farmhouse (NHLE 1147289) is a grade II listed building south of Moulton located approximately 810 m north of the draft Order Limits, at the junction of Hall Gate and Bakestraw Gate. The house dates to 1800 consisting of two storeys of red brick, with a 19th century extension to the rear. Other buildings as part of the complex, which have since been redeveloped, are recorded as non-designated heritage assets dated as a 19th century farmstead including a small, enclosed barn (MLI125351), the main barn (MLI125350) and a series of open-fronted outbuildings (MLI125349). The setting of the group of heritage assets includes their proximity to each other and their historic relationship, contributing to their group value. The wider setting and views to the south west has been diminished by later 20th century development. The land to the south towards the Project is also partially screened by mature deciduous trees at the boundary of the house's grounds, although there may be partial seasonal views during the winter months. The surrounding landscape is flat and views could extend to the Project with visibility of proposed pylons SW23-SW26. Temporary construction work and the permanency of the infrastructure in the landscape would have a negligible impact on the listed building with little effect on its value and no real change in the ability to understand or appreciate the asset. This would result in negligible adverse effects on an asset of medium heritage value, which is not significant.
- 5.7.29 Austendike Hall (NHLE 1359267) is a grade II listed building situated in a rural position approximately 5 km east of Spalding. It is located approximately 500 m south of the proposed pylons SW14 – SW16 and the draft Order Limits. The house is a Georgian building dating to the mid- 18th century with later additions, built of red brick over three storeys. The principal elevation of the building faces southwards onto the Austendike Road with the garden extending to the rear. To the east of the house is a 19th century farmstead which is recorded as a non-designated asset (MLI124941) with various farm buildings (cart shed (MLI116294), stables (MLI116292) cattle shelter (MLI116293) and threshing barn (MLI116291)) which have been converted for modern use. The listed property and farm complex is bounded to the west, north and east by mature trees which screens views to the north which may be seasonally dependent. Views from Clapton Gate to the north of the hall, which partially falls within the draft Order Limits, will also be seasonally dependent. The immediate setting of the Hall includes its position along the road and the collection of former farm outbuildings which collectively have a group value contributing to the heritage

value of the Hall. The land within the draft Order Limits forms part of the wider agricultural setting of the listed asset and non-designated farmstead. The proximity of the construction activities within the proposed alignment to the north may result in temporary impacts, such as noise, dust and traffic, which could alter the setting slightly changing the ability to experience and appreciate the asset. The temporary construction activities and the introduction of new pylons into the setting of these assets would have a negligible impact, with little effect on the value of the assets with no real change in how they are understood or appreciated. This would result in minor negligible adverse effects that are not significant, on both the listed property of medium value and the non-designated assets of low value.

- 5.7.30 Westgate House (NHLE 1359256) is a grade II listed building in a rural location along Little Lane to the south of the village of Whaplode. It is situated approximately 500 m from the main works for the Project to the south. The property dates to the mid-18th century and is built of red brick over two storeys with its principal fenestration westward facing over the garden. It is accessed directly off the lane to its north with farm outbuildings located to its south. Its immediate setting includes the farm buildings and surrounding garden with its wider agricultural setting extending to the land within the draft Order Limits and Sparkes Lane. However, its setting has been partially diminished with development to its east along Little Lane. The property is screened from the south with any intervisibility with the Project being limited. Construction activities for the Project, including noise and traffic and stringing works around pylon SW19, are anticipated to have a small impact upon its setting temporarily altering its heritage value and slightly changing how the asset is appreciated and experienced. This would have a temporary minor adverse effect that is not significant. Introduction of pylons SW17 – SW19 into the skyline within its historical setting would have a negligible impact that would have little effect on the ability to appreciate or understand the asset, resulting in a permanent negligible adverse effect which would not be significant.
- 5.7.31 Guanock House (NHLE 1204812) is a grade II listed building located approximately 760 m south west of the draft Order Limits to the north east of Sutton St Edmund. The house incorporates a plaque on its front elevation inscribed with the date of 1699 and is built of red brick with a concrete pantile roof. It has two storeys in an L-shaped plan, set in surrounding grounds with mature trees and landscaped gardens to the east, with outbuildings to the north east which formed an earlier U-plan farm courtyard with the former main access to the property gained from the east, as depicted on the 1887 OS Map, which is still faintly visible on aerial images on the adjoining field. The main outlook from the house is over the landscaped garden to the east and the fields beyond with some limited views across fields to the north. The property sits within a non-designated heritage asset recorded as Guanock House Medieval Monastic Grange (MLI20505), which includes now levelled earthworks and possible rectangular moat. The setting of the assets is derived from their historic relationship to each other between the house and the medieval monastic grange with moat, as well as the later farm development and gardens. The wider historic monastic setting associated with Guanock House (NHLE 1204812 and MLI20505) may extend to land within the draft Order Limits, comprising the agricultural landscape and setting, which makes a minimal contribution to the value of the assets. Possible views towards the Project which may include intervisibility with pylons SW47-SW49 would be limited and incidental. Overall, impacts from temporary construction works and the permanency of the infrastructure in the landscape during the operational duration of the Project would have a negligible magnitude of impact

with negligible effects on both assets, of medium and low value respectively, which are not significant.

- 5.7.32 The grade II* listed Church of St James (NHLE 1125956) in the village of Newton in the Isle is located approximately 800 m south of the proposed pylons SW67 - SW69. The church dates to the 13th century and has a low pitch roof with squat west tower. The setting of the church comprises the surrounding churchyard which extends to the south and its position along Church Lane from which it is clearly visible. To the north and west, views of the church are screened by mature vegetation and other properties in the village. The church tower may be visible above the tree line to the north of the village, the views to the north towards the Project would be mostly screened by mature trees, albeit with possible glimpsed views of pylons SW67 - SW69 that would be seasonally dependent. The temporary construction works may cause a temporary change to the setting of the church, from noise and traffic, but would have little effect on how it is appreciated and experienced. This would have a negligible magnitude of impact which, on an asset of high value, would result in a temporary minor adverse effect, which is not significant. The introduction of the pylons into the landscape from construction and throughout the operational duration of the Project would have little effect on the setting of the church, causing no real change in how it is understood or appreciated. This would result in a permanent minor adverse effect that would not be significant.

High Value Designated Heritage Assets within the 3-5 km Section 6 Study Area

- 5.7.33 The scheduled monument Ancient sea defence called Roman Bank, stretching for 600 yds (550 m) NW of Little Dowgate, Wisbech (NHLE 1006887) is located approximately 3.8 km south of the draft Order Limits at the southern end of Section 6. This high value asset is comprised of an earthen bank built upon a wooden-lined culvert which extends along between Leverington and Wisbech, with a non-designated continuation of the bank (MCB16155) extending northwards into the draft Order Limits. Whilst the monument has been erroneously dated to the Roman period, recent investigations have dated it to the medieval period. The setting of the monument is the landscape surrounding the River Nene to the east of the monument, the nearby medieval agricultural landscape and the settlements of Wisbech and Leverington which it is located between. There is heavy screening to the east of the monument from a tree line and to the north from urban development of the settlement of Leverington. Due to the 3.8 km distance from the monument, the draft Order Limits do not form part of the setting of the monument and makes no contribution to its value. As a result, the monument will experience no change arising from the construction of the Project which would have a neutral effect which is not significant.
- 5.7.34 Two further scheduled monuments are located within the 3 – 5 km Section 6 Study Area at Wisbech, the Cherry Tree Hill round barrow scheduled monument (NHLE 1006781) and the Rabbit Hill round barrow scheduled monument (NHLE 1006780). Both monuments are of high value, but neither will experience significant effects. The preliminary assessments for these scheduled monuments are provided in **Table 5.5** with further detail on specific assets reported in **PEI Report Volume 3 Part B Section 6 Appendix 5B Preliminary Summary of Non-Significant effects**.
- 5.7.35 There are seven grade I or grade II* listed buildings located within the 3-5 km Section 6 Study Area. These high value heritage assets will not experience significant effects from the Project. The preliminary assessments for these assets are provided in **Table 5.5** with further detail on specific assets reported in **PEI Report Volume 3 Part B Section 6 Appendix 5B Preliminary Summary of Non-Significant effects**.

Non-designated Assets

Non-designated Assets within the draft Order Limits and 1 km Section 6 Study Area

- 5.7.36 The preliminary assessment has identified non-designated heritage assets within the draft Order Limits and the 1 km Section 6 Study Area that have the potential to experience temporary or permanent non-significant effects. A number of these assets have been identified setting out further explanation of their assessment due to particular sensitivities, such as their historic setting or their proximity to works proposed within the draft Order Limits. The preliminary assessment for these non-designated assets is provided in **Table 5.5** with further detail on specific assets reported in **PEI Report Volume 3 Part B Section 6 Appendix 5B Preliminary Summary of Non-Significant effects**.
- 5.7.37 It should be noted that findspots recorded by the HERs and some buried archaeological remains within the 1 km Section 6 Study Area that will not be impacted by the project have not been included in the preliminary summary assessments presented at Table 5.5.
- 5.7.38 Towards the centre of Section 6, the Project crosses an extensive archaeological landscape, which extends across Whaplode Fen and Holbeach between the villages of Whaplode St Catherine, Holbeach St James and Sutton St James, between pylons SW28 and SW47. Within this area eleven individual archaeological assets have been identified wholly or partially within the draft Order Limits. Limited archaeological investigation has previously been undertaken in the area and therefore further non-intrusive surveys and archaeological evaluation is required to confirm the extent, date and significance of the archaeological remains at each site.
- 5.7.39 Of the eleven archaeological assets identified within the draft Order Limits between pylons SW28 and SW47, the preliminary assessment has identified three assets discussed below (MLI20382, MLI22252 and MLI22253) that have potential to experience a significant effect arising from the construction of the Project, prior to additional archaeological mitigation measures. The remaining eight archaeological assets will be impacted by construction of the Project but are not considered likely to experience significant effects. The assessment of these non-significant effects can be found in **Table 5.5**, with further detail on specific assets reported in **PEI Report Volume 3 Part B Section 6 Appendix 5B Preliminary Summary of Non-Significant effects**.
- 5.7.40 The non-designated archaeological asset, Romano-British Settlement at Whaplode St Catherine (MLI20382) extends across the draft Order Limits. It comprises the remains of a small settlement evidenced by enclosures, ditches and associated fields identified as cropmarks on aerial photography. The form and layout of the cropmarks suggest that the asset is of Romano-British date, and it has been assessed as being of medium value with potential to contribute to regional research objectives. Topsoil stripping and ground works for the installation of the 20 m wide construction access haul road, drainage and working area of pylon SW26 would result in the partial loss or disturbance of this asset, a medium magnitude of impact, resulting in a permanent moderate adverse effect. This would be significant prior to the implementation of additional mitigation measures. Additional mitigation comprising a programme of archaeological investigation and recording, would reduce this to a permanent minor adverse effect, which would not be significant.
- 5.7.41 The Romano-British fields at Joy Bank (MLI22252) is an asset of medium value with potential to contribute to regional research objectives. The asset comprises the

cropmark evidence for the buried archaeological remains of four sub-rectangular ditched field enclosures which extend across the draft Order Limits. Topsoil stripping and groundworks associated with installation of the construction access haul road, drainage and working area of pylon SW38 has the potential to remove or disturb a part of this asset, a medium magnitude of impact, resulting in a permanent moderate adverse effect. This would be significant prior to the implementation of additional mitigation measures. Additional mitigation comprising a programme of archaeological investigation and recording, would reduce this to a permanent minor adverse effect, which would not be significant.

- 5.7.42 A Romano-British Settlement, at Fleet (MLI22253) is an asset of medium value having potential to contribute to regional research objectives. The asset has been recorded extending within the draft Order Limits. Aerial photography has identified a substantial settlement that includes a series of rectangular ditched enclosures, with 2nd century Roman pottery recovered during fieldwalking in this area. These assets are situated within an area of dense Roman activity, with further cropmarks (MLI22249, MLI20449, MLI22252) extending within the draft Order Limits, and within the wider 1 km Section 6 Study Area (MLI20446, MLI22247) located in close proximity to these assets. Topsoil stripping and groundworks associated with construction of the working area of pylon SW40, and associated drainage basin, would have the potential to remove or disturb part of this asset resulting in a permanent moderate adverse effect, which would be significant prior to the implementation of additional mitigation measures. Additional mitigation comprising a programme of archaeological investigation and recording, would reduce this to a permanent minor adverse effect, which would not be significant.
- 5.7.43 At the southern end of Section 6 a small Middle Saxon settlement site (MNF18943) lies within the draft Order Limits to the east of Ingleborough. The asset comprises a series of substantial Middle Saxon, Late Saxon ditches and medieval ditches located along a roddon and from which domestic rubbish was recovered. The asset is assessed as being of medium value with potential to contribute to regional research objectives. Topsoil stripping and groundworks for the installation of the construction access haul road and working area of pylon SW78 would remove or disturb part of this asset which, although previously investigated, has potential for further early medieval remains to survive. This is assessed as being a medium magnitude of impact on an asset of medium value and would result in a permanent moderate adverse effect, which would be significant prior to the implementation of additional mitigation measures. Additional mitigation comprising a programme of archaeological investigation and recording, would reduce this to a permanent minor adverse effect, which would not be significant.
- 5.7.44 The early medieval/medieval Sea Bank (MNF2187) is a non-designated heritage asset of medium value comprising an earthen bank which extends across the draft Order Limits at Ingleborough, at the southern end of Section 6. The remains of the Sea Bank follow the existing Mill Road as it passes through the draft Order Limits; however, topsoil stripping and groundworks associated with installation of bell mouths and road crossing for the construction access haul road have the potential to truncate or disturb a small section of any surviving earthwork remains. This small magnitude of impact would result in a permanent minor adverse effect, which would not be significant prior to the implementation of additional mitigation measures. Additional mitigation comprising a programme of archaeological investigation and recording, would reduce this to a permanent negligible adverse effect, which would not be significant.

- 5.7.45 Gate Farm (MLI122750) is a non-designated heritage asset situated along Swindler's Drove to the south of the A151 road, approximately 157 m west of the draft Order Limits. The asset is a recorded 19th century farmstead which has been redeveloped with the site including a bungalow, large garage/warehouse and the former farmhouse used as commercial premises. The site has open views which would potentially include the proposed pylons SW3 – SW5 which would be within the asset's wider setting. Construction works with a stringing position to the north east, a bellmouth and the construction access haul road within the draft Order Limits may have temporary impacts which would temporarily alter the setting of the asset, due to noise, traffic and mechanical plant. However, given the redevelopment of the asset which has substantially reduced its heritage value to one that is based upon its historical interest only, the temporary construction activities and the permanency of the new pylons and overhead line in the landscape are assessed as a negligible magnitude of impact with little effect on its value. This would result in a negligible adverse effect that is not significant.
- 5.7.46 Irby Hall Moat (MLI22189) is a non-designated heritage asset of low value and is located approximately 570 m east of the draft Order Limits. The asset comprises a former moated manorial site with a 16th century manor house located at the centre of a raised platform. The Hall has been modernised with reproduction Tudor chimneys, although it may retain its 16th century core. An infilled moat encircles the property but is no longer extant or visible from the surface. Buried archaeological assets may survive within the moated site including infilled ponds and structural remains of ancillary buildings related to the manor house. The setting of the heritage asset includes the historic relationship between the fabric of the original hall incorporated within the later modernised building and its location within the former moat. A 19th century farmhouse, Irby Hall (MLI23256), is located to the immediate north and forms part of the setting. There is heavy screening to the south from existing mature trees with no intervisibility with the Project. The historic manorial setting of Irby Hall Moat may extend to land within the draft Order Limits but this would be limited, if any, contribution to the value of the asset. Construction of the Project may temporarily alter the setting of the assets through construction traffic and noise which would have a negligible magnitude of impact, resulting in a temporary negligible adverse effect that is not significant. Permanent changes to the setting of these heritage assets, arising from the presence of new pylons and overhead line infrastructure in the landscape, is assessed as a negligible magnitude of impact, which on assets of low value, results in a permanent negligible adverse effect that is not significant.
- 5.7.47 Crossways (MLI123270) is located approximately 80 m to the north of the Section 6 draft Order limits. The house consists of the remains of a 19th century farmstead, which has had a partial loss of the original buildings. The land within the Order limits forms part of the wider agricultural setting of the farm. The principal fenestration of the house is to the west, although the Project would mostly be screened from the house by mature deciduous trees at the edge of the property to the south and west. There may be glimpsed views of the Project to the west during the winter months as well as views to the south from upper stories above the hedges. The property may experience temporary setting change from increased noise and traffic during construction from its proximity to the Order limits to the south, with stringing positions to the south east and south west of the farm. These changes would have a small magnitude of impact on the asset of low heritage value, resulting in a temporary negligible adverse effect which is not significant. Views of the Project to the west may include proposed pylons SW22 and SW23, approximately 770 m north west and 660 m south west from the house, although these views would be limited by the distance

and would be partially screened by intervening trees. Intervisibility of the proposed pylon SW25, approximately 150 m directly south of the asset, may be seasonally dependent. The permanency of the infrastructure within the landscape would have a negligible magnitude of impact on an asset of low heritage value, resulting in a permanent negligible effect, which is not significant.

- 5.7.48 Rookery Farm (MLI123612) is located approximately 105 m to the east of the Section 6 draft Order Limits in Gedney Hill. The farm consists of a detached, 19th century, two-storey farmhouse with a series of large modern sheds to the west and directly behind it. The wider setting of the farm consists of the surrounding agricultural fields, which includes the land within the draft Order Limits. The setting of the farm has been substantially diminished by the loss of original buildings and the addition of multiple modern sheds. The principal elevation of the farmhouse faces south across Joy's Bank to the south-east, with uninterrupted views across the surrounding fields. The addition of proposed pylons SW38 - SW40 and overhead line would be visible within this view, approximately 300 m and 800 m to the south of the farmhouse. There would be a temporary setting change during construction due to increased noise and traffic from construction activities including a stringing position to the south west. This would have a medium magnitude of impact on an asset of low heritage value, resulting in a temporary minor adverse effect, which is not significant. The addition of the new infrastructure into the landscape would diminish the wider agricultural setting of the asset. This would have a negligible magnitude of impact on an asset of low value, resulting in a permanent negligible adverse effect, which is not significant.
- 5.7.49 Barling Deer Farm (MLI124042) is a 19th century farmstead located on Bardlings Drove, approximately 70 m south west of the draft Order limits. The surviving historic buildings of the farm comprise a U-plan single storey brick building with timber cladding. The building faces into the courtyard to the south east, and the proposed alignment of the Project would be to the asset's north east and south east. The proposed pylons SW45-SW46 would be within the agricultural landscape setting of the asset. Proposed pylon SW45 would be approximately 300 m south east of the farm, while proposed pylon SW46 would be approximately 590 m from the asset. There is hedging to the south east of the farm, however, the pylons may be visible above these in the skyline. Construction activities, including noise, mechanical plant and traffic, would temporarily alter the setting which would have a slight effect on its value altering the ability to appreciate the asset. This would have a small magnitude of impact resulting in a temporary negligible adverse effect, which is not significant. The permanency of the infrastructure in the landscape would have little effect on the value of the asset with no real change in the ability to appreciate the asset. This would have a negligible magnitude of impact on an asset of low heritage value, resulting in a permanent negligible adverse effect, which is not significant.

Operation

- 5.7.50 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 5.5 Preliminary summary of non-significant Historic Environment effects – Section 6

Heritage Asset	Value of the Asset	Potential Impact	Range of Impact Magnitude	Significance of Effect			Rationale
				Minor Adverse (Not significant)	Negligible Adverse (Not significant)	Neutral (Not Significant)	
Designated Assets within the 3 km Study Area							
Scheduled Monuments	High	Potential temporary change to setting or value of the assets arising from construction of the Project.	No Change	0	0	6	The Project would not form part of the setting of these assets and would not alter their value or the way in which they are appreciated or understood. This would result in a neutral effect that is not significant.
	High	Potential permanent change to setting or value of the assets arising from construction of the Project and throughout its operational duration.	No Change	0	0	6	The Project would not form part of the setting of these assets and would not alter their value or the way in which they are appreciated or understood. This would result in a neutral effect that is not significant.
Grade I listed buildings	High	Potential temporary change to setting or value of the assets arising from construction of the Project.	No Change or Negligible	1	0	9	Temporary changes to the setting of grade I listed buildings arising from construction of the project would have either little change upon, or result in no change to, the value of these assets or how they are appreciated, resulting in minor adverse or neutral effects

Heritage Asset	Value of the Asset	Potential Impact	Range of Impact Magnitude	Significance of Effect			Rationale
				Minor Adverse (Not significant)	Negligible Adverse (Not significant)	Neutral (Not Significant)	
							on these assets of high value. This would result in minor adverse or neutral effects that would not be significant.
	High	Potential permanent change to setting or value of the assets arising from construction of the Project and throughout its operational duration.	No Change or Negligible	1	0	9	The permanency of the infrastructure in the landscape within the wider setting of the grade I listed buildings would have either little change upon, or result in no change to, the value of these assets or how they are appreciated, resulting in a minor adverse or neutral effect on these assets of high value. The minor adverse or neutral effects would not be significant.
Grade II* listed buildings	High	Potential temporary change to setting or value of the assets arising from construction of the Project.	No Change or Negligible	1	0	25	Temporary changes to the setting of grade II* listed buildings arising from construction of the project would have either little change upon, or result in no change to, the value of these assets or how they are appreciated, resulting in minor adverse or neutral effects on these assets of high value. This would result in minor

Heritage Asset	Value of the Asset	Potential Impact	Range of Impact Magnitude	Significance of Effect			Rationale
				Minor Adverse (Not significant)	Negligible Adverse (Not significant)	Neutral (Not Significant)	
							adverse or neutral effects that would not be significant.
	High	Potential permanent change to setting or value of the assets arising from construction of the Project and throughout its operational duration.	No Change or Negligible	1	0	25	The permanency of the infrastructure in the landscape within the wider setting of the grade II* listed buildings would have either have little change upon, or result in no change to, the value of these assets or how they are appreciated, resulting in a minor adverse or neutral effect on these assets of high value. The minor adverse or neutral effects would not be significant.
Conservation Areas	Medium	Potential temporary change to setting or value of the assets arising from construction of the Project.	No Change	0	0	4	The Project would not form part of the setting of these conservation areas and would not alter their value or the way in which they are appreciated or understood. This would result in a neutral effect that would not be significant.
	Medium	Potential permanent change to setting or value of the assets arising from construction of the Project and	No Change	0	0	4	The Project would not form part of the setting of these conservation areas and would not alter their value or the way in which they are appreciated or understood. This

Heritage Asset	Value of the Asset	Potential Impact	Range of Impact Magnitude	Significance of Effect			Rationale
				Minor Adverse (Not significant)	Negligible Adverse (Not significant)	Neutral (Not Significant)	
		throughout its operational duration.					would result in a neutral effect that would not be significant.
Grade II listed buildings	Medium	Potential temporary change to setting or value of the assets arising from construction of the Project.	No Change, Negligible; or Small	3	5	169	Temporary changes to the setting of grade II listed buildings arising from construction of the project would have either slight or little change upon, or to result in no change to, the value of these assets or how they are appreciated. This would result in minor adverse, negligible adverse or neutral effects to these assets of medium value. These effects would not be significant.
	Medium	Potential permanent change to setting or value of the assets arising from construction of the Project and throughout its operational duration.	No Change, Negligible; or Small	2	6	169	The permanency of the infrastructure in the landscape within the wider setting of these grade II listed buildings would have either slight or little change upon, or to result in no change to, the value of these assets or how they are appreciated, resulting in a minor adverse, negligible adverse and neutral effect to these assets of medium value. These effects would not be significant.

Heritage Asset	Value of the Asset	Potential Impact	Range of Impact Magnitude	Significance of Effect			Rationale
				Minor Adverse (Not significant)	Negligible Adverse (Not significant)	Neutral (Not Significant)	
High Value Designated Assets within the 3-5 km Study Area							
Scheduled Monuments	High	Potential temporary change to setting or value of the assets arising from construction of the Project.	No Change	0	0	3	The Project would not form part of the setting of these conservation areas and would not alter their value or the way in which they are appreciated or understood. This would result in a neutral effect that would not be significant.
	High	Potential permanent change to setting or value of the assets arising from construction of the Project and throughout its operational duration.	No Change	0	0	3	The Project does not form part of the setting of these conservation areas and would not alter their value or the way in which they are appreciated or understood. This would result in a neutral effect that would not be significant.
Grade I listed buildings	High	Potential temporary change to setting or value of the assets arising from construction of the Project.	No Change	0	0	4	The Project would not form part of the setting of these grade I listed buildings and would not alter their value or the way in which they are appreciated or understood. This would result in a neutral effect that would not be significant.
	High	Potential permanent change to setting or value of the assets arising from	No Change	0	0	4	The Project would not form part of the setting of these grade I listed buildings and would not alter their value or the way in which they are

Heritage Asset	Value of the Asset	Potential Impact	Range of Impact Magnitude	Significance of Effect			Rationale
				Minor Adverse (Not significant)	Negligible Adverse (Not significant)	Neutral (Not Significant)	
		construction of the Project and throughout its operational duration.					appreciated or understood. This would result in a neutral effect that would not be significant.
Grade II* listed buildings	High	Potential temporary change to setting or value of the assets arising from construction of the Project.	No Change	0	0	2	The Project would not form part of the setting of these grade II* listed buildings and would not alter their value or the way in which they are appreciated or understood. This would result in a neutral effect that would not be significant.
	High	Potential permanent change to setting or value of the assets arising from construction of the Project and throughout its operational duration.	No Change	0	0	2	The Project would not form part of the setting of these grade II* listed buildings and would not alter their value or the way in which they are appreciated or understood. This would result in a neutral effect that would not be significant.
Non-designated heritage assets within the draft Order Limits							
Non-designated heritage assets	Medium or Low	Permanent physical construction impacts resulting in the partial loss or disturbance of the asset.	No Change; Negligible Small; or Medium,	4	17	8	The partial loss or disturbance of non-designated heritage assets of medium or low value, resulting in effects that are not significant. Archaeological mitigation measures i.e. appropriate

Heritage Asset	Value of the Asset	Potential Impact	Range of Impact Magnitude	Significance of Effect			Rationale
				Minor Adverse (Not significant)	Negligible Adverse (Not significant)	Neutral (Not Significant)	
							archaeological investigation and recording would further off-set or reduce the scale of the effects such that they are not significant.
	Medium or Low	Potential temporary change to setting or value of the assets arising from construction of the Project.	No Change; Negligible, Small; or Medium,	1	10	76	Temporary changes to the setting of the non-designated heritage assets arising from construction of the Project would have either noticeable, slight or little change upon, or result in no change to, the value of these assets or how they are appreciated. This would result in minor adverse, negligible adverse, or neutral effects to these assets of medium and low value. These effects would not be significant.
	Medium or Low	Potential permanent change to setting or value of the assets arising from construction of the Project and throughout its operational duration.	No Change; Negligible, Small; or Medium.	0	16	76	The permanency of the infrastructure in the landscape within the wider setting of these non-designated heritage assets would have either slight or little change upon, or result in no change to, the value of these assets or how they are appreciated, resulting in a negligible adverse or neutral effect to these assets of medium

Heritage Asset	Value of the Asset	Potential Impact	Range of Impact Magnitude	Significance of Effect			Rationale
				Minor Adverse (Not significant)	Negligible Adverse (Not significant)	Neutral (Not Significant)	

or low value. The negligible adverse or neutral effects would not be significant.

Non-designated Heritage Assets within 1km Study Area

	Medium or Low	Potential temporary change to setting or value of the assets arising from construction of the Project.	No Change; Negligible; Small; or Medium.	1	16	80	Temporary changes to the setting of the non-designated heritage assets arising from construction of the Project have the potential to have noticeable, slight or little change, or to result in no change, to the value of these assets or how they are appreciated. This would result in minor adverse, negligible adverse, or neutral effects to these assets of medium and low value. These effects would not be significant.
	Medium or Low	Potential permanent change to setting or value of the assets arising from construction of the Project and throughout its operational duration.	No Change; Negligible; Small; or Medium.	0	17	80	The permanency of the infrastructure in the landscape within the wider setting of these non-designated heritage assets would have either slight or little change upon, or result in no change to, the value of these assets or how they are appreciated, resulting in a negligible adverse or neutral

Heritage Asset	Value of the Asset	Potential Impact	Range of Impact Magnitude	Significance of Effect			Rationale
				Minor Adverse (Not significant)	Negligible Adverse (Not significant)	Neutral (Not Significant)	
							effect to these assets of medium or low value. The negligible adverse or neutral effects would not be significant.

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 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] Fenland District Council (2014). The Fenland Local Plan. Adopted 2014. Available at: https://www.fenland.gov.uk/media/12064/Fenland-Local-Plan---Adopted-2014/pdf/Fenland_Local_Plan-Adopted_2014.pdf [Accessed January 2025].
- Ref 2 Fenland District Council (2014), Fenland Local Plan (Adopted May 2014). [online] Available at: https://www.fenland.gov.uk/media/12064/Fenland-Local-Plan-Adopted-2014/pdf/Fenland_Local_Plan-Adopted_2014.pdf. (Accessed 16 January 2025)
- Ref 3 Fenland District Council (2022), Fenland Local Plan 2021-2040 Draft Local Plan Consultation (August 2022). [online] Available at: https://www.fenland.gov.uk/media/18814/Draft-Local-Plan-August-2022/pdf/Draft_Local_Plan_for_Consultation_Aug_2022.pdf?m=1661177156537 [Accessed 16 January 2025].
- Ref 4 Borough Council of King's Lynn and West Norfolk (2025). King's Lynn and West Norfolk Local Plan 2021-2040 Adopted March 2025. [online] Available at: https://www.west-norfolk.gov.uk/info/20079/planning_policy_and_local_plan/1207/local_plan_2021-2040#:~:text=The%20current%20Local%20Plan%20was%20adopted%20in%20March,for%20the%20borough%20%28up%20to%2015%20years%20ahead%29. [Accessed 05 May 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 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 7 May 2024].
- Ref 8 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 9 Natural England (2024). National Character Area 46 The Fens. Available at: <https://nationalcharacterareas.co.uk/the-fens/description> [Accessed 12 December 2024].

- Ref 10 British Geological Survey geology viewer [online]. Available at: <https://www.bgs.ac.uk/map-viewers/bgs-geology-viewer/> [Accessed 12 December 2024].
- Ref 11 Hall, D, and Coles, J. (1994). Fenland Survey. An essay in landscape and persistence. English Heritage. Available at: https://archaeologydataservice.ac.uk/archiveDS/archiveDownload?t=arch-1416-1/dissemination/pdf/9781848021488_All.pdf [Accessed January 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 12 April 2024].

6. Water Environment and Flood Risk

Contents

6.	Water Environment and Flood Risk	6-1
6.1	Introduction	6-1
6.2	Legislation and Policy Framework	6-4
	Legislation and National Policy	6-4
	Regional and Local Policy	6-4
6.3	Scope of Assessment	6-6
	Aquatic Environment Receptors	6-8
	Water Resource Receptors	6-8
	Flood Risk Receptors	6-9
6.4	Assessment Methodology	6-9
	Assessment Assumptions and Limitations	6-10
6.5	Baseline Conditions	6-10
	Study Area	6-10
	Data Collection	6-10
	Existing Baseline	6-12
	Future Baseline	6-19
6.6	Design, Control and Additional Mitigation Measures	6-23
	Design Mitigation Measures	6-23
	Control Mitigation Measures	6-24
	Additional Mitigation Measures	6-28
6.7	Preliminary Assessment of Effects	6-28
	Infrastructure Overview	6-29
	Likely Significant Effects	6-29
	Likely Non-Significant Effects	6-31
6.8	Monitoring	6-42
Table 6.1	Supporting documentation	6-2
Table 6.2	Water Environment and Flood Risk effects and intra-project effects scoped in for further assessment	6-6
Table 6.3	Data sources used to inform baseline conditions	6-11
Table 6.4	Identified surface water receptors and associated value	6-15
Table 6.5	WFD water bodies in direct connectivity with Section 6	6-17
Table 6.6	Identified flood risk receptors and associated sensitivity	6-19
Table 6.7	Peak river flow climate change allowances (Ref 47)	6-20
Table 6.8	3.3 per cent Annual Exceedance Probability (AEP) peak rainfall climate change allowances (Ref 47)	6-21
Table 6.9	1 per cent AEP peak rainfall climate change allowances (Ref 47)	6-21
Table 6.10	Preliminary summary of non-significant Water Environment and Flood Risk effects – Section 6	6-32
	References	6-43

6. Water Environment and Flood Risk

6.1 Introduction

- 6.1.1 This chapter presents the Preliminary Environmental Information (PEI) in relation to the Water Environment and Flood Risk assessment of Refined Weston Marsh Substation Siting Zone to New Walpole B Substation Section (Section 6) of the Grimsby to Walpole Project (the Project). Specifically, 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 **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 **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 6 (section 6.4). A detailed description of the assessment methods and scope, applicable to the whole Project, is contained in **PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**;
 - v. A description of the environmental baseline within the Section 6 Study Area relevant to the Water Environment and Flood Risk assessment (section 6.5);
 - vi. A description of mitigation measures included for the purposes of the Water Environment and Flood Risk assessment reported within the PEI Report (section 6.6). Further information regarding design development can be found in **PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered** and the **Grimsby to Walpole Design Development Report**; and
 - vii. The likely significant and non-significant Water Environment and Flood Risk effects arising during construction and operation of the Project within the Section 6 Study Area based upon the assessment completed to date (section 6.7);
 - viii. An outline of the proposed monitoring requirements in relation to Water Environment and Flood Risk effects (section 6.8).
- 6.1.2 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
Topic Specific Supporting Documentation	
PEI Report Volume 2 Part B Section 6 Figures	<p>Figure 6.1 Water Environment Receptors and Study Area</p> <p>Figure 6.2 Principal Local Water Environment Regulators</p> <p>Figure 6.3 Surface Water Flood Risk</p> <p>Figure 6.4 Water Framework Directive Surface Water Body Status</p>
PEI Report Volume 3 Part C Appendix 5A Preliminary Flood Risk Assessment	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.
PEI Report Volume 3 Part C Appendix 5B Preliminary Water Framework Directive Screening Assessment	Preliminary assessment of the potential implications of the Project with respect to compliance with the Water Framework Directive (WFD). Provides further details on the WFD water body status and ecological and chemical characteristics for those waterbodies relevant to the Section 6 assessment.
Project Supporting Documentation	
PEI Report Volume 2 Part B Section 6 Chapter 1 Overview of the Section and Description of the Project	A summary of the works within Section 6, including permanent infrastructure, temporary construction works, and operational activities
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.
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 PEI Report and ES.
PEI Report Volume 3 Part A Appendix 2Ci Local Plan Policy: Section Specific	An outline of the potentially relevant local planning policy allocations affecting each of the specific sections of the Project.
PEI Report Volume 3 Part A Appendix 2Cii Local Plan Policy: Route-wide	Details of planning policies applicable route-wide within the relevant Local Authority areas.

PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered	Provides a summary of the main alternatives considered in relation to the Project during the design development process, including the main reasons for selecting the chosen option.
PEI Report Volume 2 Part A Chapter 4 Approach to Preliminary Environmental Information	Sets out the Environmental Impact Assessment (EIA) approach and general methodology that has been used in developing the PEI Report for the Project.
PEI Report Volume 2 Part A Chapter 5 Project Description	An overarching description of the Project and its key components, including available construction information.
PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice	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.

6.1.3 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 **PEI Report Volume 2 Part B** and **Part C**:

- i. **PEI Report Volume 2 Part B Section 6 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. **PEI Report Volume 2 Part B Section 6 Chapter 7 Geology and Hydrogeology** considers the effects identified by the surface water environment assessment that may affect hydrogeological receptors.
- iii. **PEI Report Volume 2 Part B Section 1 Chapter 13 Summary** provides a concise, consolidated summary of the likely significant effects reported for all topics, based upon the preliminary assessment.
- iv. **PEI Report Volume 2 Part C Route-wide Chapter 5 Water Environment** presents a summary of the route-wide preliminary impacts and likely significant effects of the Project upon the water environment.
- v. **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.

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 **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. Joint Lincolnshire Flood Risk and Water Management Strategy 2019-2050 (2019) (Ref 1);
 - ii. Lincolnshire Minerals and Waste Local Plan (2016) (Ref 2);
 - iii. Cambridgeshire and Peterborough Minerals and Waste Local Plan (2021) (Ref 3);
 - iv. South East Lincolnshire Local Plan 2011-2036 (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 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.
 - v. Fenland Local Plan (Adopted May 2014) (Ref 5):
 - Policy LP14 - Responding to Climate Change and Managing the Risk of Flooding in Fenland: includes requirements for development to adopt a

sequential approach with respect to flood risk from all forms of flooding. Development in areas known to be at risk of flooding will only be permitted where, amongst other requirements, a site specific FRA has been completed, demonstrating appropriate flood risk management measures.

- vi. Fenland Local Plan 2021 – 2040: Draft Local Plan Consultation (Ref 6)
 - Policy LP6 - Renewable and Low Carbon Energy Infrastructure: Proposals for renewable and low carbon energy schemes will be supported where their direct, indirect, individual or cumulative impacts on flood risk (amongst other factors) are, or will be made, acceptable.
 - Policy LP32 - Flood and Water Management: Development proposals should adopt a sequential approach to flood risk management, taking into account the requirements of the National Planning Policy Framework, and where located in flood risk areas, must be supported by a site-specific FRA.
- vii. King's Lynn and West Norfolk Local Plan 2021-2040 (Adopted March 2025) (Ref 7):
 - Policy LP21 - Environment, Design and Amenity: which states that development must conserve and enhance the amenity of the wider environment and identifies criteria against which proposals will be assessed, including impacts upon water quality and potential contamination.
 - Policy LP24 - Renewable Energy: proposals for renewable energy and associated infrastructure will be assessed to determine whether the benefits they bring are outweighed by impacts upon aspects of the environment including, ecological interests (species and habitats) and water courses (in terms of pollution).
 - Policy LP25 – Sites in Areas of Flood Risk: whilst specific to allocated sites, includes associated requirements for development proposals within areas of flood risk, including site specific FRA.
- viii. Norfolk Core Strategy and Minerals and Waste Development Management Policies Development Plan Document 2010-2026 (adopted 2011) (Ref 8);
- ix. Norfolk County Council Local Flood Risk Management Strategy Policy Review (2021) Ref 9):
 - Policy UC 3 – Flood Risk Asset Register: the Lead Local Flood Authority (LLFA) will identify and record structures that have a significant effect on an area of flood risk in an Asset Register. The LLFA will maintain a record of each structure or feature listed in the register, including its ownership, state of repair, which person or body is responsible for maintenance and/or operation.
 - Policy UC 9 – Designation of 3rd party structures or features: which states that the LLFA, the Environment Agency, Internal Drainage Boards (IDBs) or District Councils will 'designate' any structure or natural/manmade feature of the environment, where, in the opinion of the risk management authority, the protection of such asset would be beneficial in ensuring protection of land and property against flood or coastal erosion.
 - Policy OW3 – Consenting of works on Ordinary Watercourses: which states that the LLFA will normally approve alterations to ordinary watercourses where proposed works would not lead to an increase in unmanaged flood risk

onsite or elsewhere, would not increase the risk of watercourse obstruction or the risk of erosion on-site or in areas beyond the site, and would not have a materially detrimental impact on the morphology of natural watercourses.

- Policy OW4 – Culverting: which states that the LLFA will only approve an application to culvert a watercourse if there is no reasonably practicable alternative, or if the detrimental effects of culverting would be so minor that they would not justify a more costly alternative. Should a culvert be installed, adequate mitigation must be provided for damage caused and the culverted watercourse should be restored to open channel where practicable.
- x. South Holland Internal Drainage Board Byelaws (2013) (Ref 10), North Level District Internal Drainage Board Byelaws (2021) (Ref 10), and King’s Lynn Internal Drainage Board Byelaws (2013) (Ref 12).
 - These documents set out local byelaws governing watercourse maintenance and water level management within the IDB districts.

6.3 Scope of Assessment

- 6.3.1 The scope of the assessment has been informed by the Scoping Opinion (Ref 13) provided by the Planning Inspectorate in September 2024 on behalf of the Secretary of State, following the submission of the EIA Scoping Report (Ref 14). 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 **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 **PEI Report Volume 3 Part A Appendix 4D Summary of Stakeholder Engagement**.
- 6.3.2 Non-statutory consultation feedback has been addressed within the **Grimsby to Walpole Stage 1 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 operational phase impacts on aquatic environment and water resources 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 and intra-project effects scoped in for further assessment

Receptor	Relevant Assessment Criteria	Potential Effects Considered
Construction Phase		
Aquatic environment receptors, comprising: - Main rivers	WFD and WFD (Standards and Classification)	<ul style="list-style-type: none">Deterioration in the water quality of aquatic environment receptors via generation of sediment laden run-off as a

Receptor	Relevant Assessment Criteria	Potential Effects Considered
<ul style="list-style-type: none"> - WFD river and transitional water bodies - Internal Drainage Board (IDB)-maintained watercourses - Ordinary watercourses <p>Water resource receptors, comprising:</p> <ul style="list-style-type: none"> - Licensed surface water abstractions - Unlicensed surface water abstractions for private water supply - Discharges to surface waters 	<p>Directions (England and Wales) 2015 (Ref 15).</p>	<p>result of construction activities, e.g. watercourse crossings and excavations.</p> <ul style="list-style-type: none"> • Potential effects on the hydromorphology and flow conveyance as a result of increased sediment inputs or direct watercourse disturbance (including from new watercourse crossings). • 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). • Deterioration in the water quality of aquatic environment receptors affected by mobilisation of contaminants in groundwater and subsequently surface water. • Impact from any dewatering for construction from temporary works impacting groundwater – surface water interactions. • The potential effects above for surface water aquatic environment receptors could also have implications for surface water resource availability.
<p>Flood risk receptors (property and infrastructure at risk of flooding)</p>	<p>National Planning Policy Framework (NPPF) (Ref 16)</p>	<ul style="list-style-type: none"> • 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. • 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. • Changes to fluvial flood risk associated with loss of floodplain storage and/or change in floodplain flow conveyance. • Changes to fluvial flood risk associated with compartmentalisation of the floodplain.

Receptor	Relevant Assessment Criteria	Potential Effects Considered
		<ul style="list-style-type: none"> Impacts on the integrity of flood defence and land drainage infrastructure as a result of physical impingement of Project infrastructure.
Operational Phase		
Flood risk receptors (property and infrastructure at risk of flooding)	NPPF (Ref 16)	<ul style="list-style-type: none"> Changes to surface water flood risk due to changes in runoff rates resulting creation of impermeable surfaces, and to changes in surface water runoff pathways due to changes in ground surface levels. Changes to fluvial flood risk associated with loss of floodplain storage and/or change in floodplain flow conveyance.

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 6 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 water bodies, as defined in the Environment Agency (EA) Cycle 3 River Basin Management Plans (RBMPs) (Ref 17) 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 resources 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 **PEI Report Volume 2 Part B Section 6 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 would 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 sensitivity 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 18) that supports the NPPF (Ref 16). It is recognised that the primary purpose of the NPPF flood vulnerability classification is to guide FRA requirements for new development, but it is also considered to be a useful tool for assessing the relative sensitivity 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 impacts 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 **PEI Report Volume 2 Part C Appendix 5A 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 **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 are 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 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 Development Consent Order (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 (DMRB) (Ref 19). Whilst primarily intended for use in assessing the impacts of highways projects on the water environment, the methodology is widely accepted for assessing the impacts and 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 and EN-5, the NPPF, relevant local planning policy and local flood risk management guidelines published by the LLFAs and IDBs. The final FRA will be included within the ES. A preliminary FRA (PFRA) is included within the PEI Report as an appendix to the Water Environment and Flood Risk chapter of the Route-wide Assessment in **PEI Report Volume 3 Part C Appendix 5A 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 20) and included in the ES. A summary of the assessment approach and Stage 1

Screening assessment is included within the PEIR as an appendix to the Water Environment and Flood Risk chapter of the Route-wide Assessment in **PEI Report Volume 3 Part C Appendix 5B Preliminary WFD Assessment**.

- 6.4.6 Relevant technical guidance and standards that have informed the methodology are listed in full in **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 **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 6.
- 6.4.8 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.

6.5 Baseline Conditions

Study Area

- 6.5.1 The Study Area for the Water Environment and Flood Risk assessment includes the area within the Section 6 draft Order Limits and extends to a 500 m buffer around the draft Order Limits. This is in accordance with the Scoping Report (Ref 14) and is 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 in their Scoping Opinion (Ref 13). The Section 6 Study Area is presented in **PEI Report Volume 2 Part B Section 6 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 6 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 will be undertaken in 2025 to supplement the data described below and inform the 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 EA flood model outputs (including flood extent and flood depth data) for the floodplains that are proposed to be crossed by the Project infrastructure for Section 6 include:
- River Nene Tidal Breaching Model and Report (Ref 21);
 - Main East Coast Breach Model and Report (Ref 22); and
 - Northern Area Tidal Modelling (NTM) East Coast Overtopping Model and Report (Ref 23).
- 6.5.5 The known or predicted current and future baseline environment described in this section has been informed by the following 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 24). This is not reflected within this PEI Report and the screening exercise presented in the Preliminary Flood Risk Assessment (PFRA) (**PEI Report Volume 3 Part C Appendix 5A Preliminary Flood Risk Assessment**), but will inform the updated assessment reported in the ES, including the FRA submitted in support of the DCO application for the Project.

Table 6.3 Data sources used to inform baseline conditions

Data topic	Sources of information
Climate	Met Office UK Climate averages at Holbeach (Ref 25)
Topography	Ordnance Survey Mapping (Ref 26)
Geology	British Geological Survey (BGS) Geology of Britain Viewer (Ref 27)
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 28); National Soil Research Institute Soilscales map viewer (Ref 29)
Hydrology	Environment Agency Statutory Main River Map for England (Ref 30) Flood Estimation Handbook Web Service (Ref 31)
Flood risk	Environment Agency Flood Map for Planning (Ref 32) Environment Agency Risk of Flooding from Surface Water (RoFSW) (Ref 33) National Flood Risk Assessment (NAFRA) Dataset (Ref 24) Environment Agency Risk of Flooding from Reservoirs (Ref 34) Environment Agency Flood Defence Asset database (Ref 35) National River Flow Archive (NRFA) (Ref 36)
Water quality and Water Framework Directive status	Catchment Data Explorer database (Ref 37) of Cycle 2 and 3 WFD information
Water abstractions and discharge consents	EA abstraction and discharge consent data including active discharge locations, abstraction licence strategies and local authority private water supply datasets (Ref 38) (Ref 39)

Survey Work

- 6.5.7 While a Water Environment and Flood Risk walkover survey was not undertaken to inform the PEI Report, this will be undertaken in 2025 with a view to informing the ES. The objective of this walkover survey will be to conduct visual inspections to characterise watercourses in terms of morphology, depth of water, depth of movement and water quality.
- 6.5.8 The following data were not available at the time of writing this PEI Report but will be available to inform the ES:
- i. Field notes and photographs collected during watercourse surveys;
 - ii. 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 inform the Water Environment and Flood Risk assessment to be reported in the ES, further data requests will be made with the LLFAs and IDBs to provide information on the following:
- i. Baseline flood risk data, including available modelled flood data and local flood risk data from commissioned studies;
 - ii. Further information on the location and characteristics of IDB-maintained watercourses and operation of water level management assets; and
 - iii. Information on local flood risk from LLFAs (e.g. specific watercourse characteristics, local flood history, Section 19 reports, asset information and maintenance regimes).

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 **PEI Report Volume 2** and **Volume 3** respectively:
- i. **PEI Report Volume 2 Part B Section 6 Figure 6.1 Water Environment Receptors and Study Area;**
 - ii. **PEI Report Volume 2 Part B Section 6 Figure 6.2 Principal Local Water Environment Regulators;**
 - iii. **PEI Report Volume 2 Part B Section 6 Figure 6.3 Surface Water Flood Risk;**
 - iv. **PEI Report Volume 2 Part B Section 6 Figure 6.4 Water Framework Directive Surface Water Body Status;**
 - v. **PEI Report Volume 3 Part C Appendix 5A Preliminary Flood Risk Assessment;** and

vi. **PEI Report Volume 3 Part C Appendix 5B Preliminary Water Framework Directive Screening Assessment.**

- 6.5.11 Section 6 comprises overhead line spanning approximately 27 km between the Refined Weston Marsh substations and associated connections (Section 5) and the New Walpole B Substation (Section 7). There are a total of 81 new pylons in Section 6, generally positioned at approximately 350 m spacing. Infrastructure included within the Section 6 Study Area is further discussed in **Chapter 1 Overview of the Section and Description of the Project**.
- 6.5.12 The Section 6 draft Order Limits are located within two local authority districts, South Holland District and Fenland District, and three IDB districts, South Holland, North Level and Kings Lynn. The IDB districts are shown on **PEI Report Volume 2 Part B Section 6 Figure 6.2 Principal Local Water Environment Regulators**.
- 6.5.13 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

- 6.5.14 Average annual rainfall estimates for the period 1991-2020 were taken from the Met Office website (Ref 25). This demonstrates the average annual total rainfall in the locality of Section 6 was approximately 623 mm, based on the Holbeach station record (NGR TF440327) located approximately 15 km northeast of the Study Area for Section 6. This is lower than the Eastern and Northeastern England regional average (1991-2020) of 793 mm.
- 6.5.15 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).
- 6.5.16 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.
- 6.5.17 Across the Eastern and Northeastern districts there has been minimal increase in annual rainfall between 1991-2020. The average annual maximum temperature and average annual minimum temperature both exhibit an increasing trend for the same period.

Topography and Land Use

- 6.5.18 Ordnance Survey (OS) mapping shows the Section 6 Study Area to be flat-lying throughout, with topographic highs of 5 m above ordnance datum (AOD) in the east, to the north of Newton-in-the-Isle.
- 6.5.19 The land within the Section 6 Study Area is largely used for agricultural purposes with several roads along its length (including the A151, B1357, B1165, B1168 and the A1101). Existing overhead lines are present in several places, shown on aerial imagery. A National Grid gas compressor station is located within the Study Area, northeast (outside) of the draft Order Limits and pylon SW73, east of Four Gotes.

- 6.5.20 Surface water features (drains and streams) are present within the draft Order Limits for Section 6, with the notable features including the South Holland Main Drain (located southwest of Sutton St James), the North Leven Main Drain (located south of Tydd St Giles) and the River Nene (located southeast of Tydd St Giles). Surface water features are abundant within the eastern half of Section 6, with field drains indicated along the majority of field parcel boundaries. The land within the eastern end of the Section 6 Study Area is also labelled as 'The Salts' on historical mapping, potentially indicating historical evaporative salt production.
- 6.5.21 Consistent with the agricultural setting of the Study Area, several farm buildings, residential properties and occasional villages/hamlets are located within the Study Area, but outside the draft Order Limits, with some in close proximity to the draft Order Limits. Areas of ground disturbance are evident from aerial imagery at some of these premises.
- 6.5.22 Aerial imagery indicates that there is some commercial built development in the Study Area (all situated outside of the draft Order Limits), including agricultural businesses and contractors, civil engineering contractors, a fire station, a solar farm, a container and storage contractor, a vehicle repair centre, a plant nursery, and a fruit/vegetable distribution centre.

Hydrology and Surface Water Features

- 6.5.23 Surface water features identified within the Section 6 Study Area are shown in **PEI Report Volume 2 Part B Section 6 Figure 6.1 Water Environment Receptors and Study Area**; and comprise a dense network of either heavily modified or artificial drains that are maintained by riparian landowners and IDBs, primarily for agricultural drainage purposes. IDB districts are shown in **PEI Report Volume 2 Part B Section 6 Figure 6.2 Principal Local Water Environment Regulators**. Section 6 is located within the Anglian River Basin District (RBD).
- 6.5.24 Only one EA main river traverses the Section 6 Study Area, namely the tidal River Nene, which the draft Order Limits cross towards the eastern end of the Section. The River Nene flows in a northeasterly direction towards the Wash. Where the draft Order Limits cross the River Nene, the channel is 50-60 m wide and flanked by large flood embankments. The Marine Management Organisation (MMO) has advised that a Marine Licence will be required for the overhead line crossing of the River Nene.
- 6.5.25 In addition, some of the larger IDB-maintained watercourses traversed by the Section 6 draft Order Limits, such as the South Holland and North Level Main Drains, are large watercourses in their own right, being up to 20 m wide.
- 6.5.26 The western part of the Study Area lies within the South Holland IDB District which is split into 20 smaller catchments. The Section 6 draft Order Limits intersect Catchments F and G, both of which are reliant on pumping stations downstream along the South Holland Main Drain, to maintain water levels within the respective catchments. Downstream of Catchments F and G, Catchment H drains freely to the South Holland Main Drain, which discharges to the River Nene main river via Sutton Bridge Sluice (NGR TF476200).
- 6.5.27 The North Level IDB District is mainly reliant on pumped drainage and covers the central part of the Section 6 Study Area, between Sutton St. James in the west and the River Nene in the east. The North Level Main Drain, which drains most of the IDB District, discharges to the River Nene via Tydd pumping station (NGR TF461179). Along the western bank of the River Nene, the Section 6 draft Order Limits bisect the

Westside Marshes Catchment within the North Level IDB District. This catchment drains freely to the River Nene.

- 6.5.28 To the east of the River Nene, the Study Area is within the King's Lynn IDB District which is also largely reliant on pumped drainage. The Ingleborough Pump (NGR TF467162) is within the Section 6 Study Area and serves a catchment of 781 ha. It aids drainage of four IDB-maintained watercourses and discharges to the River Nene.
- 6.5.29 **Table 6.4** summarises the receptors considered in the preliminary assessment. The sensitivity of each receptor has been determined in accordance with **PEI Report Volume 2 Part A Chapter 4 Approach to Preliminary Environmental Information** and **PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.

Table 6.4 Identified surface water receptors and associated value

Receptor	Sensitivity	Rationale
River Nene (GB530503200200)	High	<ul style="list-style-type: none"> • Main River • WFD designated 'blue line' transitional water body supporting moderate status in the Cycle 3 classifications. • No watercourse access crossings (temporary or permanent) proposed for the River Nene.
Moulton River (GB205031050755)	Medium	<ul style="list-style-type: none"> • A WFD designated 'blue line' river water body supporting moderate status in the Cycle 3 classifications. • 'Blue line' watercourse located outside of the Section 6 Study Area. No potential for direct effects from Section 6 works. No potential for indirect effects from the construction of three pylons within the WFD water body catchment.
South Holland Main Drain (GB205032050405)	High	<ul style="list-style-type: none"> • WFD designated 'blue line' river water body supporting moderate status in the Cycle 3 classifications. • An IDB-maintained watercourse • No watercourse access crossings (temporary or permanent) proposed for South Holland Main Drain.
North Level Main Drain (GB205032050395)	High	<ul style="list-style-type: none"> • WFD designated 'blue line' river water body supporting moderate status in the Cycle 3 classifications. • An IDB-maintained watercourse • No watercourse access crossings (temporary or permanent) proposed for North Level Main Drain.
Whaplode River (GB205031055495)	High	<ul style="list-style-type: none"> • WFD designated 'blue line' river water body supporting moderate status in the Cycle 3 classifications. • No watercourse access crossings (temporary or permanent) as the 'blue line' watercourse is outside the Section 6 Study Area

Receptor	Sensitivity	Rationale
Other IDB-maintained watercourses	Medium	<ul style="list-style-type: none"> A network of artificial or heavily modified IDB watercourses within the South Holland IDB, North Level IDB and King's Lynn IDB that are reliant on pumping stations along the South Holland Main Drain, North Level Main Drain and the River Nene respectively to maintain water levels within the catchments. Potential for direct impacts as a result of watercourse crossings and diversions. Potential for indirect impacts via changed runoff rates and water quality as a result of construction activities.
Ordinary watercourses	Low	<ul style="list-style-type: none"> 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 network. Potential for direct impacts as a result of watercourse crossings and diversions. Potential for indirect impacts via changed runoff rates and water quality as a result of construction activities.

6.5.30 There are no EA gauging stations on any of the watercourses traversing the Section 6 Study Area. Given that the Study Area is located within IDB-managed catchments, which are at least partially reliant on pumping for drainage, 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, North Level IDB and King's Lynn 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

- 6.5.31 The Section 6 Study Area passes through the Welland and Nene Management Catchments of the Anglian River Basin District (RBD).
- 6.5.32 The catchments of five reportable WFD surface water bodies are intersected by the Section 6 Study Area, which are shown on **PEI Report Volume 2 Part B Section 6 Figure 6.4 Water Framework Directive Surface Water Body Status**. These comprise four artificial river water bodies (associated with IDB maintained drains) and one heavily modified transitional water body (the River Nene). These all currently achieve moderate overall status and have a chemical status of 'fail' due to exceedance of priority hazardous substances, in particular mercury and its compounds, Polybrominated diphenyl ethers (PBDE), and dissolved oxygen in some cases.
- 6.5.33 On the eastern side of the A1101, the Section 6 draft Order Limits enter a region of no reportable WFD water bodies. This area is located within the North West Norfolk Management Catchment and North West Norfolk Rivers Operational Catchment.
- 6.5.34 Summary details of the current status for the WFD water body are provided in **Table 6.5** with further detail regarding reasons for not achieving good status (RNAG) and

WFD objective provided in **PEI Report Volume 3 Part C Appendix 5B Preliminary Water Framework Directive Screening Assessment**. Information on groundwater water bodies is included in **PEI Report Volume 2 Part B Section 6 Chapter 7 Geology and Hydrogeology**.

Table 6.5 WFD water bodies in direct connectivity with Section 6

Water Body (ID)	Water Body Type	Water Body Type (Cycle 3)	Overall Water Body status (Cycle 3) (2022)*
Moulton River Water Body (GB205031050755)	River	Artificial	Moderate
South Holland Main Drain Water Body (GB205032050405)	River	Artificial	Moderate
Whaplode River Water Body (GB205031055495)	River	Artificial	Moderate
North Level Main Drain Water Body (GB205032050395)	River	Artificial	Moderate
Nene Water Body (GB530503200200)	Transitional Water	Heavily modified	Moderate

* These are the 2022 statuses as obtained from the Catchment Data Explorer

- 6.5.35 The Section 6 Study Area is not located within a surface water Drinking Water Protected Area. Information on groundwater Safeguard Zones is included in **PEI Report Volume 2 Part B Section 6 Chapter 7 Geology and Hydrogeology**. The Section 6 Study Area is not located within Nitrate Vulnerable Zones (NVZs).

Surface Water-Dependent Nature Conservation Sites

- 6.5.36 No statutory nature conservation sites that are dependent on surface water have been identified within the Section 6 Study Area. The River Nene itself is designated as a County Wildlife Site (CWS) where crossed by the draft Order Limits, with a section of North Level Main Drain at Tydd Gote also designated as a CWS at Tydd St Giles. There are also a number of surface water dependent Local Wildlife Sites (LWS) present in the Section 6 Study Area as illustrated on **PEI Report Volume 2 Part B Figure 4.3 Sites Non-Statutorily Designated for their County Biodiversity Importance**.
- 6.5.37 Further detail, including a preliminary assessment of the likely effects of the Project upon these receptors, is provided within **PEI Report Volume 2 Part B Section 6 Chapter 4 Ecology and Biodiversity**. Groundwater Dependent Terrestrial Ecosystems (GWDTEs) will be addressed separately in the ES.

Water Resources

- 6.5.38 Data to characterise existing water interests has been collected from the EA. Based on the available data, there is one licensed surface water abstraction and three surface water discharges within the Section 6 Study Area, but outside the draft Order Limits.

- 6.5.39 The surface water abstraction (NGR TF423153) is located on the North Level Main Drain downstream of the Section 6 draft Order Limits and is used for direct spray irrigation.
- 6.5.40 The first surface water discharge is located on a tributary of the Lord's Drian (NGR TF276249) and discharges a total volume of 11 m³ per day, the second is positioned on a tributary of the River Welland (NGR TF288229) and discharges a total volume of 1.2 m³ per day. The third surface water discharge is located on a tributary of the North level Main Drain (NGR TF425149) and discharges a total volume of 0.75 m³ per day.
- 6.5.41 Correspondence with South Holland District Council indicates that there are no private water supplies located within its reaches of the Section 6 Study Area. Fenland District Council has been consulted and comments are yet to be received. Any further responses will be taken into account in the assessment presented in the ES.
- 6.5.42 An assessment of effects upon any identified groundwater abstractions, including private water supplies, is provided in **PEI Report Volume 2 Part B Section 6 Chapter 7 Geology and Hydrogeology**.
- 6.5.43 The Nene Abstraction Licensing Strategy (ALS) (Ref 39) indicated that the Section 6 Study Area is located in an area of limited water resource availability, with water available for licensing at higher flows (Q30) but with restricted water availability at medium flows (Q50), and no water available at low flows (Q70 and Q95).

Flood Risk and Drainage

- 6.5.44 The EA's Flood Map for Planning (Ref 32) 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 likelihood of flooding respectively. Flood Zone 2 and 3 extents are shown on **PEI Report Volume 2 Part B Section 6 Figure 6.1 Water Environment Receptors and Study Area**.
- 6.5.45 According to the EA Flood Map for Planning (Ref 32) the Section 6 Study Area is located almost entirely in Flood Zones 2 and 3 (high risk), equivalent to an annual chance of flooding from rivers of 1 in 100 (1 per cent). Pockets of the Study Area located in the South Holland IDB District are in Flood Zone 1 (low risk).
- 6.5.46 According to the EA Asset Information and Maintenance (AIMS) database (Ref 40), there are flood defences along the River Nene that are crossed by the Section 6 draft Order Limits, including embankments maintained by the EA. Flood risk receptors within the Section 6 Study Area benefit from these extensive flood defence embankments associated with the River Nene and the River Welland.
- 6.5.47 In addition, the operation of IDB-maintained infrastructure is likely to be influential in controlling water levels within ditch networks crossed by the draft Order Limits. Engagement with South Holland IDB, North Level District IDB and King's Lynn IDB will be carried out to determine the degree to which this infrastructure provides mitigation of fluvial flood risk within IDB Districts and will be evaluated further in the final ES and FRA. At this preliminary stage, a precautionary approach has been taken to inform the **PEI Report Volume 3 Part C Appendix 5A Preliminary Flood Risk Assessment** and the preliminary assessment of effect included in section 6.7.
- 6.5.48 There are many small areas at risk of surface water flooding within the Section 6 Study Area, according to the EA's surface water flood risk mapping (Ref 33), which are generally associated with localised topographic low points. These areas are

shown in **PEI Report Volume 2 Part B Section 6 Figure 6.3 Surface Water Flood Risk**. However, the overall extent of surface water flooding is small, and the risk of flooding from this source is minor compared with that from tidal/fluvial flooding.

- 6.5.49 Risk of flooding from sewers is not considered as a significant source of flooding in Section 6 due to the predominantly rural setting of the Project.
- 6.5.50 The EA's on-line mapping (Ref 34) indicates no risk of flooding from reservoir failure within the Section 6 Study Area.
- 6.5.51 A number of external receptors for flood risk effects from the Project have been identified within the Section 6 Study Area. The receptors identified and their associated sensitivities are listed in **Table 6.6** below.

Table 6.6 Identified flood risk receptors and associated sensitivity

Receptor	Sensitivity	Rationale
Agricultural land and undeveloped land	Low	Water compatible development.
Agricultural premises and commercial property designated as 'Less Vulnerable'	Medium	Less vulnerable development.
Residential properties and other 'Highly vulnerable' development types in villages such as Weston, Moulton, Whaplode, Sutton St. James, Tydd St. Giles, Tydd St. Mary, Tydd Gate, Newton-in-the-Isle, plus rural residential properties.	High	More vulnerable development.
River Nene flood defence embankments, other essential infrastructure that is vulnerable to flooding, such as major highways and existing electricity substations.	Very High	Essential infrastructure or highly vulnerable development.

Future Baseline

- 6.5.52 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.
- 6.5.53 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 **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

- 6.5.54 Climate change is likely to lead to significant changes in hydrological conditions within the Section 6 Study Area over the lifetime of the Project. Outputs from UKCP18 (Ref 41) and the Future Flows and Groundwater Levels (FFGWL) Project (Ref 42) have been used to assess likely changes in ambient conditions for the purposes of the future baseline.
- 6.5.55 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 43). For the upstream catchments of the main rivers in the vicinity of the Project, such as the River Welland and the River Nene, transient flows are projected to decrease at all flow percentiles across all models. For the Q30 flow percentile, a decrease of up to 10 per cent by 2080 is predicted by most models. At the Q90 flow percentile, decreases in flows range between 20 per cent and 60 per cent by 2080, depending on the model used (Ref 44). Assessment of seasonal average changes for the same region indicate that in the 2050s winter flows will increase up to 20 per cent in most scenarios, spring flows will decrease by up to 20 per cent in most scenarios, summer flows will decrease by between 20 per cent and 40 per cent in most scenarios and autumn flows will decrease by up to 20 per cent in most scenarios (Ref 45).
- 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 46). 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 6.7**, **Table 6.8** and **Table 6.9** below. These factors are based on analysis of UKCP18 climate model outputs for rainfall and from hydrological models driven by UKCP18 rainfall outputs.

Table 6.7 Peak river flow climate change allowances (Ref 47)

Allowance Category	Potential Change Anticipated for the 2020s	Potential Change Anticipated for the 2050s	Potential Change Anticipated for 2080s
Welland Management Catchment			
Upper	22%	26%	53%
Higher	10%	10%	28%
Central	5%	4%	17%
Nene Management Catchment			
Upper	18%	17%	37%
Higher	4%	0%	13%

Central	-2%	-7%	4%
North West Norfolk Management Catchment			
Upper	30%	34%	57%
Higher	18%	18%	33%
Central	13%	11%	23%

Table 6.8 3.3 per cent Annual Exceedance Probability (AEP) peak rainfall climate change allowances (Ref 47)

Allowance Category	Potential Change Anticipated for the 2050s	Potential Change Anticipated for the 2070s
Welland Management Catchment		
Upper	35%	35%
Central	20%	25%
Nene Management Catchment		
Upper	35%	35%
Central	20%	25%
North West Norfolk Management Catchment		
Upper	35%	25%
Central	20%	20%

Table 6.9 1 per cent AEP peak rainfall climate change allowances (Ref 47)

Allowance Category	Potential Change Anticipated for the 2050s	Potential Change Anticipated for the 2070s
Welland Management Catchment		
Upper	40%	40%
Central	20%	25%
Nene Management Catchment		
Upper	40%	40%
Central	20%	25%
North West Norfolk Management Catchment		
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 adjustment¹, 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 to 1.55 m by 2125, based on higher central and upper end allowances (Ref 46). In the Anglian region, net sea level rise from the year 2000 is expected to increase by 1.20 to 1.60 m by 2125, according to the same allowances (Ref 46).

Topography and Land Use

- 6.5.58 Land use change can affect the permeability of the ground, which can affect surface water run-off. Given that most of the land within the Section 6 Study Area comprises productive agricultural land outside of established settlement boundaries and within Flood Zone 3, it is unlikely that the run-off regime will change significantly within and surrounding the Study Area. However, as noted above, the Section 6 Study Area is within three IDB-managed pumped catchments. Changes to agricultural land use practices and rising tidal levels in the River Nene 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 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 overall status of the WFD water bodies within the Section 6 Study Area is moderate, 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 sensitivity 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 Section 6 Study Area are included in **PEI Report Volume 3 Part C Appendix 5B Preliminary Water Framework Directive Screening Assessment**.

Water Resources

- 6.5.61 The location and rate of surface water abstractions in the area could vary over time. The Nene Abstraction Licensing Strategy (Ref 39) suggests there is restricted water availability for new abstractions in the Section 6 Study Area. Any new licences would

¹ **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.

be subject to volume, hands-off flow and/or minimum residual flow restrictions to ensure sufficient flow remained for environmental support purposes.

6.6 Design, Control and Additional Mitigation Measures

Design Mitigation Measures

- 6.6.1 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 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 **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 In Section 6 this has included locating the draft Order Limits to avoid sensitive Water Environment and Flood Risk receptors, where practicable, which is also consistent with the sequential approach to management of flood risk advocated in NPS EN-1 (Ref 48); and NPPF (Ref 16).
- 6.6.3 As part of the process of ongoing Project design, the Water Environment and Flood Risk team will 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. For permanent access roads and temporary haul roads, the Project requires the crossing of multiple ditches, drains and watercourses. Crossings of large or sensitive watercourses, for example those designated as main river, and those with WFD status, have been avoided where reasonably practicable, through termination of haul roads either side of these watercourses and use of the existing road network and crossing points. Where new temporary crossings of large or sensitive watercourses are required, they would be or crossed using clear span bridges;
 - ii. Pylons would not be located within the relevant permitting stand-off distances around watercourses.
 - iii. Flood protection design measures are to be designed in accordance with National Grid's best practice requirements.
 - iv. 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.
- 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

6.6.5

A draft Outline Code of Construction Practice (CoCP) is provided in **PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice**. 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.
- 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. 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.'

- 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. 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.
- vii. 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).
- viii. 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.
- ix. 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 EA, 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 EA 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. 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 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.
- 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 floodplain as far as reasonably practicable. 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

- 6.6.7 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.
- 6.6.8 Potential additional mitigation measures which may be required to reduce the effects of the Project upon Water Environment and Flood Risk 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. This may include a requirement for compensatory flood storage volume, subject to further development of the FRA and ongoing engagement with the relevant regulatory bodies.
- 6.6.9 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 EA. These measures will be described within the ES.
- 6.6.10 No additional mitigation measures have been assumed within the Preliminary Assessment of Effects reported in the following section.

6.7 Preliminary Assessment of Effects

- 6.7.1 The following section presents the findings of the preliminary assessment of effects upon Water Environment and Flood Risk receptors identified within the Section 6 Study Area, as a result of construction, operation and/or maintenance activities.
- 6.7.2 The preliminary assessment of effects reported below take into account the Design and Control mitigation measures, as previously described.
- 6.7.3 For a summary of the likely significant effects please refer to **PEI Report Volume 2 Part B Section 6 Chapter 13 Summary**. A supplementary summary of all non-significant effects is also included within this Section in **Table 6.10**, based upon the assessment scope detailed in **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 described in section 10.5 have the potential to be directly or indirectly impacted due to the construction and permanent presence of new pylons within Section 6, including associated temporary haul roads and construction compounds.
- 6.7.6 The proposed temporary and permanent features within Section 6 are illustrated on the following figures:
- i. **PEI Report Volume 2 Part B Section 6 Figure 1.2 Permanent and Operational Features;** and
 - ii. **PEI Report Volume 2 Part B Section 6 Figure 1.3 Temporary and Construction Features.**
- 6.7.7 Temporary watercourse crossing would be required to facilitate access during construction of new overhead line. As set out within **PEI Report Volume 3 Part A Appendix 5C Indicative Bridge and Culvert Schedule**, a total of 113 temporary crossings are currently assumed to be required within Section 6. These would result in direct impacts on the following receptors through the installation of either single span bridges and closed culverts.
- i. IDB-maintained watercourses; and,
 - ii. Ordinary watercourses.
- 6.7.8 No permanent watercourse access crossings are proposed within Section 7.
- 6.7.9 Of the 81 new pylons proposed in Section 6, 67 are located in Flood Zone 2 and 3. 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 would remain operational during a flood event and would not pose a safety risk.

Likely Significant Effects

Construction

Aquatic Environment and Water Resources Receptors

- 6.7.10 Based upon the preliminary assessment, no significant effects upon aquatic environment and water resource receptors within the Section 6 Study Area are predicted 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

- 6.7.11 The loss of floodplain storage as a result of the overhead line construction could result in adverse impacts upon flood risk, as collectively, the volumes of flood storage displaced could be significant, given the location of infrastructure and associated temporary works in Flood Zone 3. It is assumed there would be soil stockpiling in the floodplain due to the requirement for topsoil strip to establish temporary access tracks and crane pads. This would involve importing aggregate for these temporary design elements to be constructed to a level above existing ground level, reducing floodplain storage.
- 6.7.12 The area within the Section 6 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.
- 6.7.13 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 existing 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, including haul roads and associated watercourse crossings would be removed. Land required temporarily and watercourses affected by temporary crossings would be reinstated following completion of construction.
- 6.7.14 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 final 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 of 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 **PEI Report Volume 3 Part C Appendix 5A Preliminary Flood Risk Assessment**.
- 6.7.15 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. Based upon the receptor sensitivities of essential infrastructure (very high), residential infrastructure (high), associated effects on these flood risk receptors during the construction phase are assessed as major adverse to moderate adverse and are therefore significant. Likely effects upon 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 minor adverse to negligible and are therefore not considered significant.

Operation and Maintenance

- 6.7.16 Based upon the preliminary assessment, no significant effects are predicted for Water Environment and Flood Risk receptors within the Section 6 Study Area, as a result of the operation and maintenance phase of the Project. Further discussion is provided in the following section in relation to the predicted non-significant effects of the Project.

Likely Non-Significant Effects

- 6.7.17 For completeness, **Table 6.10** summarises the findings of the preliminary assessment with respect to those impacts that are not predicted to result in significant effects upon Water Environment and Flood Risk effects.

Table 6.10 Preliminary summary of non-significant Water Environment and Flood Risk effects – Section 6

Impact	Receptor	Value of Receptor ²	Magnitude of Change ³	Significance ⁴	Rationale
Construction Phase					
Aquatic Environment Receptors					
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, transitional water bodies and IDB maintained watercourses South Holland Main Drain and North Level Main Drain (referred to in Table 6.4 and Table 6.5)	High	Negligible	Not significant (negligible)	<p>During the construction of the 81 new pylons and associated overhead line works there is potential to generate sediment laden runoff which could, in absence of an appropriate embedded measures, adversely affect water quality in surface water receptors. Activities that could potentially produce sediment-laden runoff include:</p> <ul style="list-style-type: none"> • Construction and removal of access routes, construction compounds and working areas (including topsoil stripping, earthworks and excavations); • Runoff from installed access routes, temporary construction compounds and working areas;

² 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.

³ 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.

⁴ 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 EIA Environmental Impact Assessment Methodologies and Scope.

Other IDB-maintained watercourses and ordinary watercourses (referred to in Table 6.4)	Medium – low	Small adverse	Not significant (minor)	<ul style="list-style-type: none"> • Direct sediment disturbance from in channel works for the construction of access crossings; • Potential diversion/realignment of ordinary watercourses and IDB watercourses; and • The use and management of soil stockpiles. <p>The assessment of suspended sediment-related effects is considered precautionary, given that the watercourses across the Section 6 Study Area are likely to experience baseline variation in suspended sediment due to agricultural practice in the area.</p> <p>Assuming the implementation of embedded environmental measures included within the Preliminary CoCP (including GG03, GG16, W01, W05 and W11) predicted effects on the watercourses due to sediment laden run-off are not significant.</p>
--	--------------	---------------	-------------------------	---

Potential impacts on hydromorphology and flow conveyance as a result of increased sediment inputs from watercourse disturbance (including from new watercourse crossings).	WFD river, transitional water bodies and IDB maintained watercourses South Holland Main Drain and North Level Main Drain (referred to in Table 6.4 and Table 6.5)	High	Negligible	Not significant (negligible)	<p>Works directly affecting watercourses, such as crossings and diversions, could result in a direct impact on their hydromorphology. The direct impacts would be mitigated through the implementation of the measures set out within the Preliminary CoCP. This includes W01, W02 and W04. As a result, effects are not significant.</p> <p>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 practicable minimum and ensure minimal change to existing morphology and flow conveyance, by adhering to embedded environmental measure W02.</p>
	Other IDB-maintained watercourses and ordinary watercourses (referred to in Table 6.4)	Medium – low	Small adverse	Not significant (minor)	<p>Excess sediment ingress via runoff from working areas could indirectly influence 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 through the embedded environmental measures outlined in the CoCP (including 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, transitional water bodies and IDB maintained watercourses South Holland Main Drain and North Level Main Drain (referred to in Table 6.4 and Table 6.5)	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"> • accidental spillage of fuel, oil, concrete or other chemicals used during construction; • mobilisation/leaching of contaminants from historical soil contamination during excavation works; and • contaminated water pumped from excavations.
	Other IDB-maintained watercourses and ordinary watercourses (referred to in Table 6.4)	Medium – low	Small adverse	Not significant (minor)	<p>The proposed embedded measures to prevent surface water pollution are set out in the Preliminary CoCP and include GG03, GG15, GG23, W02, W05, W09 and W11.</p> <p>Assuming the implementation of these measures, predicted effects on surface water receptors and water resource/WFD receptors due to potential mobilisation and release of pollutants are not significant.</p>
Deterioration in the water quality of aquatic environment receptors affected by mobilisation of contaminants in groundwater and subsequently surface water.	WFD river, transitional water bodies and IDB maintained watercourses South Holland Main Drain and North Level Main Drain (referred to in Table 6.4 and Table 6.5)	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) in accordance with measure GH02 of the Preliminary CoCP. This would specify the use of suitable piling methods to prevent the creation of pathways for vertical groundwater</p>

	Other IDB-maintained watercourses and ordinary watercourses (referred to in Table 6.4)	Medium – low	Small adverse	Not significant (minor)	<p>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>
Impact from any dewatering for construction from temporary works impacting groundwater – surface water interactions.	WFD river, transitional water bodies and IDB maintained watercourses South Holland Main Drain and North Level Main Drain (referred to in Table 6.4 and Table 6.5)	High	Negligible	Not significant (negligible)	<p>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.</p> <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. Section 6 involves overhead line and pylons only. It is therefore considered that substantial dewatering would not be required during the construction phase.</p> <p>The risk of mobilisation of pre-existing contamination would be managed through control measures within the Preliminary CoCP, including GH02 and GH11.</p> <p>Therefore, predicted effects due to dewatering of temporary works areas are not significant.</p>
	Other IDB-maintained watercourses and ordinary watercourses (referred to in Table 6.4)	Medium – low	Small adverse	Not significant (minor)	

Water Resource Receptors

The potential effects noted above for surface water aquatic environment receptors could also have implications for surface water resource availability.	<ul style="list-style-type: none">• Licensed surface water abstractions• Unlicensed surface water abstractions for private water supply• Discharges to surface waters	Low	Negligible	Not significant (negligible)	<p>One licensed surface water abstraction and three surface water discharges were identified within the Section 6 Study Area, outside the draft Order Limits. There is therefore no scope for a direct effect on the abstraction or discharge infrastructure as a result of the Project. 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 CEMP.</p> <p>It is therefore concluded that predicted effects on water resource receptors within the Section 6 Study Area are not significant.</p>
---	---	-----	------------	------------------------------	--

Flood Risk Receptors

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	Low – very high	Negligible	Not significant (negligible to minor)	<p>There are 113 new temporary watercourse crossings proposed within the draft Order Limits within Section 6. In the absence of appropriate measures, these crossings could impact flow conveyance, which could potentially influence flood risk upstream of the watercourse crossing.</p> <p>The proposed embedded measures to prevent an increase in surface water flood risk due to changes in existing watercourse flow conveyance are set out in the preliminary CoCP 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 crossings are not significant.</p>
--	---	-----------------	------------	---------------------------------------	--

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	Low – very high	Negligible	Not significant (negligible to minor)	<p>During construction, there would 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 Section 6 Study Area. However, this finish is not as impermeable as tarmac or concrete.</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 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 server existing field drainage systems, dependent on the alignment of any diversions.</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, and therefore 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	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 Nene in Section 6. The Section 6 Study Area is defended floodplain. Therefore, existing flood management assets protect for events up to the standard of protection. The proposed embedded measures to maintain the integrity of the flood defence during construction are set out in the preliminary CoCP and include W04.</p> <p>Generally, a hierarchy of mitigation principles would be as follows:</p> <ul style="list-style-type: none"> • Avoid where possible; • Pre-commencement survey; • Minimise invasive works to the flood defence through bridging or placing of additional material; • Ensure any crossings are designed to bear design loads to avoid compaction settlement of the flood defence; • Ensure full restoration of flood defence following completion of works, followed by completion survey; • 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.

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 phase are predicted to be negligible, and therefore not significant.

Operation Phase

Flood Risk Receptors

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	Low – very high	Negligible	Not significant (negligible to minor)	<p>There would be no significant increase in permanent impermeable area associated with the foundation elements of pylons along this section of the route and therefore these elements alone are not likely to result in significant change.</p> <p>Overhead line maintenance would involve light vehicles using existing agricultural access and would not involve significant ground disturbance. Therefore, the impacts of the operation of Section 2 Project infrastructure on flood risk receptors are considered negligible and predicted effects are not significant.</p>
Changes to fluvial flood risk associated with loss of floodplain storage and/or change in floodplain flow conveyance.	Property and infrastructure at risk of flooding	Low – very high	Negligible	Not significant (negligible to minor)	<p>The effects on flood risk receptors from the operation of the Project have been scoped into the assessment for the overhead line. There are 67 new overhead line pylons located within Flood Zone 2 and 3 within the Section 6 draft Order Limits.</p>

There would be no significant increase in permanent impermeable area associated with the foundation elements of pylons along this section of the route and therefore these elements alone are not likely to result in significant loss of floodplain storage capacity. The presence of pylons in the floodplain could result in snagging of debris causing debris accumulation on the pylon legs. This too is unlikely to result in significant effects upon flood risk due to impacts upon floodplain storage or flow conveyance.

The operational overhead line would not result in significant loss of floodplain. Therefore, the impacts of the operation of Section 6 Project infrastructure on flood risk receptors is considered negligible and predicted effects are not significant.

6.8 Monitoring

- 6.8.1 Given that in the absence of additional mitigation measures, potential significant effects have been identified within the Water Environment and Flood Risk assessment of Section 6 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 Lincolnshire County Council (2019) Joint Lincolnshire Flood Risk and Water Management Strategy 2019-2050. [online] Available at: <https://www.lincolnshire.gov.uk/downloads/file/2365/joint-lincolnshire-flood-risk-and-water-management-partnership-framework-draft-strategy-2019-2050-pdf> [Accessed 02 October 2024].
- 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 The Cambridgeshire and Peterborough Minerals and Waste Local Plan, 2036 (adopted July 2021) [online]. Available at: <https://www.cambridgeshire.gov.uk/business/planning-and-development/planning-policy/adopted-minerals-and-waste-plan> [Accessed 16 October 2024].
- Ref 4 South East Lincolnshire Joint Strategic Planning Committee (2019). South East Lincolnshire Local Plan 2011-2036 [online]. Available at: <https://www.southeastlincslocalplan.org/wp-content/uploads/2019/02/Local-Plan-text-March-2019.pdf> [Accessed 02 October 2024].
- Ref 5 Fenland District Council (2014). Fenland Local Plan [online]. Available at: https://www.fenland.gov.uk/media/10010/Fenland-Local-Plan-May-2014/pdf/Fenland_Local_Plan1.pdf?m=1590591524653 [Accessed 16 October 2024].
- Ref 6 Fenland District Council (2022). Fenland Local Plan 2021-2040: Draft Local Plan Consultation [online]. Available at: https://www.fenland.gov.uk/media/18814/Draft-Local-Plan-August-2022/pdf/Draft_Local_Plan_for_Consultation_Aug_2022.pdf?m=1661177156537 [Accessed 09 January 2024].
- Ref 7 Borough Council of King's Lynn and West Norfolk (2025) Local Plan 2021-2040 Adopted March 2025 [online]. Available at: https://www.west-norfolk.gov.uk/info/20079/planning_policy_and_local_plan/1207/local_plan_2021-2040#:~:text=The%20current%20Local%20Plan%20was%20adopted%20in%20March,for%20the%20borough%20%28up%20to%2015%20years%20ahead%29. [Accessed May 2025].
- Ref 8 Norfolk County Council Core Strategy and Minerals and Waste Development Management Policies Development Plan Document 2010-2026 (adopted 2011) [online]. Available at: <https://www.norfolk.gov.uk/article/39049/Adopted-policy-documents> [Accessed 02 October 2024].
- Ref 9 Norfolk County Council (2021) Norfolk County Council Local Flood Risk Management Strategy Policy Review [online]. Available at: [local-flood-risk-management-strategy-policy-review \(1\).pdf](#) [Accessed 02 October 2024].
- Ref 10 South Holland Internal Drainage Board Byelaws (2013) [online]. Available at: [BOARD-BYELAWS.pdf \(northlevelidb.org\)](#) [Accessed 17 October 2024].

- Ref 11 North Level District Internal Drainage Board Byelaws (2021). [online] Available at: BOARD-BYELAWS.pdf (northlevelidb.org) [Accessed 17 October 2024].
- Ref 12 King's Lynn Internal Drainage Board Byelaws (2013) [online] Available at: https://www.wlma.org.uk/uploads/KLIDB_Byelaws.pdf [Accessed 19 December 2024].
- Ref 13 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 14 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 15 UK Government. The Water Environment (Water Framework Directive) (England and Wales) (Amendment) Regulations 2015. 2015. [online] Available at: <https://www.legislation.gov.uk/ukxi/2015/1623/contents> [Accessed 26 November 2024].
- Ref 16 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 17 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 18 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 19 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 20 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 21 Hyder Consulting (UK) Limited (2011) Environment Agency Flood Risk Mapping and Data Management: Anglian Region Strategic Flood Risk Management Framework – Tidal Nene and Tidal Welland Hazard Mapping – Information received from EA 2024.
- Ref 22 Mott MacDonald (2010) Northern Area Tidal Modelling, Volume 1-5: Breach Flood Mapping – Information received from EA 2024.

- Ref 23 Mott MacDonald (2010) Northern Area Tidal Modelling, Volume 3: Overtopping Flood Mapping – Information received from EA 2024.
- Ref 24 NAFRA Dataset (2020) [online]. Available at: <https://www.arcgis.com/home/item.html?id=f8488c24a34f4456a69abd894a2ba180> [Accessed 21 October 2024].
- Ref 25 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 26 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 27 British Geological Survey (2024) Geology of Britain Viewer [online]. Available at: https://geologyviewer.bgs.ac.uk/?_ga=2.214071191.1293546165.1715951454-3653579.1715951454 [Accessed: 21 October 2024].
- Ref 28 Department for Environment, Food and Rural Affairs (DEFRA) (2024). MAGIC Maps. Available at: <https://magic.defra.gov.uk> [Accessed: 28 April 2024].
- Ref 29 Cranfield Soil and AgriFood Institute (2024) Soilsclapes Map [online]. Available at: <https://www.landis.org.uk/soilsclapes/> [Accessed: 21 October 2024].
- Ref 30 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 31 UK Centre of Ecology & Hydrology Flood Estimation Handbook Web Service. [online]. Available at: <https://fehweb.ceh.ac.uk/> [Accessed: 21 October 2024].
- Ref 32 UK Government (2025). Flood Map for Planning [online]. Available at: <https://flood-map-for-planning.service.gov.uk/> [Accessed 21 January 2025].
- Ref 33 Environment Agency (2025) Long Term Flood Risk [online]. Available at: <https://www.gov.uk/check-long-term-flood-risk> [Accessed 21 January 2025].
- Ref 34 Environment Agency Risk of Flooding from Reservoirs (2025) [online]. Available at: <https://check-long-term-flood-risk.service.gov.uk/map> [Accessed: 21 January 2025].
- Ref 35 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 36 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 37 Environment Agency (2025). Catchment data explorer database [online]. <https://environment.data.gov.uk/catchment-planning/> [Accessed 21 January 2025].
- Ref 38 Data request – Information received from EA August 2024.

- Ref 39 Environment Agency (2021) Nene Catchment Abstraction Licensing Strategy [online]. Available at: <https://assets.publishing.service.gov.uk/media/606d91e28fa8f57359cf4346/CAMS-Nene-Catchment-Abstraction-Management-Strategy.pdf> [Accessed 10 January 2025].
- Ref 40 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 41 Met Office (2024). UKCP18 Summaries and Headline Findings [online]. Available at: <https://www.metoffice.gov.uk/research/approach/collaboration/ukcp/summaries/index> [Accessed 23 October 2024].
- Ref 42 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 43 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 44 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 45 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 46 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 47 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 48 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 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 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].

7. Geology and Hydrogeology

Contents

7.	Geology and Hydrogeology	7-1
7.1	Introduction	7-1
7.2	Legislation and Policy Framework	7-4
	Legislation and National Policy	7-4
	Regional and Local Policy	7-4
7.3	Scope of Assessment	7-5
7.4	Assessment Methodology	7-6
	Assessment Assumptions and Limitations	7-7
7.5	Baseline Conditions	7-7
	Study Area	7-7
	Data Collection	7-7
	Existing Baseline	7-8
	Future Baseline	7-17
7.6	Design, Control and Additional Mitigation Measures	7-18
	Design Mitigation Measures	7-18
	Control Mitigation Measures	7-18
	Additional Mitigation Measures	7-19
7.7	Preliminary Assessment of Effects	7-20
	Likely Significant Effects	7-20
	Likely Non-Significant Effects	7-20
7.8	Monitoring	7-41
	Table 7.1 Supporting Documentation	7-2
	Table 7.2 Summary of British geological survey boreholes within the draft Order Limits for Section 6	7-12
	Table 7.3 Summary of aquifer designations	7-13
	Table 7.4 Preliminary summary of non-significant Geology and Hydrogeology effects – Section 6	7-23
	References	7-42

7. Geology and Hydrogeology

7.1 Introduction

- 7.1.1 This chapter presents the Preliminary Environmental Information (PEI) in relation to the Geology and Hydrogeology assessment of the Refined Weston Marsh Substation Siting Zone to New Walpole B Substation Section (Section 6) of the Grimsby to Walpole Project (the Project). 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 within **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 **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 6 (section 7.4). A detailed description of the assessment methods and scope, applicable to the whole Project, is contained in **PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**;
 - v. A description of the environmental baseline within the Section 6 Study Area relevant to the Geology and Hydrogeology assessment (section 7.5);
 - vi. A description of mitigation measures included for the purposes of the Geology and Hydrogeology assessment reported within the PEI Report (section 7.6). Further information regarding design development can be found in **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 Geology and Hydrogeology effects arising during construction and operation of the Project within the Section 6 Study Area, 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).
- 7.1.2 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
Topic Specific Supporting Documentation	
PEI Report Volume 2 Part B Section 6 Figures	Figure 7.1 Superficial Geology Figure 7.2 Bedrock Geology Figure 7.3 Aquifer Designations: Superficial Deposits Figure 7.4 Aquifer Designations: Bedrock Geology Figure 7.5 Landfills, Waste and Potentially Contaminative Previous Land Uses
PEI Report Volume 3 Part B Section 6 Appendix 7A Initial Contamination Risk Classification	A list of identified sites with potentially contaminative uses within the Section 6 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.
PEI Report Volume 3 Part B Sections 1 to 7 Appendix 7B Wardell Armstrong Minerals Safeguarding Report	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.
Project Specific Documentation	
PEI Report Volume 2 Part B Section 6 Chapter 1 Overview of the Section and Description of the Project	A summary of the works within Section 6, including permanent infrastructure, temporary construction works, and operational activities.
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).
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 PEI Report and ES.
PEI Report Volume 3 Part A Appendix 2Ci Local Plan Policy: Section Specific	An outline of the potentially relevant local planning policy allocations affecting each of the specific sections of the Project.
PEI Report Volume 3 Part A Appendix 2Cii Local Plan Policy: Route Wide	Details of planning policies applicable route-wide within the relevant Local Authority areas.
PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered	A summary of the main alternatives considered in relation to the Project during the design development process, including the main reasons for selecting the chosen option.

Supporting Information	Description
PEI Report Volume 2 Part A Chapter 4 Approach to Preliminary Environmental Information	Sets out the Environmental Impact Assessment (EIA) approach and general methodology that has been used in developing the PEI Report for the Project.
PEI Report Volume 2 Part A Chapter 5 Project Description	An overarching description of the Project and its key components, including available construction information.
PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice	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.

- 7.1.3 There are also interrelationships between the potential effects on Geology and Hydrogeology and other environmental topics. Therefore, please also refer to the following chapters within **PEI Report Volume 2 Part B** and **Part C**:
- i. **PEI Report Volume 2 Part B Section 6 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 and groundwater quantity, that may affect ecological receptors, such as Groundwater Dependant Terrestrial Ecosystems (GWDTE) and Sites of Specific Scientific Interest (SSSI);
 - ii. **PEI Report Volume 2 Part B Section 6 Chapter 6 Water Environment and Flood Risk** 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. **PEI Report Volume 2 Part B Section 6 Chapter 8 Agriculture and Soils** should be consulted in relation to the temporary and permanent loss of soils and soil functions and how the Project may impact the soils across the Section 6 Study Area;
 - iv. **PEI Report Volume 2 Part B Section 6 Chapter 13 Summary** provides a concise, consolidated summary of the likely significant effects reported for all topics, based upon the preliminary assessment; and
 - v. **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.

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 **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 Local Plan 2011-2036 (Adopted March 2019) (Ref 1):
 - Policy 28 – The Natural Environment: sets out the requirements for development proposals to prevent impacts on locally-designated sites (relevant for Geological Conservation Sites);
 - 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. Fenland Local Plan (Adopted May 2014) (Ref 2):
 - Policy LP19 – The Natural Environment: sets out the approach of the Council to conserve and enhance the geological interest of the natural environment (relevant for geology receptors);
 - Policy LP16 – Delivering and Protecting High Quality Environments across the District: sets out the approach of the Council to protect the environment and prevent risks from contamination and ground gas (relevant to geology and hydrogeology receptors);
 - iii. Fenland Local Plan 2021-2040: Draft Local Plan Consultation (Ref 3):
 - Policy LP24 – Natural Environment: sets out the geodiversity principles that development proposals should follow, including avoiding negative impacts on geodiversity in the first instance and adequately and proportionately mitigation unavoidable impacts; and
 - Policy LP33 – Development on Land Affected by Contamination: sets out the approach of the Council to protect the environment and prevent risks from contamination.
 - iv. King's Lynn & West Norfolk Borough Council Local Plan 2021 – 2040 (adopted March 2025) (Ref 4):
 - Policy LP19 Environmental Assets – Green Infrastructure, Landscape Character, Biodiversity and Geodiversity: Development should, in line with the mitigation hierarchy, seek to avoid, and where this is not possible, with justification, mitigate or compensate for any adverse impacts on geodiversity; and,
 - Policy LP21 Environment, Design and Amenity: Proposals will be assessed against their impact on neighbouring uses and the amenity of future occupiers across a number of factors including contamination and water quality.

- v. Greater Lincolnshire Nature Partnership, 2021. Geodiversity Strategy 2022 – 26 (Ref 5): 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;
- vi. Lincolnshire County Council, 2017. Lincolnshire Minerals and Waste Local Plan Core Strategy and Development Management Policies (Ref 5) 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;
- vii. Cambridgeshire County Council and Peterborough County Council, 2021. Cambridgeshire and Peterborough Minerals and Waste Local Plan 2036 (Ref 6);
- viii. Norfolk County Council, 2021. Norfolk Minerals and Waste Development Framework. Core Strategy and Minerals and Waste Development Management Policies Development Plan Document 2010 – 2026 (Ref 7):
 - Core Strategy Policy CS14 – Environmental Protection: sets out requirements for development proposals to ensure no unacceptable adverse impacts on natural resources (including water and soil) and geodiversity;
 - Core Strategy Policy CS16 – Safeguarding mineral and waste sites and mineral resources: sets out the safeguarding procedure for existing, permitted and allocated waste sites and the requirements for development proposals for the use of safeguarded sites;
 - Development Management Policy DM3 – Groundwater and surface water: this policy is relevant for hydrogeological receptors and sets out the requirements for developments, particularly within Source Protection Zones;
- ix. Norfolk County Council, 2017. Norfolk Minerals and Waste Development Framework. Mineral Site Specific Allocations Development Plan Document (Ref 8);
- x. Norfolk County Council, 2013. Norfolk Minerals and Waste Development Framework. Waste Site Specific Allocations Development Plan Document (Ref 9);
- xi. Norfolk Geodiversity Partnership, 2011. The Norfolk Geodiversity Action Plan (Ref 10): this document sets out the aims and objectives for conserving and protecting geodiversity sites and resources within Norfolk; and
- xii. Norfolk Geodiversity Partnership, 2011. Norfolk’s Earth Heritage – Valuing Our Geodiversity (Ref 11): this document provides background information on the geodiversity of Norfolk and a list of Geological SSSI.

7.3 Scope of Assessment

- 7.3.1 The scope of the assessment has been informed by the Scoping Opinion (Ref 12) provided by the Planning Inspectorate in September 2024 on behalf of the Secretary of State, following the submission of the EIA Scoping Report (Ref 13). 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 **PEI Report**

Volume 3 Part A Appendix 4A Planning Inspectorate Scoping Opinion Responses.

- 7.3.2 Non statutory consultation feedback is summarised within the **Grimsby to Walpole Stage 1 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 **PEI Report Volume 2 Part C Route-wide Chapter 8 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 **PEI Report Volume 2 Part B Section 6 Chapter 8 Agriculture and Soils**);
 - v. Structures; and
 - vi. Designated geological conservation sites (none present within the Section 6 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 **PEI Report Volume 2 Part C Route-wide Chapter 8 Health and Wellbeing**);
 - ii. Groundwater aquifers;
 - iii. Groundwater abstractions; and
 - iv. Structures (none present for the operation and maintenance phases for Section 6).

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 **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 are outlined below.
- 7.4.2 The assessment for Geology and Hydrogeology has been undertaken in line with Land Contamination Risk Management (LCRM) guidance (Ref 14), which includes an approach for contaminated land 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 Approach to Groundwater Protection (Ref 15) including the requirements noted in that guidance in relation to Nationally Significant Infrastructure Projects. The EA's

guidance also applies to physical effects on groundwater, forming the framework used for the assessment of these effects.

- 7.4.3 The assessment has been carried out using recognised criteria based on Construction Industry Research and Information Association (CIRIA) Publication 552 Contaminated Land Risk Assessment: A Guide to Good Practice (Ref 16), adapted as necessary to support environmental impact assessment.
- 7.4.4 The assessment is expected to be developed further in the ES, where supplementary 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 Geology and Hydrogeology are listed within **PEI Report Volume 3 Part A Appendix 4B EIA Technical Assessment Methodologies and Scope**. There are no limitations and assumptions specific to the Geology and Hydrogeology assessment for Section 6.
- 7.4.6 The 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 applicable to the full assessment, particularly drawing attention to any areas that may have changed from that presented in this preliminary assessment.

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 12). As outlined within the Scoping Report (Ref 13), 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:
- Published historical mapping to identify potentially contaminative former land uses (National Library of Scotland mapping, (Ref 17);
 - Geological mapping published by the British Geological Survey (BGS) (1:50,000 scale) (Ref 18);
 - Historical borehole records held by the BGS (Ref 18), details of which are provided within **Table 7.2**;
 - Groundwater abstraction details (public and private), discharge consents, historical pollution incident records, and historical and authorised landfills, as

- available from the Environment Agency (EA) and Local Planning Authorities, obtained through formal data requests;
- v. Department for Environment, Food and Rural Affairs (DEFRA) groundwater aquifer information, provided through MAGIC (Multi-Agency Geographic Information for the Countryside) (Ref 19);
 - vi. Source Protection Zones (SPZ) data, available under Open Government License (Ref 20);
 - vii. Environment Agency (EA) Catchment Data Explorer records on groundwater quality (Ref 21);
 - viii. Natural England designated Sites, i.e. Geological SSSIs, provided through MAGIC (Ref 19);
 - ix. Zetica Unexploded Ordnance (UXO) online hazard mapping (Ref 22);
 - x. Records from Fenland District Council, including historical and current potentially contaminative land uses and petroleum licensing records, obtained through a formal data request and received on 24 January 2025;
 - xi. Records from King's Lynn & West Norfolk Borough Council, including historical and current potentially contaminative land uses, obtained through a formal data request and received on 16 August 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 Grimsby to Walpole Scoping Report. 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 hectares in a 100m wide swathe), originally obtained relative to earlier provisional engineering design alignment options. This dataset covers approximately 70 per cent of the draft Order Limits for Section 6.

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 **PEI Report Volume 2** and **Volume 3** respectively:
- i. **PEI Report Volume 2 Part B Section 6 Figure 7.1 Superficial Geology;**
 - ii. **PEI Report Volume 2 Part B Section 6 Figure 7.2 Bedrock Geology;**
 - iii. **PEI Report Volume 2 Part B Section 6 Figure 7.3 Aquifer Designations: Superficial Deposits;**
 - iv. **PEI Report Volume 2 Part B Section 6 Figure 7.4 Aquifer Designations: Bedrock Geology;**
 - v. **PEI Report Volume 2 Part B Section 6 Figure 7.5 Landfills, Waste and Potentially Contaminative Previous Land Uses;**

- vi. **PEI Report Volume 3 Part B Section 6 Appendix 7A Initial Contamination Risk Classification;** and
- vii. **PEI Report Volume 3 Part B Sections 1 to 7 Appendix 7B Wardell Armstrong Minerals Safeguarding Report.**

Topography and Current Land Use

- 7.5.5 Section 6 covers the overhead line from the Refined Weston Marsh Substation Siting Zone to New Walpole Substation B, from Spalding in the north west to Ingleborough in the south east. Section 6 includes approximately 27 km of overhead line with pylons at regular intervals (generally at approximately 350 m spacing), including pylons SW1 to SW81.
- 7.5.6 The land within the Section 6 Study Area is largely used for agricultural purposes with several major roads (including the A151, B1357, B1165, B1168 and the A1101) and minor/local roads within the draft Order Limits.
- 7.5.7 A review of Ordnance Survey (OS) mapping shows the Section 6 Study Area to be flat-lying throughout, with topographic highs of 5 m above ordnance datum (AOD) in the east, to the north of Newton-in-the-Isle. Existing 132 kV overhead lines are present in two locations within the Section 6 Study Area, shown on OS mapping, directly south of pylon SW33 (east to west) and directly east of pylon SW66 (north east to south west). A National Grid gas compressor station is located within the Section 6 Study Area, north east of pylon SW73 and outside of the draft Order Limits, east of Four Gotes.
- 7.5.8 Surface water features (drains and streams) are present within the draft Order Limits for Section 6, with the notable features including the South Holland Main Drain (located southwest of Sutton St James), the North Leven Main Drain (located south of Tydd St Giles) and the River Nene (located south east of Tydd St Giles). Surface water features are abundant within the eastern half of Section 6, with field drains indicated along the majority of field parcel boundaries. The land within the eastern end of the Section 6 Study Area is also labelled as 'The Salts' on historical mapping, potentially indicating historical evaporative salt production.
- 7.5.9 Consistent with the agricultural setting of the Section 6 Study Area, several farm buildings, residential properties and occasional villages/hamlets are located within the Section 6 Study Area, but outside the draft Order Limits, with some in close proximity to the draft Order Limits. Areas of ground disturbance are evident from aerial imagery at some of these premises.
- 7.5.10 Aerial imagery indicates that there is some commercial built development in the Section 6 Study Area (all situated outside of the draft Order Limits), including agricultural businesses and contractors, civil engineering contractors, a fire station, a solar farm, a container and storage contractor, a vehicle repair centre, a plant nursery, and a fruit/vegetable distribution centre. Further details about these land uses (e.g. locations and distances from the draft Order Limits) are provided in **PEI Report Volume 3 Part B Section 6 Appendix 7A Initial Contamination Risk Classification**.
- 7.5.11 An area of disturbed ground, evident on aerial imagery by discoloured ground and small structures, is present immediately south of the draft Order Limit, approximately 150 m south east of pylon SW60.

Historical Land Use

- 7.5.12 Allotments are indicated on historical mapping within the Section 6 Study Area, located approximately 280 m south of pylon SW54 and Cross Drove, but directly south of the draft Order Limits. These are not shown on current aerial imagery.
- 7.5.13 A historical railway (Midland and Great Northern Joint Railway) crosses the Section 6 Study Area on historical mapping to the north of Weston Hills, extending north east to southwest. This feature crosses the draft Order Limits approximately 50 m north of pylon SW9, with the existing station house just beyond the draft Order Limits and is shown as disused on historical mapping from the 1940's. Adjacent to this location on current aerial imagery is an area of material/scrap storage. Immediately adjacent to the historical railway, a nursery is recorded on historical mapping dated 1987.
- 7.5.14 An unspecified pit is recorded on historical mapping and located within the draft Order Limits directly west of pylon SW32 and within the pylon working area, dated 1887. This feature is not evident from current aerial imagery, suggesting that it has been backfilled. The nature of any backfill of the pit is not known, although it is a small historical feature (approximately 10 m diameter) so is likely to have been infilled with locally sourced material.
- 7.5.15 A second historical railway (Peterborough Wisbech and Sutton Bridge Branch) is present within the east of Section 6, crossing the draft Order Limits from north east to south west along the edge of the River Nene and approximately 150 m east of pylon SW73. This feature is shown on historical mapping from the 1880's to the 1970's. An area of unspecified ground workings is recorded adjacent to this feature.
- 7.5.16 A further historical railway is located within the draft Order Limits and approximately 50 m east of pylon SW79. This feature includes tramways dated 1927 and railway sidings dated 1950.
- 7.5.17 An unspecified tank is recorded on historical mapping dated 1927, within the draft Order Limits and located south of pylon SW78, although this feature is not shown on more recent mapping.
- 7.5.18 A historical sewage treatment works (Walpole St Andrew Sewage Works) is noted from historical mapping to be located on the northern boundary of the draft Order Limits, to the north west of Ingleborough and approximately 1.5 km north of pylon SW74, adjacent to the River Nene. No infrastructure associated with this works is evident at present, and the land appears to have been restored to an open field adjacent to the River Nene.
- 7.5.19 A number of historical features outside the draft Order Limits but within the Section 6 Study Area have been identified within the assessment of baseline conditions, including two mills, a water works with a water tower and tanks, and a refuse/slag heap. Further details about these land uses (e.g. locations and distances from the draft Order Limits) are provided in **PEI Report Volume 3 Part B Section 6 Appendix 7A Initial Contamination Risk Classification**.
- 7.5.20 The current and historical features identified within this Section are shown on **PEI Report Volume 2 Part B Figure 7.5 Landfills, Waste and Potentially Contaminative Previous Land Uses**.

Geology

Made Ground

- 7.5.21 There are no recorded artificial deposits on published geological mapping (Ref 18) within the draft Order Limits or Section 6 Study Area, although Made Ground would be expected in minor deposits within isolated areas along roads and access tracks (such as the major roads including the A151, B1357, B1165, B1168 and the A1101) and in areas of historical and current land uses, as noted within the 'Historical Land Use' and 'Topography and Current Land Use' sections above.

Superficial Deposits

- 7.5.22 The Section 6 Study Area is recorded to be underlain by superficial deposits along its entire length, comprising Tidal Flat deposits which consist of clay and silt, with localised areas of sand and silt within the centre of Section 6. No other superficial deposits are recorded within the Section 6 Study Area. The distribution of the superficial deposits within the Section 6 Study Area is shown on **PEI Report Volume 2 Part B Section 6 Figure 7.1 Superficial Geology**.

Bedrock

- 7.5.23 The bedrock within the Section 6 Study Area is recorded to comprise:
- i. Mudstone of the Oxford Clay Formation in the northern end of the Section 6 Study Area (pylon SW1 to pylon SW6) – generally recorded to comprise silicate mudstone with sporadic beds of argillaceous limestone nodules;
 - ii. Mudstone and siltstone of the West Walton Formation in the north and centre of the Section 6 Study Area (up to pylon SW50) – this formation is generally recorded to comprise calcareous mudstone, silty mudstone and siltstone, with argillaceous limestone or siltstone nodules;
 - iii. Mudstone of the Ampthill Clay Formation in the centre and east of the Section 6 Study Area, from pylon SW50 (adjacent to Tydd St Giles) to pylon SW81 (north west of Walton Highway) – generally described as smooth or slightly silty mudstone with argillaceous limestone nodules.
- 7.5.24 The distribution of the bedrock strata within the Section 6 Study Area is shown on **PEI Report Volume 2 Part B Section 6 Figure 7.2 Bedrock Geology**.

Geological Setting

- 7.5.25 No linear geological features (e.g. faults, breaklines, etc.) are recorded within the Section 6 Study Area. Published geological mapping (Ref 18) records a regional dip of bedrock strata towards the east, although there is no indication of strata dip within the Section 6 Study Area.
- 7.5.26 Borehole records published by the BGS (Ref 18) within the draft Order Limits were reviewed as part of this assessment to help confirm the anticipated geological sequence in line with the published geological mapping. Five boreholes are located within the draft Order Limits for Section 6 and the logs from these are summarised in **Table 7.2** below.

Table 7.2 Summary of British geological survey boreholes within the draft Order Limits for Section 6

Borehole ID	Location (Easting, Northing)	Location Description	Stratigraphy
TF31NW8	533900, 319970	South of the draft Order Limits off Ravens Bank at Whaplode St Catherine, approximately 600 m south of pylon SW28	<ul style="list-style-type: none"> 0 – 0.30 m: Topsoil 0.30 – 2.00 m: Silty sand
TF31NE11	537630, 315880	Within the draft Order Limits off New Fen Dike, approximately 150 m east of pylon SW47	<ul style="list-style-type: none"> 0 – 1.10 m: Silty clay 1.10 – 3.85 m: Clay with rootlets
TF31NE10	537750, 315830	On the boundary of the draft Order Limits off Sandy Gate, approximately 90 m north west of pylon SW48	<ul style="list-style-type: none"> 0 – 0.65 m: Clay 0.65 – 0.67 m: Peat 0.67 – 3.75 m: Clay
TF31NE12	537480, 315720	On the boundary of the draft Order Limits, off New Fen Dike, approximately 200 m south of pylon SW47	<ul style="list-style-type: none"> 0 – 1.40 m: Clay 1.40 – 1.85 m: Silty clay and silt 1.85 – 2.85: Silt
TF41SW10	540100, 314870	On the southern boundary of the draft Order Limits, off Middle Broad Drove, approximately 180 m south west of pylon SW56	<ul style="list-style-type: none"> 0 – 2.95 m: Clay 2.95 – 9.08 m: Silty sand 9.08 – 9.20 m: Peat 9.20 – 11.75 m: Sand with gravel

- 7.5.27 It should be noted that small thicknesses of peat were identified within some of the boreholes in **Table 7.2**, although peat deposits are not recorded on the published geological mapping within the Section 6 Study Area. These thin peat horizons may be a consequence of a variation in the composition/organic content of the Tidal Flat deposits. Unrecorded similar occurrences may occur elsewhere in Section 6.
- 7.5.28 No Local Geological Sites or sites nationally designated for their geological importance (e.g. SSSI) are located within the Section 6 Study Area.
- 7.5.29 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 **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 **PEI Report Volume 2 Part B Section 6 Figure 7.1 Superficial Geology** should be made for the areas affected by the classifications described.

- 7.5.30 Tidal Flat deposits (recorded across the entire Section 6 Study Area) are classified as Class D in relation to compressibility, meaning that compressibility and uneven settlement hazards are probably present. These deposits are also designated as medium plasticity clays (Class C with respect to shrink-swell hazards) and Class D for running sands hazards (defined as running sand hazards ‘may be’ or are ‘probably present’). One area of Class E for running sand hazards is recorded surrounding pylon SW53 (defined as meaning that running sand conditions are almost certainly present in this area).

Hydrogeology

- 7.5.31 The localised areas of Tidal Flat deposits comprising sand and silt within the centre of Section 6 are designated as a Secondary Undifferentiated Aquifer. The Tidal Flat deposits comprising clay and silt, and the bedrock strata (mudstone of the Oxford Clay Formation, mudstone and siltstone of the West Walton Formation and mudstone of the Ampthill Clay Formation) are designated as Unproductive Strata.
- 7.5.32 The designations and spatial distribution of the superficial and bedrock aquifers within the Section 6 Study Area are shown on **PEI Report Volume 2 Part B Section 6 Figure 7.3 Aquifer Designations: Superficial Deposits** and **PEI Report Volume 2 Part B Section 6 Figure 7.4 Aquifer Designations: Bedrock Geology**. A brief summary of the aquifer descriptions is provided below in **Table 7.3**.

Table 7.3 Summary of aquifer designations

Aquifer Designation	Hydrogeological Description
Principal	Layers of rock that have high intergranular and/or fracture permeability and a high level of water storage, they may support water supply and/or river base flow on a strategic scale.
Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.
Secondary B	Lower permeability layers which may store or yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering.
Secondary Undifferentiated	Rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow, and when neither Secondary A or B aquifer designation can be applied.
Unproductive	These strata have negligible significance for water supply or baseflow to rivers, lakes and wetlands. They typically consist of strata with low permeability that naturally offer protection to any aquifers that may be present beneath.

- 7.5.33 The Section 6 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 the superficial deposits and solid strata across the majority of Section 6.
- 7.5.34 No drinking water safeguard zones or nitrate vulnerable zones (NVZ) are present within the Section 6 Study Area.

Groundwater Levels

- 7.5.35 The BGS does not hold any records for groundwater levels within the Section 6 Study Area within their online published records. The closest borehole in the BGS records monitored at regular intervals for groundwater levels is located approximately 19 km north west of the Section 6 Study Area at Aslackby, adjacent to the A15, and data from this borehole is not considered relevant to the baseline conditions in Section 6.
- 7.5.36 The EA also does not hold any records for groundwater levels within the Section 6 Study Area. The closest borehole monitored by the EA for groundwater levels is located to the north of the Section 3 Study Area and is within a groundwater aquifer (Southern Lincolnshire Chalk) not connected to those within Section 6. Therefore, data from this borehole is not considered relevant to the baseline conditions in Section 6.

Source Protection Zones

- 7.5.37 No SPZs are present within the Section 6 Study Area, due to the generally unproductive nature of the superficial and bedrock strata within this Section.

Abstractions

- 7.5.38 There is one recorded groundwater abstraction within the Section 6 Study Area, located outside of the draft Order Limits and approximately 930 m north of pylon SW72. This abstraction (reference AN/032/0011/040) is associated with agriculture and irrigation for J. M. Newling & Son Limited at Silverwood Farm, east of Four Gotes.
- 7.5.39 The local authorities of South Holland District Council, Fenland District Council and Kings Lynn & West Norfolk Borough Council have all indicated that they have no records of private water supplies within the Section 6 Study Area.

Environmental Setting

- 7.5.40 Zetica UXO online risk mapping (Ref 22) shows the Section 6 Study Area as lying entirely within an area of Low bomb risk, with no strategic targets identified within the Section 6 Study Area.
- 7.5.41 A total of four historical landfills are located within the Section 6 Study Area, the first of which is located 50 m east of the draft Order Limits and approximately 700 m east of pylon SW37. This landfill is recorded as Jekyll's Farm and is recorded to have accepted household waste, but has no recorded input dates.
- 7.5.42 A historical landfill is also recorded 50 m south of the draft Order Limits and approximately 400 m south west of pylon SW42. This landfill (Leeds Gate Bridge) has no recorded input dates or waste types, so the nature of the infill is unknown.
- 7.5.43 Two historical landfills are recorded within one location within the draft Order Limits, approximately 1.5 km north east of pylon SW44. These landfills (Holly Tree House –

Manor Farm and Birds Drove Corner) are both recorded to have accepted household waste, but have no recorded input dates.

- 7.5.44 There are no recorded current landfills within the Section 6 Study Area.
- 7.5.45 There are two recorded waste exemptions within the Section 6 Study Area. The first (WEX132658) is recorded directly east of the draft Order Limits, off Bird's Drove and approximately 170 m north east of pylon SW49. The second (WEX164031) is located directly north of the draft Order Limits off High Road (B1165) and approximately 110 m north west of pylon SW63. These exemptions are both recorded for storage of sludge on a farm.
- 7.5.46 King's Lynn & West Norfolk Borough Council have provided a list of historical and current contaminative land uses, none of which are located within the draft Order Limits. Three are located within the Section 6 Study Area, but outside the draft Order limits, all of which are associated with closed petroleum licenses. The first is recorded at Honington House Farm, off Mill Road, north of West Walton, and approximately 100 m south of the draft Order Limits, approximately 290 m south of pylon SW77. The second is recorded at Crown Farm off Mill Road, approximately 50 m north east of the draft Order Limits and approximately 260 m north east of pylon SW77. The third is recorded at Priory Farm off Salts Road, north west of Walton Highway, approximately 100 m south of the draft Order Limits and approximately 500 m south of pylon SW81.
- 7.5.47 The information provided by King's Lynn & West Norfolk Borough Council also identified the former Walpole St Andrew Sewage Works within the Section 6 Study Area (described with the 'Historical Land Use' section of this Chapter), located adjacent to the River Nene on the northern Study Area boundary, approximately 500 m north of the draft Order Limits and approximately 1.5 km north of pylon SW74.
- 7.5.48 Fenland District Council have provided a list of historical and current contaminative land uses. Two of these features are located on the boundary of the draft Order Limits for Section 6 to the north of Tydd St Giles. One of these is associated with a historical mill which is also the site of a closed petroleum license, although the location of fuel storage tanks, operational dates and any decommissioning details are unknown. The second is located directly north of the North Level Main Drain and is recorded as a refuse/slag heap. This feature is recorded by the local authority as having no current evidence of slag or refuse and currently comprises agricultural land.
- 7.5.49 Fenland District Council records three further petroleum license records for underground tanks, all of which are located outside the draft Order Limits for Section 6 and therefore not within areas of ground disturbance associated with the Project. One of these is recorded as having been removed, one is recorded as now storing waste oil and the other as now storing diesel.
- 7.5.50 Further information about these features within the Section 6 Study Area is provided in **PEI Report Volume 3 Part B Section 6 Appendix 7A Initial Contamination Risk Classification**. The locations of these features are also shown on **PEI Report Volume 2 Part B Section 6 Figure 7.5 Landfills, Waste and Potentially Contaminative Previous Land Uses**.

Pollution Incidents

- 7.5.51 The EA has reported a total of 26 historical pollution incidents within the Section 6 Study Area, dating between 2002 and 2023. The details of these incidents are summarised as follows.
- 7.5.52 There are no recorded Category 1 (major) or Category 2 (significant) pollution incidents to water or land within the draft Order Limits. However, there is a Category 2 incident to land located immediately adjacent to the draft Order Limits, approximately 330 m southwest of pylon SW41. This occurred in 2006 and involved fly-tipping of asbestos materials. Given that the record is a point location, whereas the incident will have covered an area, it is possible that some of the fly tipping may have encroached into the draft Order Limits.
- 7.5.53 There are two recorded Category 3 (minor) incidents to land in the draft Order Limits, both of which are also Category 3 (minor) incidents to water. These relate to pollution with 'agricultural materials and waste' approximately 100 m south of pylon SW44, and diesel from a road traffic accident approximately 150 m south east of pylon SW3.
- 7.5.54 The remaining 23 historical pollution incidents within the Section 6 Study Area are located outside the draft Order Limits. Of these, five are recorded to be air pollution incidents that had no effect on land or water, so are not relevant to the Geology and Hydrogeology baseline. The remaining 18 comprise:
- i. One Category 1 (major) incident to water. This is recorded to have been an incident arising from natural causes (associated with dry weather) with no specific associated contaminant type. The incident occurred in 2011 and is positioned at a surface watercourse (South Holland Main Drain). It is therefore considered that this is a historical surface water incident that is not likely to be having any current effect on the Geology and Hydrogeology baseline conditions in Section 6;
 - ii. Two Category 2 (significant) incidents to water. These were a drainage failure from food manufacturing (related to the release of vegetable washings) located 200 m west of the draft Order Limits and approximately 580 m north east of pylon SW12, and an unauthorised discharge from a road (with the contaminant type recorded as 'other contaminated water') located approximately 430 m south of the draft Order Limits and approximately 670 m south west of pylon SW43; and
 - iii. Fifteen Category 3 (minor) incidents to either land, water, or both. These cover a range of causes and contaminants (e.g. fly-tipping of household waste and asbestos, fires, oils/fuels, sewage discharges etc.). Given their minor categorisation and location outside the draft Order Limits, it is considered unlikely that these historical pollution incidents will be having a substantive effect on the current Geology and Hydrogeology baseline within the draft Order Limits.
- 7.5.55 The locations of recorded historical pollution incidents within the Section 6 Study Area are shown on **PEI Report Volume 2 Part B Section 6 Figure 7.5 Landfills, Waste and Potentially Contaminative Previous Land Uses**.

Discharge Consents

- 7.5.56 Three discharge consents are located within the Section 6 Study Area. All of these are associated with surface water features rather than being discharges to groundwater. Therefore, they are not considered to be relevant for this assessment,

noting that effects on hydrological receptors are assessed in **PEI Report Volume 2 Part B Section 6 Chapter 6 Water Environment and Flood Risk**.

Minerals

- 7.5.57 A Minerals Safeguarding Report has been prepared for the Project, which is provided in **PEI Report Volume 3 Part B Sections 1 to 7 Appendix 7B Minerals Safeguarding Report**. This report identifies the safeguarded minerals within the draft Order Limits and any potential effects on these as a result of the Project, within the context of relevant mineral safeguarding policy. There are no deposits within the Section 6 Study Area that are considered to be safeguarded minerals.
- 7.5.58 The minerals report has not identified any potentially significant effects on safeguarded minerals. Therefore, these have not been assessed subsequently in this Chapter of the PEI Report, in line with the approach agreed within the Scoping Opinion (Ref 12).

Future Baseline

- 7.5.59 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.
- 7.5.60 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 **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.
- 7.5.61 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.
- 7.5.62 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.

7.5.63 It is not considered likely at this stage that any change to the baseline conditions would be likely to significantly affect the assessment of effects within Section 6. This will remain under review prior to submission of the ES, to ensure that any change 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 as far as practicable. This is in accordance with the 'Holford Rules' (Ref 23) applicable to routing of new overhead lines and the 'Horlock Rules' (Ref 24) 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 25) and **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 6. 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 **PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice**. The control measures included within the Preliminary CoCP relevant to Geology and Hydrogeology assessment of Section 6 include:
- i. GH01: Intrusive ground investigations and assessment will be undertaken prior to construction which will inform appropriate geotechnical design in relation to the site/structure specific ground conditions including ground instability/adverse ground conditions.
 - ii. GH02: Construction methods such as appropriate piling techniques (if 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' (CL:AIRE, 2025) (Ref 26).
 - 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 27).
- v. GH05: Any temporary dewatering activities during construction will be undertaken in accordance with EA guidance (Ref 15), 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 contamination avoidance 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 28).
- viii. GH08: Application of salt grit (for example, to prevent access tracks freezing) to comply with recommended rates in CIRIA 648 'Control of water pollution from linear construction projects (C648)' (Ref 29), with control of run-off during any application in SPZs.
- ix. GH11: A protocol for dealing with any unexpected contamination will be included in the CEMP.
- x. 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.
- xi. GG21: A Materials 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; and
 - 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 30). 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 6 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 **PEI Report Volume 2 Part B Section 6 Chapter 13 Summary**. A supplementary summary of all non-significant effects is also included within this Section in **Table 7.4**, based upon the assessment scope detailed in **PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.
- 7.7.4 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 7.4**. Examples include consideration of receptors of particularly high sensitivity or effects which have been identified of interest during previous consultation and engagement.
- 7.7.5 It should be noted that the assessment which has informed the conclusions presented remains ongoing and is subject to change, due to the ongoing data collection and further design development of the Project. A full detailed assessment will be included within the ES submitted with the DCO application.

Likely Significant Effects

Construction

- 7.7.6 Based upon the preliminary assessment, no significant effects are predicted for Geology and Hydrogeology receptors within Section 6, as a result of the construction phase of the Project.

Operation and Maintenance

- 7.7.7 Based upon the preliminary assessment, no significant effects are predicted for Geology and Hydrogeology receptors within Section 6, as a result of the operation and maintenance phase of the Project.

Likely Non-Significant Effects

- 7.7.8 As stated in Paragraph 7.7.4 a detailed explanation of the assessment of notable non-significant effects identified for Geology and Hydrogeology during construction, operation and maintenance is provided in the subsequent sections.

Construction

Harm to human health (construction workers and adjacent land users) due to exposure to pre-existing ground contamination, specifically at Manor Farm and Bird's Drove Corner Landfills

- 7.7.9 **PEI Report Volume 3 Part B Section 6 Appendix 7A Initial Contamination Risk Classification** identifies that several of the areas of historical land use within the Section 6 Study Area are classified as having a moderate or higher risk of land contamination. In accordance with the approach defined in the EIA Scoping Report (Ref 13) and within **PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**, the potential effects on receptors from ground disturbance at such sites requires assessment. These effects are assessed in **Table 7.4**. However, in the specific case of human health risks from ground disturbance at Manor Farm and Bird's Drove Corner landfills, an expanded assessment is provided below. This additional detail is warranted because these are sites identified as having a high risk of contamination (in **PEI Report Volume 3 Part B Section 6 Appendix 7A Initial Contamination Risk Classification**) and they are within the draft Order Limits, so may undergo ground disturbance during the construction of the Project.
- 7.7.10 Manor Grove and Bird's Drove Corner landfills are co-located (i.e. overlap in extent) in an area where the Project will involve the widening of Broadgate Road, which is adjacent to the north of the landfills. The road will be widened to the south, thus encroaching slightly into the recorded landfill boundaries, with an overlap between the draft Order Limits and the recorded landfill boundaries of approximately 5 m – 10 m. The landfills are located approximately 1.5 km from the closest pylon construction activities.
- 7.7.11 The landfills are recorded by the EA to have received household waste. There are no details available regarding the dates between which waste was accepted, nor the construction details of the landfills (e.g. whether they have any engineered capping, lining, gas control etc.). The landfill records available from the EA for Manor Farm landfill show an extent that is likely to relate to the digitised boundary of the landfill site as a whole (e.g. from historical permitting or other records). Typically, the extent of waste deposition may reduce to minimal thickness within a few metres of the boundary, as it is impracticable to deposit waste in substantial thicknesses right to a boundary. The record for Bird's Drove Corner is a point location record, with a 25 m radius buffer, so is only indicative of the presence of landfill waste in this general location rather than its extent. The point record for Bird's Drove Landfill is located within the EA digitised landfill site boundary of Manor Farm landfill (although the 25 m radius buffer extends beyond it) suggesting that Bird's Drove may be a different name and/or phase of landfilling at the Manor Farm site.
- 7.7.12 Construction activities for areas of indicative temporary highway improvements would include shallow excavations as necessary to widen the road. It is possible that this would encounter deposits of household waste, although given that the area of indicative temporary highway improvements only overlaps the periphery of the landfill boundaries it is not certain that such deposits would be encountered and, if they are, they are likely to be relatively thin. In accordance with control measure GH01 within the **PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice**, intrusive ground investigations would be undertaken in advance of construction to identify the presence/absence and nature of any waste materials that may be disturbed by construction activities.

- 7.7.13 Should the ground investigation identify the presence of household waste deposits then, depending on their age, such deposits may contain domestic ash (e.g. elevated concentrations of metals and polycyclic aromatic hydrocarbons (PAH)), degradable waste, and leachate (e.g. elevated concentrations of dissolved metals, ammonia, sulphate etc.). The adoption of suitable health and safety working procedures for excavations in such materials, e.g. use of correct personal protective equipment, and impoundment and off-site disposal of any leachate arisings (control measure GH05 within **PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice**) would adequately mitigate risks to construction workers, resulting in a negligible magnitude of change. Likewise, these control and management measures would mitigate risks to adjacent land users. This is because the construction work would involve relatively small scale excavations and any releases of contamination to the adjacent environment would be adequately mitigated through dust suppression and leachate control (control measure GH06 within the Preliminary CoCP).
- 7.7.14 Engagement with the Local Planning Authority and EA will be undertaken to identify any further records on the age, composition and nature (i.e. waste types) of the landfills. This will also seek to identify any records of engineered containment systems (capping or lining) and gas and leachate control systems at the landfills, so that construction works can be designed not to impair the performance of such systems.
- 7.7.15 The receptor sensitivity is medium for construction workers and high for adjacent land users. The magnitude of change is negligible in both cases. This results in an assessment of the effect of negligible and not significant.

Table 7.4 Preliminary summary of non-significant Geology and Hydrogeology effects – Section 6

Receptor ^{1,2}	Impact	Sensitivity /Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
Construction					
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 6 draft Order Limits with a moderate or greater contamination potential, including historical landfills, historical railways, an unspecified pit and an unspecified tank. The contamination sources within the Section 6 Study Area are summarised within PEI Report Volume 3 Part B Section 6 Appendix 7A Initial Contamination Risk Classification.</p> <p>The pit is within the working area for pylon SW32. The nature of any backfill of the pit is not known, although it is a small historical feature (around 10 m diameter) so is likely to have been infilled with locally sourced material. Any effects would be prevented or suitably mitigated through pre-construction ground investigation (control measure GH01 of</p>

¹ Groundwater bedrock aquifers and Geological Conservation Sites have not been included as receptors within this table due to their absence within the Study Area for Section. The Oxford Clay Formation, West Walton Formation and Ampthill Clay Formation are not considered as groundwater aquifers due to the unproductive nature of the strata. There are no Geological Conservation Sites within the Study Area for Section 6.

² Ground gas effects are not included for the operational phase, as there are no receptors within this Section (i.e. no permanent new enclosed spaces/structures in which ground gas could accumulate).

Receptor ^{1,2}	Impact	Sensitivity /Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
					<p>the Preliminary CoCP) and corresponding controls informed by the findings of the investigation.</p> <p>With the exception of the historical pit, all of the potential sources with a moderate or greater contamination potential within the Section 6 draft Order Limits are located outside pylon working areas and locations where undergrounding of existing Distribution Network Operator (DNO) assets may be required, so will undergo either no ground disturbance or minimal ground disturbance (e.g. oversailed by overhead lines or crossed by construction accesses). This includes the historical landfills, where the Project will involve only temporary highway improvements, which would involve small scale excavations for which the risk of adverse effects would be mitigated through the use of correct personal protective equipment, as well as impoundment and off-site disposal of any leachate arisings and suitable dust suppression.</p> <p>Areas of potential contamination recorded immediately adjacent to the draft Order Limits, which may have spread to or affected land within the draft Order Limits, include a previous pollution incident involving fly tipped asbestos and a</p>

Receptor ^{1,2}	Impact	Sensitivity /Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
					<p>petroleum licence record at a former mill site.</p> <p>Given the age of the pollution incident (2006), and the fact that it was noted/recorded by the EA, it is reasonable to assume that the waste will have been removed and that there is not any ongoing/residual effect on land within the draft Order Limits. Furthermore, the adjacent land is within the draft Order Limits for the purpose of maintenance access only, so there is no potential construction phase effect.</p> <p>In relation to the former mill/petroleum licence site, the low permeability geology (Tidal Flat deposits) would be expected to limit contaminant migration and the current use of the land within the draft Order Limits adjacent to this site (agricultural) means that any notable shallow hydrocarbon contamination would have already been detected by agricultural activities such as ploughing (shallow contamination being the relevant consideration given that the Project would only involve temporary highway improvements, involving shallow excavations, in this location).</p> <p>It is concluded that, based on an assessment of moderate or higher risk contamination features within or adjacent</p>

Receptor ^{1,2}	Impact	Sensitivity /Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
					<p>to the draft Order Limits (as identified in PEI Report Volume 3 Part B Section 6 Appendix 7A Initial Contamination Risk Classification), potential risks associated with pre-existing contamination would be adequately mitigated through the use of suitable occupational safety controls (including PPE) and the implementation of the control measures provided in the Preliminary CoCP.</p> <p>Consequently, the resulting effects would be negligible (not significant).</p> <p>In the event that unexpected contamination is encountered either by pre-construction ground investigation or during construction, then based upon the use of appropriate PPE and the implementation of control measures within the Preliminary CoCP (including GH01, GH06 – which would include dust and leachate control, GH11 – protocol for unexpected contamination, and GG21 – control of earthworks and materials movements), exposure pathways would be reduced/prevented such that the effects on construction workers would not be significant.</p>
		High (adjacent land users)	Negligible	Negligible – not significant	The potential contamination sources within the Section 6 Study Area are

Receptor ^{1,2}	Impact	Sensitivity /Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
					<p>summarised within PEI Report Volume 3 Part B Section 6 Appendix 7A Initial Contamination Risk Classification.</p> <p>Due to the general minimal ground disturbance anticipated in areas of potential contamination and the small number of residences or other premises adjacent to the draft Order Limits, the likelihood for contamination to be mobilised that could affect adjacent land users (e.g. via the ingestion of contaminated dust or inhalation of vapours) is very low.</p> <p>In the event that unexpected contamination is encountered by either pre-construction ground investigation or during construction, based upon the implementation of control measures within the Preliminary CoCP (including GH01, GH11 and GH06), the exposure pathways would be reduced/prevented such that the effects on adjacent land users would not be significant.</p>
Groundwater Aquifers	Deterioration in chemical quality of the groundwater, through disturbance of the ground during construction that is affected by pre-existing contamination	Medium – Tidal Flat deposits (comprising sand and silt)	Negligible	Negligible – not significant	The majority of the Section 6 Study Area is underlain by Unproductive Strata. However, isolated areas of granular Tidal Flat superficial deposits, comprising sand and silt, are recorded surrounding pylon SW53 and in other localised areas within the centre of the Section 6 Study Area but

Receptor ^{1,2}	Impact	Sensitivity /Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
					<p>beyond the draft Order Limits, which may yield or store limited amounts of groundwater and are classified as a Secondary Undifferentiated Aquifer.</p> <p>Potential contamination sources identified within the Section 6 Study Area have been summarised within PEI Report Volume 3 Part B Section 6 Appendix 7A Initial Contamination Risk Classification. These have the potential to negatively affect sensitive aquifers if pre-existing contamination is mobilised during construction. However, none of these sources are located within or near the Secondary Undifferentiated Aquifer.</p> <p>Control measure GH02 in the Preliminary CoCP includes the use of suitable piling methods, in accordance with a FWRA, to prevent pathway creation towards groundwater, if pre-existing contamination is encountered during construction.</p> <p>In the event that unexpected contamination is encountered either by pre-construction ground investigation or during construction, with the implementation of control measures within the Preliminary CoCP (including GH01, GH02 and GH11), the pathways would be reduced/prevented such that the effects on the groundwater aquifers are would not be significant.</p>

Receptor ^{1,2}	Impact	Sensitivity /Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
Groundwater Abstractions	Deterioration in chemical quality of the groundwater, through disturbance of the ground during construction that is affected by pre-existing contamination	Medium – Abstractions used for agricultural purposes	Negligible	Negligible – not significant	<p>There is one medium sensitivity groundwater abstraction within the Section 6 Study Area. This abstraction is associated with agriculture and irrigation for J. M. Newling & Son Limited at Silverwood Farm, located north of the draft Order Limits and approximately 930 m north of pylon SW72.</p> <p>None of the potential contamination sources identified within the Section 6 Study Area (summarised within PEI Report Volume 3 Part B Section 6 Appendix 7A Initial Contamination Risk Classification) are within 1 km of this abstraction, therefore there is not considered likely to be a significant effect associated with disturbance of pre-existing contamination in proximity to this abstraction.</p> <p>In the event that unexpected contamination is encountered either by pre-construction ground investigation or during construction, with the implementation of control measures within the Preliminary CoCP (including GH01, GH02 and GH11), the pathways would be reduced/prevented such that the effects on this abstraction are not significant.</p>

Receptor ^{1,2}	Impact	Sensitivity /Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
Groundwater Aquifers	Physical effects on aquifers, 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	Medium – Tidal Flat deposits (comprising sand and silt)	Negligible	Negligible - not significant	<p>The majority of the superficial deposits and the bedrock strata comprise Unproductive Strata. Only isolated areas of granular superficial deposits are present within the Section 6 Study Area, and only one recorded area is within the draft Order Limits, (around pylon SW53), which are designated as a Secondary Undifferentiated Aquifer.</p> <p>Groundwater levels in the superficial deposits are not known. If shallow groundwater is present, then there is a possibility that temporary pumping (i.e. to control groundwater during pylon foundation excavations) may be required for construction of pylons within the granular Tidal Flat deposits.</p> <p>Temporary groundwater control/pumping during pylon foundation excavations or open trenching for undergrounding of existing DNO assets would be undertaken in accordance with EA guidance (control measure GH05 within the Preliminary CoCP). Therefore, the effects on the medium sensitivity groundwater aquifer would not be significant.</p>
Groundwater Abstractions	Physical effects on groundwater abstractions, such as depletion of the aquifer and increased	Medium – Abstractions used for	Negligible	Negligible – not significant	There is one medium sensitivity groundwater abstraction within the Section 6 Study Area, located

Receptor ^{1,2}	Impact	Sensitivity /Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
	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	agricultural purposes			<p>approximately 350 m north of the draft Order Limits and approximately 930 m north of pylon SW72. The abstraction is located on unproductive bedrock and superficial strata.</p> <p>It is not considered that dewatering would be required in proximity to this abstraction due to its distance from the draft Order Limits and any areas of pylon construction or undergrounding of existing DNO assets.</p> <p>Furthermore, temporary groundwater control/pumping during pylon foundation excavations and undergrounding of existing DNO assets would be undertaken in accordance with EA guidance (control measure GH05 within the Preliminary CoCP).</p> <p>In relation to the risk that construction activities could generate solids and negatively impact the groundwater abstraction via increased turbidity, then with the implementation of control measures within the Preliminary CoCP (including GH02, GH09 – controls for undergrounding of existing DNO assets through horizontal directional drilling, and GG21), any such physical effects from construction activities would be sufficiently mitigated and would not be significant. The 350 m distance of the</p>

Receptor ^{1,2}	Impact	Sensitivity /Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
					abstraction from the draft Order Limits, and thus from the location of construction activities, also supports this assessment.
Groundwater Aquifers Groundwater Abstractions	Physical and chemical effects on groundwater, such as increased solids/turbidity and reduction in chemical quality, as a result of the discharge of groundwater arising from dewatering or surface water control	Medium – Tidal Flat deposits (comprising sand and silt) <i>And</i> Abstractions used for agricultural purposes	Negligible	Negligible – not significant	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 measures within the Preliminary CoCP (including W05 – compliance with discharge conditions). Discharges directly to groundwater are not anticipated. Therefore, the effects on groundwater aquifers or abstractions would not be significant.
Soil/land quality	Deterioration in chemical quality of the land, through release of contamination by construction activities	Medium	Negligible	Negligible – not significant	Soil/land quality can be negatively affected by construction due to the inadvertent release of contamination and/or incorrect storage and re-use of excavated soils. With the implementation of control measures within the Preliminary CoCP (including GH03 – adequate training of workers in managing hazardous substances, and GH04 – appropriate storage of chemicals and health and safety measures for construction sites), the effects on soil/land quality would not be significant.

Receptor ^{1,2}	Impact	Sensitivity /Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
Groundwater Aquifers	Deterioration in chemical quality of the groundwater, through release of contamination by construction activities (e.g. loss of fuels to an aquifer)	Medium – Tidal Flat deposits (comprising sand and silt)	Negligible	Negligible – not significant	<p>Localised granular Tidal Flat deposits comprising sand and silt are recorded in localised areas in the centre of the Section 6 Study Area and one area within the draft Order Limits, surrounding pylon SW53, but are not widespread across the Section 6 Study Area.</p> <p>There is one area where undergrounding of existing DNO lower voltage assets may be required within the granular Tidal Flat deposits within Section 6, to the south east of pylon SW53. Should this require trenchless construction methods (such as horizontal directional drilling), then a Hydrogeological Risk Assessment (Preliminary CoCP measure GH09) would be undertaken to assess specific risks to groundwater aquifers (including the risk of breakout of drilling fluids) and a drilling fluid breakout management plan would be prepared, to identify any additional mitigation or remediation that may be required.</p> <p>With the implementation of control measures within the Preliminary CoCP (including GH03, GH04 and GH09), releases of contamination should be adequately prevented and the pathways would be reduced/prevented such that the effects on the groundwater aquifer would not be significant.</p>

Receptor ^{1,2}	Impact	Sensitivity /Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
Groundwater Abstractions	Deterioration in chemical quality of the groundwater, through release of contamination by construction activities (e.g. loss of fuels to an aquifer)	Medium – Abstractions used for agricultural purposes	Negligible	Negligible – not significant	<p>There is one medium sensitivity groundwater abstraction within the Section 6 Study Area.</p> <p>This abstraction is not located within or close to an area of construction (approximately 350 m from the draft Order Limits and approximately 900 m from the closest pylon construction (SW72)).</p> <p>With the implementation of control measures within the Preliminary CoCP (GH03, GH04 and GH09) releases of contamination should be adequately prevented and the pathways would be reduced/prevented such that the effects on this abstraction would not be significant.</p>
Adjacent land users, construction workers (Human health)	Explosion or asphyxiation as a result of ingress and accumulation of ground gas within buildings or other confined spaces	High	Negligible	Negligible – not significant	<p>The initial contamination screening assessment (provided in PEI Report Volume 3 Part B Section 6 Appendix 7A Initial Contamination Risk Classification) indicates that the construction of the Project has the potential to disturb possible sources of ground gas within the draft Order Limits at the unspecified pit (adjacent to pylon SW32), and at two historical household waste landfills in areas of proposed indicative temporary highway improvements (Holly Tree House – Manor</p>

Receptor ^{1,2}	Impact	Sensitivity /Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
					<p>Farm landfill and Birds Drove Corner landfill).</p> <p>As Section 6 involves overhead line and pylons and DNO undergrounding only, it is not considered that there would be any enclosed structures required for the construction phase, but adjacent existing structures (e.g. farms, residential properties) are present in proximity to the draft Order Limits. The FWRA would consider migration of ground gas if disturbed during construction, to ensure that there are no risks to occupants/users of nearby buildings.</p> <p>With the use of appropriate PPE and the implementation of control measures within the Preliminary CoCP (GH01, GH02, and GH06), as well as suitable construction of any temporary structures (i.e. construction compounds) to prevent accumulation of ground gas, any gas migration or exposure pathways would be identified and mitigated such that the effects on construction workers and adjacent land users would not be significant.</p>
Structures	Explosion as a result of ingress and accumulation of ground gas within buildings or other confined spaces	Medium	Negligible	Negligible – not significant	Several potential contamination features were identified within the Section 6 Study Area (summarised within PEI Report Volume 3 Part B Section 6 Appendix

Receptor ^{1,2}	Impact	Sensitivity /Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
					<p>7A Initial Contamination Risk Classification). Features identified as potential ground gas sources include landfills and an unspecified pit.</p> <p>As Section 6 involves overhead line, pylons and DNO undergrounding only, it is not considered that there would be any enclosed structures required for the construction phase, but adjacent existing structures (e.g. farms, residential properties) are present in proximity to the draft Order Limits.</p> <p>With the implementation of control measures within the Preliminary CoCP (GH01 and GH03) and suitable construction of any temporary structures (i.e. construction compounds) to prevent ground gas accumulation and migration to adjacent structures, the pathways would be identified and mitigated such that effects on structures would not be significant.</p>
Adjacent land users, construction workers (Human health)	Unstable ground and damage to buildings or property, through disturbance of unstable ground by construction activities	High (Human health) 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
Structures					

Receptor ^{1,2}	Impact	Sensitivity /Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
					not occur. As such, there is not considered to be a significant effect.
Operation and Maintenance					
Groundwater Aquifers	Changes to infiltration and corresponding effects on groundwater levels as a result of the presence of new structures and surfaces	Medium – Tidal Flat deposits (comprising sand and silt)	Negligible	Negligible – not significant	<p>The permanent Project infrastructure within Section 6 comprises overhead line with pylons, as well as localised undergrounding of small sections of existing lower voltage (DNO) assets. It does not include widespread areas of impermeable surfacing, such as substation infrastructure.</p> <p>The granular superficial deposits (Secondary Undifferentiated Aquifer) are localised surrounding one pylon location (pylon SW53) and isolated areas within the centre of the Section 6 Study Area but outside of the draft Order Limits. The extent of permanent impermeable surfacing associated with a single pylon is negligible and will not have an effect on groundwater levels. Therefore, the effect on this groundwater aquifer is not significant.</p>
Future land users, adjacent land users	Harm to human health through exposure to contamination, including dust and vapours through disturbance of pre-existing contamination (Disturbance of pre-existing	Medium	Negligible	Negligible – not significant	A number of previous land uses classified as having a moderate or higher potential for contamination have been identified within, and immediately adjacent to the draft Order Limits in the initial contamination screening assessment

Receptor ^{1,2}	Impact	Sensitivity /Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
	contamination may occur through infrequent maintenance or repair activities requiring excavations for inspections/access to utilities, below ground infrastructure or foundations)				<p>(provided in PEI Report Volume 3 Part B Section 6 Appendix 7A Initial Contamination Risk Classification), which could affect human health if disturbed during maintenance activities.</p> <p>In most cases, the degree of ground disturbance associated with maintenance would be no greater than that associated with construction, the effects from which were determined not to be significant for Section 6. Additionally, there is minimal risk of encountering unexpected contamination during the maintenance phase, given that any such contamination would already be known from construction.</p> <p>The possible exception to this generality is the historical fly-tipped asbestos incident, as this is remote from any construction areas and is adjacent to an area that is to be used for maintenance access. However, given the age of the fly-tipped asbestos incident (2006), and the fact that it was noted/recorded by the EA, it is reasonable to assume that the waste will have been removed and that there is not any ongoing/residual effect on land within the draft Order Limits.</p> <p>It is concluded that, with suitable health and safety measures (e.g. vigilance for fly-tipped asbestos, in proximity to the</p>

Receptor ^{1,2}	Impact	Sensitivity /Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
					historical pollution incident) any risks to human health would be suitably mitigated. Therefore, the effects to human health are not significant.
Groundwater Aquifers	Deterioration in chemical quality of the groundwater through disturbance of pre-existing contamination (Disturbance of pre-existing contamination may occur through infrequent maintenance or repair activities requiring excavations for inspections/access to utilities, below ground infrastructure or foundations)	Medium – Tidal Flat deposits (comprising sand and silt)	Negligible	Negligible – not significant	<p>There are a number of potential sources of contamination within the Section 6 Study Area as detailed within the initial contamination risk classification (provided in PEI Report Volume 3 Part B Section 6 Appendix 7A Initial Contamination Risk Classification), which could affect the groundwater aquifer if disturbed during maintenance activities.</p> <p>There is one medium sensitivity groundwater abstraction within the Section 6 Study Area, outside of the draft Order Limits and not in a location identified to have a potentially contaminative land use.</p> <p>Any contamination associated with features of potential contamination would be known and understood from the construction phase and any work involving ground disturbance would be planned and undertaken accordingly, in compliance with suitable environmental controls. Maintenance activities are also typically much less intrusive than construction activities and any resulting effects therefore would be smaller than</p>
Groundwater Abstractions		And Abstractions used for agricultural purposes			

Receptor ^{1,2}	Impact	Sensitivity /Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
					during the construction phase, where these effects were determined to be negligible (not significant). Therefore, the effects on groundwater are not significant.

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 for assurance purposes within the Section 6 Study Area.

References

- Ref 1 South East Lincolnshire Joint Strategic Planning Committee (2019). South East Lincolnshire Local Plan 2011 – 2036 (Adopted March 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 April 2025]
- Ref 2 Fenland District Council (2014). Fenland Local Plan (Adopted May 2014). Available at: https://www.fenland.gov.uk/media/10010/Fenland-Local-Plan-May-2014/pdf/Fenland_Local_Plan1.pdf?m=1590591524653 [Access April 2025]
- Ref 3 Fenland District Council (2022). Fenland Local Plan 2021-2040: Draft Local Plan Consultation [online]. Available at: https://www.fenland.gov.uk/media/18814/Draft-Local-Plan-August-2022/pdf/Draft_Local_Plan_for_Consultation_Aug_2022.pdf?m=1661177156537 [Accessed 09 January 2024].
- Ref 4 Borough Council of King's Lynn & West Norfolk Borough Council (2025). Local Plan 2021-2040 (Adopted March 2025). Available at: https://www.west-norfolk.gov.uk/info/20079/planning_policy_and_local_plan/1207/local_plan_2021-2040#:~:text=The%20current%20Local%20Plan%20was%20adopted%20in%20March,for%20the%20borough%20%28up%20to%2015%20years%20ahead%29. [Accessed May 2025]
- Ref 5 Greater Lincolnshire Nature Partnership, (2021). Greater Lincolnshire Geodiversity Strategy 2022 – 26 [online]. Available at: <https://glnp.org.uk/our-services/geodiversity-strategy> [Accessed 21 May 2024]. Lincolnshire County Council, (2017). Lincolnshire Minerals and Waste Local Plan.
- Ref 6 Cambridgeshire County Council and Peterborough County Council, (2021). Cambridgeshire and Peterborough Minerals and Waste Local Plan 2036.
- Ref 7 Norfolk County Council, (2021). Norfolk Minerals and Waste Development Framework. Core Strategy and Minerals and Waste Development Management Policies Development Plan Document 2010 – 2026.
- Ref 8 Norfolk County Council, (2017). Norfolk Minerals and Waste Development Framework. Mineral Site Specific Allocations Development Plan Document.
- Ref 9 Norfolk County Council, (2013). Norfolk Minerals and Waste Development Framework. Waste Site Specific Allocations Development Plan Document.
- Ref 10 Norfolk Geodiversity Partnership, (2011). The Norfolk Geodiversity Action Plan.
- Ref 11 Norfolk Geodiversity Partnership, (2010). Norfolk's Earth Heritage – Valuing Our Geodiversity.
- Ref 12 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 13 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 14 Environment Agency, (2023). Land Contamination Risk Management (LCRM).
- Ref 15 Environment Agency, (2024). Groundwater protection guidance. Available at: <https://www.gov.uk/government/collections/groundwater-protection> [Accessed 15 November 2024].
- Ref 16 CIRIA, (2001). CIRIA Publication 552 Contaminated Land Risk Assessment: A Guide to Good Practice.
- Ref 17 National Library of Scotland, (2024), Side by side geo-referenced map viewer. Available at: <https://maps.nls.uk/geo/explore/side-by-side/> [Accessed 18 September 2024].
- Ref 18 British Geological Survey, (2024). GeoIndex. Available at: <https://www.bgs.ac.uk/map-viewers/geoindex-onshore/> [Accessed 18 September 2024].
- Ref 19 Department for Environment, Food and Rural Affairs, (2024). MAGIC Interactive Map. Available at: <https://magic.defra.gov.uk/> [Accessed 18 September 2024].
- Ref 20 Environment Agency, (2024). Source Protection Zones Dataset. Available at: <https://environment.data.gov.uk/searchresults?query=Source%20Protection%20Zones> [Accessed 18 September 2024].
- Ref 21 Environment Agency, (2024). Catchment Data Explorer Database. Available at: <https://environment.data.gov.uk/catchment-planning/> [Accessed 18 September 2024].
- Ref 22 Zetica, (2024). Unexploded Ordnance Risk Mapping. Available at: <https://zeticauxo.com/guidance/risk-maps/> [Accessed 18 September 2024].
- Ref 23 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 24 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 25 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 26 CL:AIRE, (2025). Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention.
- Ref 27 Environment Agency, (2024). Guidance on Pollution prevention for businesses. Available at: <https://www.gov.uk/guidance/pollution-prevention-for-businesses> [Accessed 12 November 2024].

- Ref 28 Department for Environment, Food and Rural Affairs, (2006). Code of practice for using plant protection products.
- Ref 29 CIRIA, (2006). CIRIA Publication 648 Control of water pollution from linear construction projects.
- Ref 30 Contaminated Land: Applications in Real Environments (CL:AIRE), (2011). The Definition of Waste: Development Industry Code of Practice.

8. Agriculture and Soils

Contents

8.	Agriculture and Soils	8-1
8.1	Introduction	8-1
8.2	Legislation and Policy Framework	8-3
	Legislation and National Policy	8-3
	Regional and Local Policy	8-4
8.3	Scope of Assessment	8-5
8.4	Assessment Methodology	8-5
	Assessment Assumptions and Limitations	8-6
8.5	Baseline Conditions	8-7
	Study Area	8-7
	Data Collection	8-7
	Existing Baseline	8-7
	Future Baseline	8-10
8.6	Design, Control and Additional Mitigation Measures	8-10
	Design Mitigation Measures	8-10
	Control Mitigation Measures	8-11
	Additional Mitigation Measures	8-13
8.7	Preliminary Assessment of Effects	8-13
	Likely Significant Effects	8-13
	Likely Non-Significant Effects	8-15
8.8	Monitoring	8-19
	Table 8.1 Supporting documentation	8-2
	Table 8.2 Preliminary summary of likely non-significant Agriculture and Soils effects – Section 6	8-16
	References	8-20

8. Agriculture and Soils

8.1 Introduction

- 8.1.1 This chapter presents the Preliminary Environmental Information (PEI) in relation to the Agriculture and Soils assessment of the Refined Weston Marsh Substation Siting Zone to New Walpole B Substation (Section 6) of the Grimsby to Walpole Project (the Project). 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 in **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 **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 6 (section 8.4). A detailed description of the assessment methods and scope, applicable to the whole Project, is contained in **PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**;
 - v. A description of the environmental baseline within the Section 6 Study Area relevant to the Agriculture and Soils assessment (section 8.5);
 - vi. A description of mitigation measures included for the purposes of the Agriculture and Soils assessment reported within the PEI Report (section 8.6). Further information regarding design development can be found in **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 Agriculture and Soils effects arising during construction and operation of the Project within Section 6, 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).
- 8.1.2 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
Topic Specific Supporting Documentation	
PEI Report Volume 2 Part B Section 6 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>
Project Supporting Documentation	
PEI Report Volume 2 Part B Section 6 Chapter 1 Overview of the Section and Description of the Project	A summary of the works within Section 6, including permanent infrastructure, temporary construction works, and operational activities.
PEI Report Volume 3 Part A Appendix 2A Environmental 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).
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 PEI Report and ES.
PEI Report Volume 3 Part A Appendix 2Ci Local Plan Policy: Section Specific	An outline of the potentially relevant local planning policy allocations affecting each of the specific Sections of the Project.
PEI Report Volume 3 Part A Appendix 2Cii Local Plan Policy: Route Wide	Details of planning policies applicable route-wide within the relevant Local Authority areas.
PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered	A summary of the main alternatives considered in relation to the Project during the design development process, including the main reasons for selecting the chosen option.
PEI Report Volume 2 Part A Chapter 4 Approach to Preliminary Environmental Information	Sets out the Environmental Impact Assessment (EIA) approach and general methodology that has been used in developing the PEI Report for the Project.
PEI Report Volume 2 Part A Chapter 5 Project Description	An overarching description of the Project and its key components, including available construction information.
PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice	Sets out control and management measures that will be undertaken during construction of the Project if granted consent. The final Code

Supporting Information	Description
	of Construction Practice (CoCP) will be submitted in support of the Development Consent Order (DCO) application.

- 8.1.3 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 **PEI Report Volume 2 Part B** and **Part C**:
- i. **PEI Report Volume 2 Part B Section 6 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. **PEI Report Volume 2 Part B Section 6 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. **PEI Report Volume 2 Part B Section 6 Chapter 6 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. **PEI Report Volume 2 Part B Section 6 Chapter 7 Geology and Hydrogeology** should be consulted in relation to geology present within the Section and how the underlying geology influences soil characteristics and how soil characteristics may influence groundwater recharge;
 - v. **PEI Report Volume 2 Part B Section 6 Chapter 13 Summary** provides a concise, consolidated summary of the likely significant effects reported for all topics, based upon the preliminary assessment;
 - vi. **PEI Report Volume 2 Part C Route-wide Chapter 8 Agriculture and Soils** should be consulted in relation to the route-wide impacts upon Best and Most Versatile (BMV) soils across the entire Project and any significant effects; and
 - vii. **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

Legislation and National Policy

- 8.2.1 Legislation and national policy relevant to the Project and this chapter is described in **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 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 Local Plan 2011-2036 (Adopted March 2019) (Ref 1):
 - Policy 31 - Climate Change and Renewable and Low Carbon Energy: requires projects to not create significant harm in relation to agricultural land take and the wider natural environment (which includes soils).
- ii. Fenland Local Plan (Adopted May 2014) (Ref 2):
 - Policy LP12 - Rural Areas Development Policy: requires projects to not result in the loss of high grade agricultural land, or if so, comprehensive evidence should be provided to justify the loss which should include an assessment of all alternative reasonable opportunities in the locality to develop on lower grades of agricultural land.
 - Policy LP14 - Responding to Climate Change and Managing the Risk of Flooding in Fenland: requires infrastructure associated with renewable energy to take account of high quality agricultural land.
- iii. Fenland Local Plan 2021-2040 Draft Local Plan Consultation (Ref 3):
 - Policy LP6 - Renewable and Low Carbon Energy Infrastructure: requires proposals for energy infrastructure to take all reasonable opportunities to mitigate any harm arising from such proposals, and take care to select appropriate locations for such facilities thereby minimising harm arising.
 - Policy LP18 - Development in the Countryside: Part H requires development proposals to protect the best and most versatile agricultural land so as to protect opportunities for food production and the continuance of the agricultural economy.
 - Policy LP26 - Carbon Sinks and Carbon Sequestration: requires that existing carbon sinks, such as peat soils, must be protected and where opportunities exist, they should be enhanced in order to continue to act as a carbon sink.
- iv. King's Lynn and West Norfolk Local Plan 2021-2040 (Adopted March 2025) (Ref 4):
 - Policy LP19 - Environmental Assets: Green Infrastructure, Landscape character, Biodiversity and Geodiversity: states that the long-term capability of the best and most versatile agricultural land (Grades 1, 2 and 3a in the Agricultural Land Classification) will be safeguarded as a resource for the future.
 - Policy LP24 - Renewable Energy: Proposals for renewable energy (other than proposals for wind energy development) and associated infrastructure, including landward infrastructure for offshore renewable schemes, will be assessed to determine whether or not the benefits they bring outweigh impacts, either individually or cumulatively. The Borough Council will seek to protect productive agricultural land and best and most versatile land.

8.3 Scope of Assessment

- 8.3.1 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 the submission 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 Agriculture and Soils chapter is provided in **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 **PEI Report Volume 3 Part A Appendix 4D Summary of Stakeholder Engagement**.
- 8.3.2 Non statutory consultation feedback is summarised within the **Grimsby to Walpole Stage 1 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 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 **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 to October 2025 to determine the sensitivities of soils and the grades of agricultural land within the draft Order Limits. 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 7) and the ALC guidelines (Ref 8) and 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 B to the **PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.
- 8.4.4 The assessment presented in the 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 DDCO 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 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, construction compounds, would be reinstated following completion of construction activities. Land taken permanently during construction, for example, 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 5) 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 **PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.
- 8.4.9 It should be noted that while land in Section 6 is provisionally mapped as ALC Grade 1 and Grade 2 land, this classification will be confirmed through detailed surveys before the final magnitude of effects can be calculated. 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 to comprise BMV land.
- 8.4.10 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 6, as agreed within the Scoping Opinion (Ref 5). 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 9);
 - ii. Ordnance Survey (OS) mapping and aerial photography (Ref 10);
 - iii. Agricultural Land Classification – Provisional (England) (Ref 11);
 - iv. National Soil Association Map of East Midlands and Eastern England and soil data from National Soils Resources Institute at Cranfield university (NSRI) (Ref 12);
 - v. Likelihood of BMV Agricultural Land map (Ref 13);
 - vi. Relevant Agriculture and Soils data from other projects which overlap with the draft Order Limits); and
 - vii. Climate data sets for ALC assessment (Ref 14).

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 **PEI Report Volume 2**:
- i. **PEI Report Volume 2 Part B Section 6 Figure 8.1 National Soil Map;**
 - ii. **PEI Report Volume 2 Part B Section 6 Figure 8.2 Provisional Agricultural Land Classification;**
 - iii. **PEI Report Volume 2 Part B Section 6 Figure 8.3 Detailed Agricultural Land Classification;**
 - iv. **PEI Report Volume 2 Part B Section 6 Figure 8.4 Woodland and Forestry Schemes;** and
 - v. **PEI Report Volume 2 Part B Section 6 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 maps show Section 6 comprises three underlying bedrock formations. The Oxford Clay Formation (mudstone) is found within the northern end of Section 6. The West Walton Formation (mudstone and siltstone) is within the north and centre of Section 6 and the Ampthill Clay Formation (Mudstone) is located within the centre and east of the section. These sedimentary bedrock formations were formed during the Jurassic period (between 163.5 and 157.3 million years ago) and are made up of mudstone and limestone nodules.
- 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 6.

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 Associations present within Section 6 (as shown in **PEI Report Volume 2 Part B Section 6 Figure 8.1 National Soil Map**) are:
- i. Wallasea 2 - deep stoneless clayey soils with some deep calcareous silty soils. They are often found in flat land often with low ridges giving a complex soil pattern with groundwater controlled by ditches and pumps. This causes seasonally waterlogged soils affected by a shallow fluctuating groundwater-table that are developed mainly within or over permeable material and have prominently mottled or greyish coloured horizons within 40 cm depth. Most occupy low-lying or depressional sites with distinct topsoil, in loamy or clayey recent alluvium more than 30 cm thick. Wallasea 2 is found in the centre and southern part of the Section 6.
 - ii. Tanvats – deep stoneless fine and coarse silty and clayey soils with groundwater levels controlled by ditches and pumps on flat land. They are seasonally waterlogged soils 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. Most occupy low-lying or depressional sites with distinct topsoil, in loamy or clayey recent alluvium more than 30 cm thick. Tanvats is found in the southern part of Section 6
 - iii. Wisbech - deep stoneless calcareous coarse silty soils. Groundwater usually controlled by ditches or pumps and these soils lie generally in flat land with low ridges where there is a risk of wind erosion locally. These soils 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. Wisbech is found across the entire section, particularly in the northern third and southern corner of Section 6; and
 - iv. Normoor - Deep stoneless clayey soils in places with humose surface horizon, often very acid. They have a distinct topsoil, in loamy or clayey recent alluvium more than 30 cm thick. These soils are founded in flat land crossed by low ridges

with deep calcareous silty soils and are at light risk of wind erosion. These soils are seasonally waterlogged soils affected by a shallow fluctuating groundwater-table. They are developed mainly within or over permeable material and have prominently mottled or greyish coloured horizons within 40 cm depth. Normoor soil association is found south of Sutton St James in the southern part of Section 6.

- 8.5.7 The soils in Section 6 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

- 8.5.8 ALC is a classification system used to assess the quality of agricultural land within England and Wales. The Provisional ALC mapping shows that the draft Order Limits within Section 6 comprises Grade 1 (excellent quality agricultural land) and Grade 2 (very good quality agricultural land) land. This is shown in **PEI Report Volume 2 Part B Section 6 Figure 8.2 Provisional Agricultural Land Classification**. This would be considered a receptor of Very High sensitivity.
- 8.5.9 Please note the limitations associated with using provisional ALC mapping as described in paragraph 8.4.9.
- 8.5.10 There is no pre-existing detailed ALC survey data available within the draft Order Limits for Section 6, as shown in **PEI Report Volume 2 Part B Section 6 Figure 8.3 Detailed Agricultural Land Classification**. Detailed ALC surveys are only found where a detailed ALC survey has previously been conducted and accepted by Natural England.

Woodland and Forestry Scheme

- 8.5.11 Woodland and Forestry Schemes are government provided incentives that reward landowners for the creation and management of woodlands. There are no Woodland and Forestry Schemes within the draft Order Limits for Section 6 (as shown on **PEI Report Volume 2 Part B Section 6 Figure 8.4 Woodland and Forestry Schemes**).

Agri Environment Schemes

- 8.5.12 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 (Higher Tier) is located south of Holbeach in the vicinity of Holbeach St Johns. Countryside Stewardship (Middle Tier) Schemes are found along the section from south of Holbeach. An Entry Level plus Higher Level Stewardship is found south of Sutton St James within the draft Order Limits for Section 6 as shown on **PEI Report Volume 2 Part B Section 6 Figure 8.5 Agri Environment Schemes**).

Land Use

- 8.5.13 Aerial imagery and OS mapping indicate that the agricultural land use within Section 6 is predominantly arable, with some grassland and woodland areas. Field boundaries generally comprise hedges and trees.

Agricultural Landholdings

- 8.5.14 There are 56 landholdings identified within Section 6. 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

- 8.5.15 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.
- 8.5.16 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 in **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.
- 8.5.17 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.
- 8.5.18 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.
- 8.5.19 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 and draft Order Limits have been designed to avoid sensitive receptors as far as practicable. This is in accordance with the 'Holford Rules' (Ref 15) applicable to routing of new overhead lines and the 'Horlock Rules' (Ref 16) 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 17) and **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 6. 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 construct, 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

- 8.6.3 A Preliminary CoCP is provided in **PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice**. The control measures included within the Preliminary CoCP relevant to the Agriculture and Soils assessment 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 Additional mitigation measures are not anticipated to be required in relation to effects upon Agriculture and Soils. However, this 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 Section 6 Study Area, as a result of construction, maintenance and/or operational activities.
- 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 **PEI Report Volume 2 Part B Section 6 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 **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 6, 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. This is based on the requirement to secure land temporarily for both the construction of infrastructure and the stringing of conductors between pylons.
- 8.7.8 The agricultural land required in Section 6 is provisionally mapped as Grades 1 and 2, and as such is considered likely to comprise BMV land. Grade 1 and 2 land is

considered to have a very high sensitivity. The total extent of land required during construction would be 481.1 ha. Of this, 422.5 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 **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 pylons, access roads and temporary land requirements.

- 8.7.9 Of the land required during construction, 58.6 ha would be required for permanent infrastructure (pylon footings and foundations). The permanent loss of this land (assumed to be BMV land) would be an impact of large magnitude and would result in a major adverse effect, which is considered significant.

Soil Function

- 8.7.10 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).
- 8.7.11 The soils in Section 6 will be providing a range of soil functions, and as such are considered to have a range of sensitivities from very high to medium. 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 soils' 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 and re-use of soils.
- 8.7.12 For Section 6, it is assumed that all land within the draft Order Limits would 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 6, this would result in a range of major, moderate or minor adverse effects. Major and Moderate effects are considered significant.
- 8.7.13 The permanent loss of 58.6 ha of soils would affect the associated soil ecosystem services. However, where practicable, all surplus soil resources would be re-used within the Project where, depending on the proposed land use, some soil 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 result in a likely major adverse effect on soil function, which is considered significant.
- 8.7.14 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

- 8.7.15 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 6. 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

- 8.7.16 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 6

Source	Receptor	Impact	Sensitivity/ Importance/ Value of Receptor	Magnitude of Change	Significance	Rationale
Construction Phase						
Construction on agricultural land in use as part of an agricultural business	Agricultural Landholdings	Temporary loss of productive land	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 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).
Operational and Maintenance Phases						
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 access routes, 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 SMP 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.

Source	Receptor	Impact	Sensitivity/ Importance/ Value of Receptor	Magnitude of Change	Significance	Rationale
Impacts on soil function due to any activities required for operational and maintenance purposes.	Soil Function	Disturbance to soils and loss of function due to activities required for operational and maintenance purposes.	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 access routes, 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 SMP 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

Source	Receptor	Impact	Sensitivity/ Importance/ Value of Receptor	Magnitude of Change	Significance	Rationale
						<p>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.</p>

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 South East Lincolnshire Council (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 April 2025]
- Ref 2 Fenland District Council (2014). Fenland Local Plan (Adopted May 2014). Available at: https://www.fenland.gov.uk/media/10010/Fenland-Local-Plan-May-2014/pdf/Fenland_Local_Plan1.pdf?m=1590591524653 [Accessed April 2025]
- Ref 3 Fenland District Council (2022). Fenland Local Plan 2021-2040 Draft Local Plan Consultation August 2022. Available at: https://www.fenland.gov.uk/media/18814/Draft-Local-Plan-August-2022/pdf/Draft_Local_Plan_for_Consultation_Aug_2022.pdf?m=1661177156537 [Accessed April 2025]
- Ref 4 Borough Council of King's Lynn and West Norfolk (2025) Kings Lynn and West Norfolk Local Plan 2021-2040 [online]. Available at: https://www.west-norfolk.gov.uk/info/20079/planning_policy_and_local_plan/1207/local_plan_2021-2040#:~:text=The%20current%20Local%20Plan%20was%20adopted%20in%20March,for%20the%20borough%20%28up%20to%2015%20years%20ahead%29. [Accessed 25 April 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 09 April 2025].
- 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 09 April 2025].
- Ref 7 Hodgson, J.M. (2022). Soil Survey Field Handbook: Describing and Sampling Soil Profiles. Cranfield: Cranfield University.
- Ref 8 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 9 British Geological Survey, BGS Geology Viewer [online]. Available at: <https://www.bgs.ac.uk/map-viewers/bgs-geology-viewer/> [Accessed 3 May 2024].
- Ref 10 Google Earth (2024). Ordnance Survey Mapping and Aerial Photography [online]. Available at: <https://www.earth.google.com> [Accessed 29 April 2024].
- Ref 11 Defra, Magic Map Application [online]. Available at: <https://magic.defra.gov.uk/> [Accessed 29 April 2024]

- Ref 12 Cranfield University (2024). Soils and their use in East Midlands and East England
- Ref 13 Natural England (2017). Likelihood of Best and Most Versatile (BMV) Agricultural Land – Strategic scale map East Midlands and Eastern region (ALC019). Available at: <https://publications.naturalengland.org.uk/category/5208993007403008> [Accessed 29 April 2024].
- Ref 14 The Met Office (1989). Climatological Data for Agricultural Land Classification.
- Ref 15 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 16 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 17 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].

9. Traffic and Movement

Contents

9.	Traffic and Movement	9-1
9.1	Introduction	9-1
9.2	Legislation and Policy Framework	9-4
	Legislation and National Policy	9-4
	Regional and Local Policy	9-4
9.3	Scope of Assessment	9-5
9.4	Assessment Methodology	9-7
	Assessment Assumptions and Limitations	9-9
9.5	Baseline Conditions	9-9
	Study Area	9-9
	Data Collection	9-12
	Existing Baseline	9-13
	Future Baseline	9-21
9.6	Design, Control and Mitigation Measures	9-22
	Design Mitigation Measures	9-22
	Control Mitigation Measures	9-23
	Additional Mitigation Measures	9-25
9.7	Preliminary Assessment of Effects	9-25
	Likely Significant Effects	9-25
	Likely Non-Significant Effects	9-27
9.8	Monitoring	9-34

Table 9.1	Supporting documentation	9-2
Table 9.2	Scope of Traffic and Movement Assessment	9-6
Table 9.3	Distribution of Project traffic – definitions	9-8
Table 9.4	Construction Traffic Routes – SRN Connections	9-10
Table 9.5	Primary Access Routes	9-11
Table 9.6	Highway network – links	9-14
Table 9.7	Highway link sensitivity	9-17
Table 9.8	Public Rights of Way and Promoted/Recreational Routes	9-20
Table 9.9	Preliminary assessment of effects upon users of highway links – Section 6	9-26
Table 9.10	Preliminary summary of non-significant Traffic and Movement effects – Section 6	9-30

References	9-35
------------	------

9. Traffic and Movement

9.1 Introduction

- 9.1.1 This chapter presents the Preliminary Environmental Information (PEI) in relation to the Traffic and Movement assessment for the Refined Weston Marsh Substation Siting Zone to New Walpole B Substation Section (Section 6) of the Grimsby to Walpole Project (the Project). 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 within **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 **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 Section 6 (section 9.4). A detailed description of the assessment methods and scope, applicable to the whole Project, is contained in **PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**;
 - v. A description of the environmental baseline within the Section 6 Study Area relevant to the Traffic and Movement assessment (section 9.5);
 - vi. A description of mitigation measures included for the purposes of the Traffic and Movement assessment reported within the PEI Report (section 9.6). Further information regarding design development can be found in **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 Section 6, 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).
- 9.1.2 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
Topic Specific Supporting Documentation	
PEI Report Volume 2 Part B Section 6 Figures	<p>Figure 9.1 Overall Context Plan</p> <p>Figure 9.2 Primary Access Routes</p> <p>Figure 9.3 Existing Public Rights of Way (PRoW)</p> <p>Figure 9.4 Route Sensitivity</p> <p>Figure 9.5 Preliminary Impact Analysis</p>
PEI Report Volume 3 Part B Sections 1-7 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.
PEI Report Volume 3 Part B Sections 1-7 Appendix 9B Preliminary Construction Information	Provides preliminary construction traffic information for substations, compounds and bellmouths providing access to the construction haul routes. This includes construction Heavy Goods Vehicles (HGVs) and construction staff traffic flows.
PEI Report Volume 3 Part B Sections 1-7 Appendix 9C Future Baseline and Impact Analysis	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.
Project Supporting Documentation	
PEI Report Volume 2 Part B Section 6 Chapter 1 Overview of the Section and Description of the Project	A summary of the works within Section 6, including permanent infrastructure, temporary construction works, and operational activities.
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).
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 PEI Report and ES.
PEI Report Volume 3 Part A Appendix 2Ci Local Plan Policy: Section Specific	An outline of the potentially relevant local planning policy allocations affecting each of the specific sections of the Project.

Supporting Information	Description
PEI Report Volume 3 Part A Appendix 2Cii Local Plan Policy: Route-wide	Details of planning policies applicable route-wide within the relevant Local Authority areas.
PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered	Provides a summary of the main alternatives considered in relation to the Project during the design development process, including the main reasons for selecting the chosen option.
PEI Report Volume 2 Part A Chapter 4 Approach to Preliminary Environmental Information	Sets out the Environmental Impact Assessment (EIA) approach and general methodology that has been used in developing the PEI Report for the Project.
PEI Report Volume 2 Part A Chapter 5 Project Description	An overarching description of the Project and its key components, including available construction information.
PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice	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 Control Order (DCO) application.

- 9.1.3 There are interrelationships between the potential effects on Traffic and Movement and other environmental topics. Therefore, please also refer to the following chapters within **PEI Report Volume 2 Part B** and **Part C**:
- i. **PEI Report Volume 2 Part B Section 6 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. **PEI Report Volume 2 Part B Section 6 Chapter 11 Socio-economics, Recreation and Tourism** considers potential in-combination effects to users of promoted/recreational routes including PRoW;
 - iii. **PEI Report Volume 2 Part B Section 6 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. **PEI Report Volume 2 Part B Section 6 Chapter 13 Summary** provides a concise, consolidated summary of the likely significant effects reported for all topics, based upon the preliminary assessment;
 - v. **PEI Report Volume 2 Part C Route-wide Chapter 8 Health and Wellbeing** which 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. **PEI Report Volume 2 Part C Route-wide Chapter 9 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. **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.

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 **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 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 Plan¹ (Adopted April 2023) (Ref 2):
 - 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 Mar 2019) (Ref 3):
 - 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.

¹ Construction traffic routes anticipated to be utilised by construction traffic associated with works in Section 6 include highway links across the wider region, therefore policies set out within wider area policy documents are also considered relevant to the assessment

- iv. Boston Transport Strategy 2016-2036 (Ref 4):
 - 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 2018-2036 (Ref 5):
 - 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
- vi. Fenland Local Plan (Adopted May 2014) (Ref 6):
 - Policy LP15 – Facilitating the Creation of a More Sustainable Transport Network: sets out an integrated approach to transport in Fenland that is sustainable, facilitates growth, links town and country, encompasses cross boundary transport issues and improves accessibility for everyone by all modes of travel.
- vii. Fenland Local Plan 2021-2040 Draft Local Plan Consultation (August 2022) (Ref 7):
 - Policy LP21 Public Rights of Way: requires that existing PRoW network will, in principle, be protected from development.
- viii. Fenland Transport Strategy (Adopted March 2023) (Ref 8):
 - Policy FTS1 is the overarching policy approach which supports the Local Plan and Local Transport CP through prioritising and developing a connected, safe and inclusive transport network, and enabling more people to access services, with a key focus on active or sustainable travel.
- ix. Kings Lynn & West Norfolk Borough Council Local Plan 2021-2040 (Adopted March 2025) (Ref 9):
 - LP13 Transportation: The Council will work with partner organisations to deliver a sustainable transport network which improves connectivity. Amongst other factors, priority will be given to improving strategic networks, including the introduction of measures to reduce congestion and improve reliability and safety of travel.
- x. Cambridgeshire Local Transport and Connectivity Plan (Ref 10):
 - The LTCP seeks to support a transport network which puts improved health at its core, with measures to help avoiding unnecessary travel, shifting travel choices to more sustainable modes and improving the operational efficiency and journey experience of the transport network.

9.3 Scope of Assessment

- 9.3.1 The scope of the assessment has been informed by the Scoping Opinion (Ref 11) provided by the Planning Inspectorate in September 2024 on behalf of the Secretary of State, following the submission of the EIA Scoping Report (Ref 12). 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 **PEI Report Volume 3 Part A Appendix 4A Planning Inspectorate Scoping Opinion Responses**.

- 9.3.2 Non statutory consultation feedback has been addressed within the **Grimsby to Walpole Stage 1 Consultation Feedback Report**.
- 9.3.3 The scope of the construction assessment considers potential effects upon a range of receptor groups in accordance with the Institute of Environmental Management and Assessment (IEMA) Guidance (Ref 13) which is based on the impacts upon the following transport infrastructure: highways (including footpaths and cycleways), railways, waterways and 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
Highway Network (including footways and cycleways)	
Road users	Effects as a result of construction traffic and road closures/diversions leading to potential severance, driver delay and highway safety effects. Effects as a result of the movement of abnormal 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. Effects on footway closures/diversions leading to severance and/or increased journey time. Effects of general construction works leading to a decline in pedestrian and cycle amenity ² and additional fear and intimidation.
Railways	
Railway users	Effects upon users of the rail network due to potential impacts upon railway infrastructure.
Navigable Waterways	
Waterway users	Effects upon users of navigable waterways due to temporary closures leading to reduced access/increased journey time.
Public Rights of Way and Promoted / Recreational Routes	
Pedestrians, Cyclists and Equestrians	Effects as a result of route closures/diversions leading to potential increased journey time. Effects due to a decline in pedestrian and cycle amenity due to interaction with traffic.

² 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.

- 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 the Scoping Opinion received requested further information relating to operational traffic to support this position. This PEI Report therefore provides an initial assessment of potential effects during operation. 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 **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 13) 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:
- i. 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
 - ii. 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 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) ³ 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 roads and junctions which are not promoted as construction HGV 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 overhead line within Section 6. 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 increase in traffic flows during construction and potential to impact 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 the works within Section 6 have been identified and qualitative assessment of impacts to pedestrians, cyclists and equestrians undertaken where routes 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) and magnitude of impact based on requirement for crossing, diversion or closures of

³ The Strategic Road Network is the national network of motorways and major A roads maintained and operated by National Highways

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 PEI Report assessment presents details of forecast operational traffic movements and provides an initial assessment of potential effects.

Assessment Assumptions and Limitations

- 9.4.12 All general assumptions and limitations for the topic are listed within **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 6.
- 9.4.13 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.

9.5 Baseline Conditions

Study Area

- 9.5.1 The Traffic and Movement Study Area for Section 6 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 railways and waterways that are crossed by the Section 6 draft Order Limits.
- 9.5.3 **PEI Report Volume 2 Part B Section 6 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 6 Study Area are shown in PEI Report Volume 2 Part B Section 6 Figure 9.2 Primary 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 and form the basis of the initial assessment presented in this 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 within Section 6 will be temporary in nature and will be reinstated upon completion of the construction phase. Haul routes and permanent access road are illustrated on **PEI Report Volume 2 Part B Section 6 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 access points have been selected where possible, balancing distance and the suitability of links to accommodate construction traffic.
- iv. Existing highway constraints, such as road geometry, height and weight restrictions, junction arrangement 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 the Section 6 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	West to SRN at A46 at Lincoln to A1(M) and M1
A47	West to SRN at 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 **PEI Report Volume 2 Part B Section 6 Figure 9.2 Primary Access Routes**. Further details of the roads forming the Primary Access Routes are presented in **PEI Report Volume 3 Part B Sections 1-7 Appendix 9A Traffic and Movement Baseline**.

Table 9.5 Primary Access Routes

Bellmouth Access	Core Routes forming Primary Access Routes	Local Links forming Primary Access Routes
SW-B001	CR27 (A47) / CR12 (A16) or	LK79 (A151) / LK86 (A151)
SW-B002	CR15 (A17) / CR14 (A17) / CR11 (A16)	LK79 (A151)
SW-B007	CR27 (A47) / CR12 (A16) or	LK68 (B1165) / LK67 (Long Lane)
SW-B008	CR15 (A17) / CR14 (A17) / CR11 (A16) / CR12 (A16)	
SW-B009	CR27 (A47) / CR12 (A16) or CR15 (A17) / CR14 (A17) / CR11 (A16) / CR12 (A16)	LK68 (B1165) / LK88 (B1165) / LK69 (B1357 Hall Gate)
SW-B012	CR27 (A47) / CR12 (A16) or	LK68 (B1165) / LK88 (B1165) / LK89 (B1165)
SW-B013	CR15 (A17) / CR14 (A17) / CR11 (A16) / CR12 (A16)	
SW-B014	CR27 (A47) / CR12 (A16) or CR15 (A17) / CR14 (A17) / CR11 (A16) / CR12 (A16)	LK68 (B1165) / LK88 (B1165) / LK89 (B1165) / LK70 (B1165 Hurdletree Bank)
SW-B019 (compound)	C27 (A47) / CR12 (A16)	LK12 (B1166) / LK13 (B1168) / LK91 (B1168)
SW-B020		
SW-B023	C27 (A47) / CR12 (A16)	LK12 (B1166) / LK13 (B1168) / LK74 (Joy's Bank)
SW-B024		
SW-B031	C27 (A47) / CR12 (A16)	LK12 (B1166) / LK13 (B1168) / LK91 (B1168) / LK90 (B1165 Ravens Bank) / LK71 (B1165 Ravens Bank) / LK73 (Broad Gate)
SW-B032		
SW-B044	CR15 (A17) / CR14 (A17) / CR22 (A17) / CR23 (A1101)	LK93 (B1165) / LK78 (Church Lane) / LK77 (Newgate Road) / LK76 (Broad Drove East) / LK75 (Middle Broad Drove)
SW-B045		
SW-B048	CR15 (A17) / CR14 (A17) / CR22 (A17) / CR23 (A1101)	LK93 (B1165)
SW-B049		
SW-B050	CR15 (A17) / CR14 (A17) / CR22 (A17) / CR23 (A1101)	-
SW-B051 (compound)		

Bellmouth Access	Core Routes forming Primary Access Routes	Local Links forming Primary Access Routes
SW-B052		
SW-B053	CR15 (A17) / CR14 (A17) / CR22 (A17) / CR28 (A17) or	LK97 (King John Bank) / LK94 (Mill Road)
SW-B054	C27 (A47) / CR13 (A47) / CR29 (A47) / CR28 (A17)	

Construction Traffic Routes – Construction Worker Access Routes

- 9.5.8 In addition to the Primary Access Routes, construction workers cars/light goods vehicles (LGVs) will use highway links which are not used by HGVs to access the site. However, at this stage of the assessment, Construction Worker traffic has been assigned to substation sites only and has therefore not been assigned to the highway network providing access to the individual bellmouths along the Section 6 overhead line route. Therefore, Construction Worker Routes are not considered separately for the Section 6 assessment. An uplift of 100% has however been applied to the HGV trips generated by bellmouths within Section 6, to provide a margin at this stage to consider the potential impact from construction worker trips. Where required following further engagement with Local Highway Authorities (LHA), Construction Worker trips will be assigned to individual bellmouths within the Section 6 Study Area.

Data Collection

- 9.5.9 The following data has been used to inform the baseline conditions:
- highway network – Ordnance Survey open map (Ref 14), Google Maps (Ref 15), OpenStreetBrowser (Ref 16);
 - bus route information – local bus operators, traveline.info (Ref 17), Google Maps (Ref 15);
 - rail information – National Rail (9.8.4Ref 18), Google Maps (Ref 15);
 - waterways – Environment Agency, Navigation Authority and The Inland Waterways Association (Ref 19);
 - designated non-motorised user routes for pedestrians, cyclists and equestrians and PRoW – Sustrans (Ref 20) 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 21);
 - 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; and

- x. Personal Injury Collision (PIC) DfT accident data over a five year period (Ref 22);
- xi. traffic growth factors have been obtained from the Trip End Model Presentation Program (TEMPPro)/National Trip End Model; and
- xii. identification of pedestrian, cycle and horse-riding infrastructure provision along access routes, obtained from Google Maps imagery of the highway network.

9.5.10 The following data was not available at the time of writing this 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 2025 to understand baseline conditions;
- ii. traffic information on other developments (committed) within the Study Area received from relevant planning authorities;
- iii. committed transport schemes along and in vicinity of the primary access routes; and
- iv. construction and operational traffic flows for Eastern Green Link 3 and 4 projects for cumulative sensitivity testing.

Existing Baseline

9.5.11 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 **PEI Report Volume 2** and **Volume 3** respectively:

- i. **PEI Report Volume 3 Part B Sections 1-7 Appendix 9A Traffic and Movement Baseline;**
- ii. **PEI Report Volume 2 Part B Section 6 Figure 9.1 Overall Context Plan;**
- iii. **PEI Report Volume 2 Part B Section 6 Figure 9.2 Primary Access Routes;**
- iv. **PEI Report Volume 2 Part B Section 6 Figure 9.3 Existing Public Rights of Way (PRow); and**
- v. **PEI Report Volume 2 Part B Section 6 Figure 9.4 Route Sensitivity.**

Highway network

9.5.12 Links forming Primary Access Routes and the description of the road network along each route can be found within **PEI Report Volume 3 Part B Sections 1-7 Appendix 9A Traffic and Movement Baseline.**

9.5.13 **Table 9.6** provides a description of each link which forms part of the Primary Access Routes within the Section 6 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 **PEI Report Volume 2 Part B Section 6 Figure 9.2 Primary Access Routes.**

Table 9.6 Highway network – links

Route Ref	Highway Link	Description
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 (60 mph), generally no street lighting except at junctions, no footways.
CR13	A47	Wide single carriageway / dual carriageway road, national speed limit (60/70 mph), 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 (70 mph), no footways or street lighting to the north and east of Sleaford. Narrows to wide single carriageway 3 km east of Sleaford, national speed limit (60 mph), 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 (60/70 mph), 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 (70 mph), street lighting, no footways.
CR28	A17	Wide single carriageway with some short sections of dual carriageway at junctions, national speed limit (60 mph), no footways, generally no street lighting except at junctions.
CR29	A47	Wide single carriageway / dual carriageway, national speed limit (60/70 mph), generally no footways except at eastern end, generally no street lighting except at junctions.
LK12	B1166 Hull's Drove	Single carriageway, generally national speed limit, no lighting or footways, speed reduction and occasional footways through villages.
LK13	B1168 Holbeach Drove Gate	Single carriageway, generally national speed limit, no lighting or footways, speed reduction and occasional footways through villages.
LK67	Long Lane	Narrow single carriageway, national speed limit (60 mph), no street lighting or footways.
LK68	B1165	Single carriageway, generally national speed limit (60 mph) reduces to 40 mph in villages, no lighting or footways except in villages.

Route Ref	Highway Link	Description
LK69	B1357 Hall Gate	Narrow single carriageway, national speed limit (60 mph), no street lighting or footways.
LK70	B1165 Hurdeltree Bank	Single carriageway, 40 mph speed limit, no lighting or footways.
LK71	B1165 Ravens Bank	Single carriageway, generally national speed limit (60 mph), no footways or street lighting.
LK73	Broad Gate	Narrow single carriageway, national speed limit (60 mph) reduces to 30mph in Sutton St James, no street lighting or footways except narrow footway in Sutton St James.
LK74	Joy's Bank	Narrow single carriageway road with street lighting and footways and 40mph speed limit through Holbeach St John, national speed limit (60 mph) no footways or street lighting to east.
LK75	Middle Broad Drove	Narrow single carriageway, national speed limit (60 mph), no street lighting or footways.
LK76	Broad Drove East	Narrow single carriageway, national speed limit (60 mph) reduces to 40mph/30mph in Tydd St Giles, no street lighting or footways.
LK77	Newgate Road	Narrow single carriageway, 30 mph, narrow footway.
LK78	B1165 Church Lane	Narrow single carriageway, 30 mph, narrow footway, traffic calming, some on street parking
LK79	A151	Wide single carriageway, 40 mph speed limit, narrow shared footway/cycleway, bus stops on street, street lighting western end
LK86	A151	Wide single carriageway, national speed limit (60 mph), no footways or street lighting.
LK88	B1165	Single carriageway, national speed limit (60 mph), no lighting or footways.
LK89	B1165	Single carriageway, national speed limit (60 mph), no lighting or footways.
LK90	B1165 Ravens Bank	Single carriageway, generally national speed limit (60 mph), no footways or street lighting.
LK91	B1168	Single carriageway, generally national speed limit (60 mph), no footways or street lighting.
LK93	B1165	Single carriageway, generally national speed limit (60 mph), no footways or street lighting, except in Newton and Tydd St Giles where speed limit is 40 mph, street lighting and narrow footways are provided.

Route Ref	Highway Link	Description
LK94	Mill Road	Narrow single carriageway, 50/60 mph speed limit, no footways or street lighting.
LK97	King John Bank	Narrow single carriageway, 50/60 mph speed limit reducing to 40mph in Walpole Marsh, no footways or street lighting.

- 9.5.14 For the PEI Report no assessment of junction impacts along the Primary Access Routes has been undertaken. However, the baseline review of link congestion and accident data provided in **PEI Report Volume 3 Part B Sections 1-7 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.
- 9.5.15 In addition to the Primary 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 PEI Report. These cross over points are listed within **PEI Report Volume 3 Part B Sections 1-7 Appendix 9A Traffic and Movement Baseline**.

Traffic flows

- 9.5.16 Where available, baseline traffic flows are taken from the DfT's traffic counters for road links forming the Primary Access Routes. The DfT traffic counter sites are shown on **PEI Report Volume 2 Part B Section 6 Figure 9.2 Primary Access Routes**.
- 9.5.17 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 is also shown on **PEI Report Volume 2 Part B Section 6 Figure 9.2 Primary Access Routes**.
- 9.5.18 Appropriate growth factors derived from the DfT's Trip End Model Presentation Program (TEMPro), 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.
- 9.5.19 Baseline traffic flows on road links forming the Primary Access Routes and links where surveys have been undertaken are presented in **PEI Report Volume 3 Part B Sections 1-7 Appendix 9A Traffic and Movement Baseline**. All traffic data is presented as AADT flows for total vehicles and for HGVs.
- 9.5.20 In addition, a congestion rating is set out within **PEI Report Volume 3 Part B Sections 1-7 Appendix 9A Traffic and Movement Baseline** and presented on **PEI Report Volume 2 Part B Section 6 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

- 9.5.21 Personal injury collision (PIC) data has been obtained from DfT Road Safety Data for the roads along the Primary Access Routes. The latest five-year PIC data (2019-2023) is presented on **PEI Report Volume 2 Part B Section 6 Figure 9.4 Route Sensitivity**.
- 9.5.22 A collision cluster has been determined by the following criteria:
- a location where there are nine or more injury collisions occurring within a junction or a 100 m stretch; and
 - a location with four or more fatal and/or serious collisions happening either within a junction or within a 100 m stretch.
- 9.5.23 From the collision data analysis, collision clusters have been identified at the following locations:
- A16 / A17 roundabout (Sutterton roundabout);
 - At the A15 / A47 roundabout to the north of Peterborough; and
 - A47 / A1101 roundabout (Elm Road Junction).

Highway link sensitivity

- 9.5.24 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.
- 9.5.25 Receptor/area sensitivity has been assigned to all assessed highway links which constitute the Primary Access Routes for Section 6. 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 **PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Assessment Methodologies and Scope**.
- 9.5.26 A description, location, and the sensitivity level within the Section 6 Study Area are summarised in **Table 9.7** below and **PEI Report Volume 3 Part B Sections 1-7 Appendix 9A Traffic and Movement Baseline** and presented on **PEI Report Volume 2 Part B Section 6 Figure 9.4 Route Sensitivity**.

Table 9.7 Highway link sensitivity

Route Ref	Highway Link	Description	Sensitivity Level
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

Route Ref	Highway Link	Description	Sensitivity Level
CR15	A17	A few commercial and residential properties along this link	Low
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 the link	Negligible
CR28	A17	No receptors identified along the link	Negligible
CR29	A47	No receptors identified along the link	Negligible
LK12	B1166	A few residential properties and commercial properties along this link.	Low
LK13	B1168	A few residential properties. Urban area through Holbeach St John, multiple residential access with local accesses and direct frontages, pedestrian area with varying width/quality of footways and crossings, on road cycling, bus route.	High
LK67	Long Lane	No receptors identified along the link	Negligible
LK68	B1165	A few residential and commercial properties along this link, bus route	Low
LK69	B1357 Hall Gate	A few residential properties along this link	Low
LK70	B1165 Hurdeltree Bank	Occasional residential properties along this link	Low
LK71	B1165 Ravens Bank	Very occasional properties along this link	Low
LK73	Broad Gate	Residential properties in Sutton St James, driveways and accesses	Low
LK74	Joy's Bank	Residential properties, church and village hall in Holbeach St John, bus stops in Holbeach St John	High
LK75	Middle Broad Drove	A few residential properties along this link	Low
LK76	Broad Drove East	A few residential properties along this link, community centre and play area	Medium
LK77	Newgate Road	Edge of village, residential properties along this link, bus route	Low

Route Ref	Highway Link	Description	Sensitivity Level
LK78	B1165 Church Lane	Edge of village residential properties along this link, traffic calming, primary school, bus route, part of NCN Route 1	High
LK79	A151	A few, generally commercial properties along this link, on street bus stops, segregated pedestrian/cycleway adjacent to carriageway	Medium
LK86	A151	No receptors identified along the link	Negligible
LK88	B1165	Occasional residential properties along this link	Low
LK89	B1165	Occasional residential properties along this link	Low
LK90	B1165 Ravens Bank	A few residential properties along this link, short section of PRow runs along the road	Low
LK91	B1168	Very occasional properties along this link, bus stops in Holbeach St John	Low
LK93	B1165	Residential properties along this link through Newton and Tydd St Giles, as well as primary school, some on street parking, bus route	High
LK94	Mill Road	A few residential properties along this link and West Walton Fire Station	Low
LK97	King John Bank	A few residential properties along this link	Low

Bus routes

- 9.5.27 A number of bus services run along roads forming the Primary Access Routes for Section 6. 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. Service 4 and occasional school services run along the B1165 through Low Fulney. Service 43 provides occasional services between Long Sutton and Wisbech with bus stops in Holbeach St John. Service 50 provides occasional services between Long Sutton and Wisbech with stops in Tydd St Giles and Newton-in-the-Isle.

Railway infrastructure

- 9.5.28 The nearest rail station is at Spalding for regular services to Peterborough, Lincoln, Newark Northgate and Doncaster. This is some distance from the Section 6 draft Order Limits, approximately 3km to the west, and the Primary Access Routes for construction traffic do not pass the station. No rail lines are crossed by the Section 6 draft Order Limits.

Waterways

- 9.5.29 The Section 6 draft Order Limits cross the River Nene, a navigable waterway, to the north of Wisbech.

- 9.5.30 A number of becks, dykes, and land drains, including the North Level Main Drain, are crossed by the proposed haul roads providing temporary access during construction of the Project. However these watercourses are not navigable waterways and are therefore not considered further within the Traffic and Movement assessment..

Public Rights of Way and promoted/recreational routes

- 9.5.31 PRowS and promoted/recreational routes potentially affected by the proposed works within the Section 6 draft Order Limits are summarised in **Table 9.8** below and presented on **PEI Report Volume 2 Part B Section 6 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.
- 9.5.32 The sensitivity of the PRowS and promoted/recreational routes has been considered and is summarised in **Table 9.8**. This identifies 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 the 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 9.7**.
- 9.5.33 The Section 6 draft Order Limits cross the Greenwich Meridian Trail and Nene Way long distance walking trails.
- 9.5.34 National Cycle Route 1 passes along local highways providing access to Section 6 and is crossed by the draft Order Limits.
- 9.5.35 Further details of promoted/recreational routes are included within **PEI Report Volume 2 Part B Section 6 Chapter 11 Socio-economics, Recreation and Tourism** and discussions with PRow officers from all relevant Local Authorities will continue to be undertaken to confirm these key routes.

Table 9.8 Public Rights of Way and Promoted/Recreational Routes

PRow Ref	Type	Location	Sensitivity
GMT	Greenwich Meridian long distance walking route	Runs along Stoton's Gate at Holbeach St John to the south of Holbeach	National route, connecting rural and urban areas – medium sensitivity
NCN1	National cycle route	Runs through Holbeach and crosses the overhead line between Tydd St Giles and Leverington. It runs along the B1165 Church Lane	National route, leisure route connecting urban areas – medium sensitivity
P006	Nene Way walking route	Runs alongside the River Nene at the eastern end of Section 6	Regional route, leisure route connecting urban areas along river – medium sensitivity
P134	Footpath	Connects Weston to River Welland	Local leisure route – low sensitivity

PRoW Ref	Type	Location	Sensitivity
P081	Footpath	Runs along Raven's Bank and Little South Holland Drain	Local leisure route – low sensitivity
P067/P068	Bridleway	Follows South Holland Main Drain	Local leisure route – low sensitivity
P123	Bridleway	Follows South Holland Main Drain	Local leisure route – low sensitivity
P124	Bridleway	Route to west of Tydd St Giles	Local leisure route, limited connectivity – low sensitivity
P005	Footpath	Route through Newton connecting towards Tydd Gote	Local leisure route – low sensitivity

Future Baseline

- 9.5.36 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.
- 9.5.37 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, including future highway schemes. A list of the currently known developments which are anticipated to be included within the future baseline scenario is provided within **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.
- 9.5.38 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 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 **PEI Report Volume 3 Part B Sections 1-7 Appendix 9C Future Baseline and Impact Analysis**.
- 9.5.39 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 construction access routes.
- 9.5.40 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 23) applicable to routing of new overhead line and the 'Horlock Rules' (Ref 24) 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 25) and **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 6. This has further contributed to the avoidance or reduction of the potential environmental impacts of the Project. 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. PRow users will only be closed or diverted on safety grounds to protect PRow users or workers. Haul roads crossing PRow users 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 CoCP is provided in **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 6 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 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.'
 - 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 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 abnormal loads.
 - 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. 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).
 - ix. 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.

- 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 abnormal loads.

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 preliminary assessment of effects upon the receptors, identified within the Study Area, as a result of construction, maintenance and/or operation activities within Section 6.
- 9.7.2 The preliminary assessment of effects reported below takes into account the Design and Control Measures previously described.
- 9.7.3 For a summary of the likely significant effects please refer to **PEI Report Volume 2 Part B Section 6 Chapter 13 Summary**. A supplementary summary of all non-significant effects is also included within this Section in **Table 9.10** based upon the assessment scope detailed in **PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.
- 9.7.4 It should be noted that the assessment which has informed the conclusions presented remains ongoing and is subject to change, due to the ongoing survey activities and further design development of the Project. A full detailed assessment will be included within the ES submitted with the DCO application.

Likely Significant Effects

Construction

Highway network

- 9.7.5 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 as a result of the Project due to construction traffic using the local road network. This is based upon projected changes relative to a future baseline.

- 9.7.6 Traffic and Movement effects associated with the construction phase on receptors relate to the change in traffic flow and the sensitivity of highway links. **PEI Report Volume 3 Part B Sections -7 Appendix 9C Future Baseline and Impact Analysis** sets out the predicted worst-case increase in traffic on the local road network for each Primary Access Route used by construction traffic. These increases have then been assessed against the assigned sensitivity of each highway link.
- 9.7.7 Within this 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. **PEI Report Volume 3 Part B Section 2 Figure 9.5 Preliminary Impact Analysis** shows the location of highway links that are below or above the IEMA thresholds.
- 9.7.8 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.
- 9.7.9 The receptors/users on the highway links exceeding the appropriate sensitivity threshold for potential significant effects are summarised in **Table 9.9**. 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 9.9** has not yet been completed.
- 9.7.10 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 9.9 Preliminary assessment of effects upon users of highway links – Section 6

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	LK13 (B1168) / LK68 (B1165) / LK75 (Middle Broad Drove) / LK76 (Broad Drove East) / LK77 (Newgate Road) / LK78 (B1165 Church Lane) / LK88 (B1165) / LK89 (B1165) / LK93 (B1165)

Receptor	Potential Significant Effects	Link Reference
Bus passengers	Potential for delay to bus services due to congestion as a result of increased traffic	LK13 (B1168) / LK68 (B1165) / LK77 (Newgate Road) / LK78 (B1165 Church Lane) / LK79 (A151) / LK93 (B1165)
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	LK13 (B1168) / LK76 (Broad Drove East) / LK78 (B1165 Church Lane) / LK93 (B1165)

Operation and maintenance

- 9.7.1 Based upon the preliminary assessment, no significant effects upon Transport and Movement receptors within the Section 6 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

- 9.7.2 For completeness, **Table 9.10** 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

- 9.7.3 **Table 9.10** identifies the highway links that form part of the Primary 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. **PEI Report Volume 3 Part B Section 6 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

- 9.7.4 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. Haul road crossings are designed such that pedestrian/cycle/equestrian users are afforded priority of movement.
- 9.7.5 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.

- 9.7.6 PRowS are anticipated to be closed/diverted 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.
- 9.7.7 Therefore, the PRow and promoted/recreational routes within the Section 6 draft Order Limits where the impacts of the Project are not likely to result in significant effects upon users, are listed below and summarised in **Table 9.10**.
- i. P006 (Nene Way) – break in the haul route⁴, route not impacted;
 - ii. P067/68 – break in the haul route, route not impacted;
 - iii. P123 – break in the haul route, route not impacted;
 - iv. GMT (Greenwich Meridian Trail) – haul route crossover of road, crossing to be managed (footway to remain open);
 - v. NCN1 – impact on local highway, interactions with construction traffic to be managed (cycleway to remain open);
 - vi. P005 – short diversion and managed crossing of low sensitivity route;
 - vii. P081 – low sensitivity route alongside vehicle access route, route maintained and interactions with construction traffic managed;
 - viii. P124 – short diversion and managed crossing of low sensitivity route; and
 - ix. P134 – short diversion and managed crossing of low sensitivity route.

Operation and maintenance

- 9.7.8 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 PEI Report assessment therefore presents details of forecast operational traffic movements and provides an initial assessment of potential effects.
- 9.7.9 With regards to operational visits for the overhead line, based upon existing precedent and National Grid estimates, typical routine maintenance vehicle movements would comprise approximately two vehicle trips per permanent pylon, per year (i.e. one arrival and departure respectively). The movement itself could comprise a LGV 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. 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.
- 9.7.10 For Section 6 there are 85 pylons therefore there would be 170 vehicle trips per year (arrivals and departures). This equates to an average 3-4 trips per week spread across multiple access routes. This level of trips is considered negligible and will not impact operation of the highway network. On the basis of the projected operational vehicle trips, no likely significant effects to users of highway links are expected.
- 9.7.11 Operational traffic flows will be very occasional therefore no impact to users of bus services is expected. No railway lines are crossed by the Section 6 overhead line,

⁴ There are a number of breaks in haul road routes to avoid direct conflicts within existing routes. In these instances, the haul road routes are not continuous.

therefore impact to users of rail users is not expected. No likely significant effects on public transport users are expected.

- 9.7.12 No navigable waterways are impacted by operation of the Project within Section 6, therefore no likely significant effects are expected.
- 9.7.13 PRow and promoted/recreational routes crossed and/or diverted during construction will be reinstated, therefore no routes are permanently affected by the Section 6 draft Order Limits, therefore no significant effects are expected.

Table 9.10 Preliminary summary of non-significant Traffic and Movement effects – Section 6

Receptor	Impact	Sensitivity	Magnitude of Change	Significance of Effect	Rationale
Construction					
Highway Network					
Road users of highway links CR11, CR12, CR13, CR14, CR15, CR22, CR23, CR27, CR28, CR29, LK12, LK67, LK69, LK70, LK71, LK73, LK79, LK86, LK90, LK91, LK94, LK97	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	<30per cent	Low – Not significant	The percentage increase in traffic flows as a result of Project does not meet IEMA thresholds for significant effects.
Road users of highway link LK74	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	No. of construction HGVs <20 daily	Low – Not significant	The volume of projected HGV movements is low across the day and unlikely to result in significant effects.
Bus passengers in services on highway link LK74 (Joy's bank) in Holbeach St John	Potential for delay due to increased traffic and associated congestion.	High	No. of construction HGVs <20 daily	Low – Not significant	The volume of projected HGV movements is low across the day and unlikely to impact bus movements.

Receptor	Impact	Sensitivity	Magnitude of Change	Significance of Effect	Rationale
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 the Section 6 overhead line 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 the Section 4 overhead line therefore no significant effects are expected.
Railway Infrastructure					
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 6 draft Order Limits. Therefore no likely significant effects on railway users are expected.
Waterways					
Waterway Users – including leisure users of the River Nene	Temporary closure of waterways to facilitate overhead line stringing works, resulting in potential	Low	Negligible	Negligible – Not significant	The Section 6 overhead line crosses over the River Nene, however, the construction haul road does not traverse the navigable waterway. Temporary overnight closures

Receptor	Impact	Sensitivity	Magnitude of Change	Significance of Effect	Rationale
	delay, amenity effects upon users.				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.
Public Rights of Way and Promoted/Recreational Routes					
Pedestrians, cyclists and equestrians on links GMT, NCN1 P005, P081, P124 and P134	Temporary route closures/diversions to enable construction and the movement of construction traffic, resulting in potential for severance, delay, increased journey time, decline in amenity, additional fear and intimidation and safety effects.	Low/medium	Potential slight delay through short diversion (<100m) or managed crossing	Low – Not significant	A short diversion and managed crossing/interactions will limit the magnitude of impacts, such that significant effects are unlikely.
Pedestrians, cyclists and equestrians on links P006, P067/P068 and P123	Potential for severance, delay, increased journey time, decline in amenity, additional	Low/medium	No change	Negligible – Not significant	There is a break in the haul route and the pedestrian/cycle/equestrian route is not affected

Receptor	Impact	Sensitivity	Magnitude of Change	Significance of Effect	Rationale
	fear and intimidation and safety effects as a result of temporary route closures/diversions to enable construction				
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	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	Medium/high	No impact	Negligible – Not significant	Rail lines will not be closed during operation
Waterway users	Potential to delay due closure of waterways	Medium/high	No impact	Negligible – Not significant	Waterways will not be closed during operation
Pedestrians, cyclists and equestrians on PRow and promoted/recreational routes	Potential for severance, delay, increased journey time, decline in amenity, additional fear and intimidation and safety effects	Low/medium	No impact	Negligible – Not significant	Routes will be reinstated and not impacted by operation of the 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 Section 6 Study Area.

References

- Ref 1 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 2 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 3 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=1703963372690> [Accessed 21 October 2024].
- Ref 4 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 5 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 6 Fenland District Council (2014) Fenland Local Plan (Adopted May 2014). [online] Available at: https://www.fenland.gov.uk/media/12064/Fenland-Local-Plan---Adopted-2014/pdf/Fenland_Local_Plan-Adopted_2014.pdf [Accessed 29 May 2024].
- Ref 7 Fenland District Council (2022) Fenland Local Plan 2021-2040 Draft Local Plan Consultation (August 2022). [online] Available at: https://www.fenland.gov.uk/media/18814/Draft-Local-Plan-August-2022/pdf/Draft_Local_Plan_for_Consultation_Aug_2022.pdf?m=1661177156537 [Accessed 29 May 2024].
- Ref 8 Fenland District Council, Cambridgeshire County Council, and Peterborough City Council (2023) Fenland Transport Strategy (Adopted March 2023). [online] Available at: <https://www.cambridgeshire.gov.uk/asset-library/Fenland-Transport-Strategy-Adopted-March-2023.pdf> [Accessed 29 May 2024].
- Ref 9 Borough Council of King's Lynn & West Norfolk (2025) Kings Lynn & West Norfolk Local Plan 2021-2040 Adopted March 2025 [online] https://www.west-norfolk.gov.uk/site/custom_scripts/static_content/_large_files/KingsLynn_WestNorfolk_LocalPlan/Local_Plan_final_April_2025.pdf [Accessed May 2025].
- Ref 10 Cambridgeshire County Council and Peterborough City Council (2023) Local Transport and Connectivity Plan. [online] Available at: <https://cambridgeshirepeterborough-ca.gov.uk/wp-content/uploads/CPCA-LTCP-Strategic-Document.pdf> [Accessed 29 May 2024].

- Ref 11 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 12 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 13 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 14 Ordnance Survey (2024). OS OpenMap [online]. Available at: <https://www.ordnancesurvey.co.uk> [Accessed 21 October 2024].
- Ref 15 Google (2024). Google maps [online]. Available at: <https://www.google.com/maps> [Accessed 21 October 2024].
- Ref 16 OpenStreetBrowser (no date). OpenStreetMap [online]. Available at <https://www.openstreetbrowser.org/#map=10/51.5074/-0.1196&basemap=osm-mapnik> [Accessed 28 October 2024].
- Ref 17 Mapway Ltd (no date). Home. Traveline.info. [online]. Available at: <https://www.traveline.info/> [Accessed 21 October 2024].
- Ref 18 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 19 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 20 Sustrans (no date). Sustrans homepage [online]. Available at: <https://www.sustrans.org.uk/> [Accessed 21 October 2024].
- Ref 21 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 22 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 23 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 24 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 25 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

Contents

10.	Noise and Vibration	10-1
10.1	Introduction	10-1
10.2	Legislation and Policy Framework	10-4
	Legislation and National Policy	10-4
	Regional and Local Policy	10-4
10.3	Scope of Assessment	10-5
10.4	Assessment Methodology	10-5
	Assessment Assumptions and Limitations	10-6
10.5	Baseline Conditions	10-6
	Study Area	10-6
	Data Collection	10-7
	Existing Baseline	10-7
	Future Baseline	10-8
10.6	Design, Control and Additional Mitigation Measures	10-9
	Design Mitigation Measures	10-9
	Control Mitigation Measures	10-10
	Additional Mitigation Measures	10-12
10.7	Preliminary Assessment of Effects	10-12
	Likely Significant Effects	10-13
	Likely Non-Significant Effects	10-13
	Summary	10-18
10.8	Monitoring	10-22
<hr/>		
	Table 10.1 Supporting documentation	10-2
	Table 10.2 Summary of construction noise assessment	10-14
	Table 10.3 Summary of construction vibration assessment	10-16
	Table 10.4 Summary of operational substation noise assessment	10-17
<hr/>		
	References	10-23
<hr/>		

10. Noise and Vibration

10.1 Introduction

- 10.1.1 This chapter presents the Preliminary Environmental Information (PEI) in relation to the assessment of Noise and Vibration on noise sensitive receptors (NSR) for the Refined Weston Marsh Substation Siting Zone to New Walpole B Substation Section (Section 6) of the Grimsby to Walpole Project (the Project). Specifically, 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 within **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 **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 within Section 6 (section 10.4). A detailed description of the assessment methods and scope, applicable to the whole Project, is contained in **PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**;
 - v. A description of the environmental baseline within the Section 6 Study Area relevant to the assessment of Noise and Vibration effects (section 10.5);
 - vi. A description of mitigation measures included for the purposes of the Noise and Vibration assessment reported within the PEI Report (section 10.6). Further information regarding design development can be found in **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 Noise and Vibration effects arising during construction and operation of the Project within Section 6, based upon the assessment completed to date (section 10.7); and
 - viii. An outline of the proposed monitoring requirements in relation to Noise and Vibration (section 10.8).
- 10.1.2 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
Topic Specific Supporting Documentation	
PEI Report Volume 2 Part B Section 6 Figures	Figure 10.1 Noise and Vibration Study Area Figure 10.2 Noise and Vibration Baseline Figure 10.3 Initial Construction Noise Assessment Outputs Figure 10.4 Initial Construction Vibration Assessment Outputs
PEI Report Volume 3 Part B Section 6 Appendix 10A Construction Noise and Vibration Data	Includes information and data used within the assessment of Noise and Vibration effects from construction activities at Noise and Vibration sensitive receptors.
PEI Report Volume 3 Part B Section 6 Appendix 10B Construction Traffic Noise Assessment	Includes the assessment of construction traffic noise on construction traffic routes within Section 6.
PEI Report Volume 3 Part B Section 7 Appendix 10C Operational Substation Noise Assessment	Provides further details of the initial assessment of operational noise from the proposed New Walpole B Substation, which is located in Section 7 New Walpole B Substation (Section 7). However, the assessment also considers NSR in the Section 6 Study Area.
Project Supporting Documentation	
PEI Report Volume 2 Part B Section 6 Chapter 1 Overview of the Section and Description of the Project	A summary of the works within Section 6, including permanent infrastructure, temporary construction works, and operational activities.
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 of the Environmental Statement (ES).
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 PEI Report and ES.
PEI Report Volume 3 Part A Appendix 2Ci Local Plan Policy: Section Specific	An outline of the potentially relevant local planning policy allocations affecting each of the specific sections of the Project.
PEI Report Volume 3 Part A Appendix 2Cii Local Plan Policy: Route-wide	Details of planning policies applicable route-wide within the relevant Local Authority areas.
PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered	Provides a summary of the main alternatives considered in relation to the Project during the

Supporting Information	Description
	design development process, including the main reasons for selecting the chosen option.
PEI Report Volume 2 Part A Chapter 4 Approach to Preliminary Environmental Information	Sets out the Environmental Impact Assessment (EIA) approach and general methodology that has been used in developing the PEI Report for the Project.
PEI Report Volume 2 Part A Chapter 5 Project Description	An overarching description of the Project and its key components, including available construction information.
PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice	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.

- 10.1.3 There are interrelationships between the potential Noise and Vibration effects and other environmental topics. Therefore, please also refer to the following chapters within **PEI Report Volume 2 Part B** and **Part C**:
- i. **PEI Report Volume 2 Part B Section 6 Chapter 4 Ecology and Biodiversity** assesses the effects of the Project upon ecological receptors, including those resulting from Noise and Vibration.
 - ii. **PEI Report Volume 2 Part B Section 6 Chapter 5 Historic Environment** assesses the impacts of the Project upon heritage assets, including the potential effects of Noise and Vibration.
 - iii. **PEI Report Volume 2 Part B Section 6 Chapter 9 Traffic and Transport** assesses the potential change in traffic movements during construction and operation, which are relevant to the assessment of Noise and Vibration effects associated with changes in traffic flow resulting from the Project.
 - iv. **PEI Report Volume 2 Part B Section 6 Chapter 11 Socio-economics, Recreation and Tourism** assesses potential effects upon recreational areas that could be affected by Noise and Vibration and thus suffer a reduction in amenity value.
 - v. **PEI Report Volume 2 Part B Section 6 Chapter 13 Summary** provides a concise, consolidated summary of the likely significant effects reported for all topics, based upon the preliminary assessment.
 - vi. **PEI Report Volume 2 Part C Chapter 10 Route-wide Health and Wellbeing** assesses the potential effects of Noise and Vibration generated by the Project upon health and wellbeing.
 - vii. **PEI Report Volume 2 Part C Route-wide Chapter 10 Cumulative Effects** presents a preliminary assessment of cumulative effects upon common receptors across environmental topics identified within PEI Report Volume 2 Part B (intra-project). 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.

10.2 Legislation and Policy Framework

Legislation and National Policy

- 10.2.1 Legislation and national policy relevant to the Project and this chapter is described in **PEI Report Volume 2 Part A Chapter 2 Legislative, Regulatory and Planning Policy** and supporting appendices, detail of which is 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 (Combined Boston Borough Council, South Holland District Council Local Plan) 2013 (Ref 1):
 - 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: stipulating that development will not be permitted where it would lead to unacceptable adverse impacts due to Noise and Vibration; and
 - Policy 31(B) 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.
 - ii. Fenland District Council Local Plan 2014 (Ref 2):
 - Policy LP14 Responding to Climate Change and Managing the Risk of Flooding in Fenland: which sets out that renewable energy proposals (including associated infrastructure) will be assessed on their merits, taking account of outcomes including noise impacts; and
 - Policy LP16 Delivering and Protecting High Quality Environments across the District: which states that proposals for all new development will only be permitted if it can be demonstrated that they meet criteria including, not adversely impacting on the amenity of neighbouring users by way of noise, light pollution, loss of privacy and loss of light.
 - iii. Kings Lynn and West Norfolk Local Plan 2021-2040 (Adopted March 2025) (Ref 3):
 - Policy LP21 – Environment, Design and Amenity: which stipulates that development must protect and enhance the amenity of the wider environment and identifies factors against which proposals are assessed, including noise; and
 - Policy LP27 – Renewable Energy: which stipulates that renewable energy and associated infrastructure proposals will be assessed to determine

whether the benefits they bring outweigh their individual or cumulative impacts upon factors including amenity (in terms of noise, overbearing relationship, air quality and light pollution).

10.3 Scope of Assessment

- 10.3.1 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. A summary of the Scoping Opinion together with a response against each point of relevance to the Noise and Vibration chapter is provided in **PEI Report Volume 3 Part A Appendix 4A Planning Inspectorate Scoping Opinion Responses**.
- 10.3.2 Non-statutory consultation feedback is summarised within the **Grimsby to Walpole Stage 1 Consultation Feedback Report**.
- 10.3.3 The scope of the Noise and Vibration assessment includes consideration of effects due to:
- i. construction noise;
 - ii. construction vibration on people within buildings;
 - iii. construction vibration on buildings and structures;
 - iv. construction traffic noise;
 - v. operational noise from proposed operational plant (e.g. transformers) within proposed new substations; and
 - vi. operational Noise and Vibration from substantial maintenance activities.
- 10.3.4 There are no new substation locations within Section 6, with infrastructure associated with overhead line elements of the Project only. However, some NSR in Section 6 (close to the Section 6 and 7 boundary) fall within the Study Area for operational noise effects from the proposed New Walpole B Substation in Section 7. Operational noise effects from the proposed New Walpole B Substation on NSR in Section 6 are considered in this chapter with reference to **PEI Report Volume 3 Part B Section 7 Appendix 10C Initial Operational Substation Noise Assessment**.
- 10.3.5 As set out in **PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**, assessment of operational noise effects due to overhead line and typical maintenance activities are also scoped out, based upon the low noise conductor system proposed, and the infrequent and localised nature of typical maintenance activities, respectively. Further information regarding the scoping out of overhead line noise is provided in paragraph 10.6.3.

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 **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 Operational noise has been assessed in accordance with the methodology described in BS 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound (BS 4142) (Ref 10). The assessment Study Area for operational noise is 1 km from the proposed New Walpole B Substation, based on guidance from International Standard (ISO) 9613-2:2014. Acoustics — Attenuation of sound during propagation outdoors. Part 2: Engineering method for the prediction of sound pressure levels outdoors (ISO 9613-2) (Ref 11).
- 10.4.5 Other applicable guidance has also been used to inform the assessments, where appropriate. These are detailed in **PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.

Assessment Assumptions and Limitations

- 10.4.6 All general assumptions and limitations for the topic are listed within **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 6.
- 10.4.7 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 Section 6 Study Area for the assessment of the Noise and Vibration baseline is illustrated in **PEI Report Volume 2 Part B Section 6 Figure 10.1 Noise and Vibration Study Area**. The baseline Study Area includes an additional 1 km buffer from the Section 6 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 6 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 **PEI Report Volume 2 Part B Section 6 Figure 10.2 Noise and Vibration Baseline**. This mapping represents the daytime ambient noise levels from road and rail sources and Noise Important Areas (NIAs); and
 - iii. current OS mapping information.

Existing Baseline

- 10.5.3 The following section outlines the Noise and Vibration baseline for Section 6. The baseline section should be read in conjunction with the following supporting Figures and Appendices as found within **PEI Report Volume 2** and **Volume 3** respectively:
- i. **PEI Report Volume 2 Part B Section 6 Figure 10.1 Noise and Vibration Study Area**; and
 - ii. **PEI Report Volume 2 Part B Section 6 Figure 10.2 Noise and Vibration Baseline**.
- 10.5.4 The overhead line route within Section 6 passes predominantly through rural areas. Many of the NSRs assessed within the Section 6 Study Area are therefore isolated dwellings and farms. Assessed NSRs also include those located in built-up areas and villages, varying distances from the draft Order Limits, including:
- i. Weston, approximately 200 m east of the draft Order Limits;
 - ii. Spalding, approximately 1 km west of the draft Order Limits;
 - iii. Weston Hills, approximately 600 m southwest of the draft Order Limits;
 - iv. Moulton, approximately 900 m north of the draft Order Limits;
 - v. Whaplode St Cathrine, approximately 100 m south of the draft Order Limits;
 - vi. Holbeach St Johns, approximately 600 m west of the draft Order Limits;
 - vii. Tydd St Giles, approximately 700 m north of the draft Order Limits;
 - viii. Newton, approximately 500 m south of the draft Order Limits;
 - ix. Ingleborough, immediately to the north of the draft Order Limits;
 - x. West Walton, approximately 500 m southwest of the draft Order Limits; and
 - xi. Walton Highway, approximately 500 m southeast of the draft Order Limits.
- 10.5.5 **PEI Report Volume 2 Part B Section 6 Figure 10.1 Noise and Vibration Study Area** shows NSR locations, including residential and non-residential receptors.
- 10.5.6 The noise environment is expected to vary across the Section 6 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 road sources and in rural areas, ambient and background noise levels would be expected to be lower. Daytime noise level contours from existing road and railway sources are presented in **PEI Report Volume 2 Part B Section 6 Figure 10.2 Noise and Vibration Baseline**, showing how existing noise levels vary across the Section 6 Study Area. Those 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 **PEI Report Volume 2 Part B Section 6 Figure 10.2 Noise and Vibration Baseline**. There is one NIA close to the Section 6 draft Order Limits, namely NIA_11378 on the A151 approximately 150 m to the west, between Spalding and Weston.
- 10.5.8 Acceptable levels of vibration during construction are higher than those that would be acceptable during normal conditions. It is therefore assumed that existing vibration levels at NSR within the draft Order Limits are negligible compared to the construction vibration threshold values, as described in **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.
- 10.5.9 The main sources of environmental noise within the Section 6 Study Area include the A151 and the A1101. The A151 links the settlements of Weston, Moulton, Whaplode and Holbeach. The overhead line route crosses the A151 to the west of Weston and then runs on a west to east alignment towards Whaplode St Catherine. To the east of this village, the overhead line route continues in a south east direction, passing south of Tydd St Giles, before crossing the A1101 and the River Nene. Traffic on local roads across the Section 6 Study Area also contribute to the baseline noise levels at receptor locations. In terms of industrial sources, the main source of noise is likely to be agricultural activity.

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 **PEI Report Volume 2 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 No significant changes to the future Noise and Vibration baseline that would affect the assessment are anticipated owing to the largely rural and agricultural nature of

the Section 6 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 and draft Order Limits have been 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 line and the 'Horlock Rules' (Ref 13) 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 14) and **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 Following selection of the preferred route corridor, environmental specialists have been integral to ongoing design refinement of works within Section 6. 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.
- 10.6.3 The proposed overhead line system is a 'Triple Araucaria' conductor bundle. Noise from high voltage overhead line 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 meteorological conditions, the corona inception level is regarded to occur when electric stress is in the range 17 to 20 kV/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.
- 10.6.4 In addition, pylon fittings, such as insulators, dampers, spacers, and clamps, are designed and procured in accordance with a series of National Grid Electricity Transmission plc (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

- 10.6.5 A Preliminary Code of Construction Practice (CoCP) is provided in **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 6 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 but not be limited to:
 - 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), 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 daily 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 by the contractor(s) 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.

10.6.6 The final CoCP will be secured by a DCO Requirement.

Control of Pollution Act 1974

10.6.7 The Control of Pollution Act 1974 (CoPA) (Ref 15) sets out the framework for the legislative control of construction Noise and Vibration on any given site. It also sets out the principle of 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 the CoPA, as enacted under The Control of Noise (Code of Practice for Construction and Open Sites) (England) Order 2015 (Ref 16). 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.

10.6.8 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

10.6.9 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.

10.6.10 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 6 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 mitigation measures previously described.

- 10.7.3 For a summary of the likely significant effects please refer to **PEI Report Volume 2 Part B Section 6 Chapter 13 Summary**. A supplementary summary of all non-significant effects is also included within this Section in **Table 10.5**, based upon the assessment scope detailed in **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 10.5**. 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 in relation to likely non-significant effects.

Operation

- 10.7.7 No significant effects have been identified due to Noise and Vibration during operation and maintenance of the Project in Section 6. The assessment is discussed in further detail below in relation to likely non-significant effects.

Likely Non-Significant Effects

Construction

Construction noise

- 10.7.8 The construction noise assessment is based on the construction noise data presented in **PEI Report Volume 3 Part B Section 6 Appendix 10A Construction Noise and Vibration Data** for the various proposed construction activities, which in Section 6 include:
- i. preparation and establishment of temporary access/egress to the Site and haul roads;
 - ii. establishment and operation of construction compounds and laydown areas;
 - iii. construction of pylon foundations and erection of pylons;
 - iv. stringing of overhead line;
 - v. ancillary works, such as drainage; and
 - vi. 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 **PEI Report Volume 2 Part B Section 6 Figure 10.3 Initial Construction Noise Assessment Outputs** and are summarised in **Table 10.2**.

Table 10.2 Summary of construction noise assessment

NSR Type/ Sensitivity	Total Number of NSR in Section 6 Study Area	Number of NSR experiencing magnitude of impact			
		Negligible	Small	Medium	Large
Residential	887	712	171	2	2
High sensitivity non-residential	7	7	0	0	0
Medium sensitivity non- residential	24	16	8	0	0
Low sensitivity non-residential	22	16	6	0	0

- 10.7.11 The assessment indicates that the magnitude of impact from construction noise would be:
- negligible or small at most residential NSR;
 - negligible at all high sensitivity non-residential NSR;
 - negligible or small at all medium sensitivity non-residential NSR; and
 - negligible or small at all low sensitivity non-residential NSR.
- 10.7.12 These impacts would likely not result in significant adverse effects, even without specific BPM mitigation measures in place.
- 10.7.13 However, there are four residential NSR potentially experiencing a medium or large magnitude impact. These impacts could result in significant noise effects without specific mitigation in place. The specific construction activities causing the predicted impacts and affected receptors include:
- proposed pylon construction:
 - pylon SW77 affecting four residential NSR:
 - Hill House Farm, Mill Road, West Walton, PE14 7EU;
 - The Chase, Mill Road, West Walton, PE14 7EU;

- 2, Hill House Farms Cottages, Mill Road, West Walton, PE14 7EU; and
- 1, Hill House Farms Cottages, Mill Road, West Walton, PE14 7EU
- ii. overhead line stringing:
 - between pylons SW77 and SW78 affecting two residential NSR:
 - 2, Hill House Farms Cottages, Mill Road, West Walton, PE14 7EU; and
 - 1, Hill House Farms Cottages, Mill Road, West Walton, PE14 7EU
- iii. drainage works:
 - north of pylon SW77 affecting one residential NSR: Hill House Farm, Mill Road, West Walton, PE14 7EU.

10.7.14 It is noted that three of the NSR predicted to experience these effects are impacted by two activities.

10.7.15 In all cases, construction noise impacts may be reduced to levels which would not result in significant Noise and Vibration effects through the application of BPM as set out in the Preliminary CoCP. As such, significant adverse effects are not expected in Section 6.

Construction vibration

10.7.16 The construction vibration assessment is based on the construction vibration data presented in in **PEI Report Volume 3 Part B Section 6 Appendix 10A Construction Noise and Vibration Data** for the various proposed construction activities, which include:

- i. construction of access tracks (compaction);
- ii. construction and operation of construction compounds (compaction); and
- iii. construction of pylon foundations (piling).

Construction vibration on people in buildings

10.7.17 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 use of percussive piling for pylon foundation construction. 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.

10.7.18 The initial construction noise assessment outputs are presented in **PEI Report Volume 2 Part B Section 6 Figure 10.4 Initial Construction Vibration Assessment Outputs** and are summarised in **Table 10.3**.

Table 10.3 Summary of construction vibration assessment

NSR Type/ Sensitivity	Total Number of NSR in Section 6 Study Area	Number of NSR experiencing magnitude of impact			
		Negligible	Small	Medium	Large
Residential	327	307	18	2	0
High sensitivity non-residential	4	4	0	0	0
Medium sensitivity non- residential	9	7	2	0	0
Low sensitivity non-residential	4	3	1	0	0

10.7.19 The assessment indicates that the magnitude of impacts from construction vibration would be:

- i. negligible or small at most residential NSR;
- ii. negligible at all high sensitivity non-residential NSR;
- iii. negligible or small at all medium sensitivity non-residential NSR; and
- iv. negligible or small at all low sensitivity non-residential NSR.

10.7.20 These would likely not be significant adverse effects, even without specific BPM mitigation measures in place.

10.7.21 However, there are two residential NSR which would potentially experience a medium magnitude impact, which may be significant without specific mitigation. These include:

- i. proposed pylon construction:
 - pylon SW77 affecting two residential NSR:
 - 2, Hill House Farms Cottages, Mill Road, West Walton, PE14 7EU; and
 - 1, Hill House Farms Cottages, Mill Road, West Walton, PE14 7EU.

10.7.22 In all cases, construction vibration impacts may be reduced through the application of BPM. As such, based upon the application of control mitigation measures, significant adverse effects due to construction vibration are not expected in Section 6.

Construction vibration on buildings and structures

10.7.23 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

- 10.7.24 The initial construction noise assessment outputs are presented in **PEI Report Volume 3 Part B Section 6 Appendix 10B Construction Traffic Noise Assessment**.
- 10.7.25 Construction traffic noise impacts have been assessed on 26 construction traffic road links in Section 6 where data is available. The assessment indicates that construction traffic would lead to the following impacts:
- no change in noise level on nine road links; and
 - a negligible increase in noise level on 17 road links.
- 10.7.26 No medium or large magnitude construction traffic noise impacts are expected in Section 6. 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 in Section 6.

Operation and Maintenance

Operational substation noise

- 10.7.27 As discussed above, there are no proposed new substation locations within Section 6. However, some NSR in Section 6 (close to the Section 6 and 7 boundary) fall within the Study Area for operational noise effects from the proposed New Walpole B Substation in Section 7.
- 10.7.28 The initial operational substation noise assessment is presented in **PEI Report Volume 3 Part B Section 7 Appendix 10C Initial Operational Substation Noise Assessment** and is summarised in **Table 10.4**.

Table 10.4 Summary of operational substation noise assessment

NSR Type/ Sensitivity	Total Number of NSR in Section 6 Study Area	Number of NSR experiencing magnitude of impact:			
		Negligible	Small	Medium	Large
Residential	15	15	0	0	0
High sensitivity non-residential	0	0	0	0	0
Medium sensitivity non- residential	0	0	0	0	0
Low sensitivity non-residential	0	0	0	0	0

- 10.7.29 The assessment indicates that with appropriate standard noise mitigation measures incorporated in the design, the magnitude of impact of operational noise from the

proposed new substation would be negligible at all nearby NSR. As such, there are no likely significant adverse effects from operational substation noise in Section 6.

Operational maintenance Noise and Vibration

- 10.7.30 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, or transformer replacement. 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 6, where suitable BPM are employed.

Summary

- 10.7.31 For completeness, **Table 10.5** summarises the findings of the preliminary assessment of Noise and Vibration effects during construction and operation and maintenance.

Table 10.5 Preliminary summary of non-significant Noise and Vibration effects – Section 6

Receptor	Impact	Sensitivity/ Importance/ Value of Receptor	Magnitude of Change	Significance	Rationale
Construction					
All residential, and medium sensitivity non-residential NSR within the Section 6 Study Area	Construction noise	Residential	Negligible to small	Negligible to minor adverse. Not significant	Due to the distance between proposed construction activities and receptors, construction noise levels would be below the threshold for potential significant adverse effects at all nearby residential NSR, with specific noise mitigation measures in place.
High sensitivity non-residential NSR within the Section 6 Study Area	Construction noise	High	Negligible	Minor adverse. Not significant	Due to the distance between proposed construction activities and receptors, construction noise levels would be below the threshold for potential significant adverse effects at all nearby non-residential NSR, even without specific noise mitigation measures.
Low sensitivity non-residential NSR within the Section 6 Study Area	Construction noise	Low	Negligible to medium	Negligible to minor adverse. Not significant	Due to the distance between proposed construction activities and receptors, construction noise levels would be below the threshold for potential significant adverse effects at all nearby non-residential NSR with specific noise mitigation measures in place.
All NSR within the Section 6 Study Area	Construction vibration	Residential, and high medium and low sensitivity non-residential NSR	Negligible to small	Negligible to minor adverse. Not significant	Due to the distance between proposed construction activities and receptors, construction vibration levels would be below the threshold for potential significant

Receptor	Impact	Sensitivity/ Importance/ Value of Receptor	Magnitude of Change	Significance	Rationale
					adverse effects at all nearby NSR, with specific vibration mitigation measures.
Buildings and structures within the Section 6 Study Area	Construction vibration	Buildings and structures	Below threshold for potential damage	Not significant	Due to the distance between proposed construction activities and receptors, construction vibration levels would be below the threshold for potential significant adverse effects at all nearby buildings and structures, even without specific vibration mitigation measures.
All NSR within the Section 6 Study Area	Construction traffic noise	Residential	Negligible to small	Negligible to Minor adverse. Not significant	No medium or large magnitude construction traffic noise impacts are expected in Section 6. 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 in Section 6.
Operation					
All NSR within the Section 6 Study Area	Operational noise	Residential	Negligible	Negligible. Not significant	With the implementation of standard noise mitigation measures (e.g. transformer and shunt reactor enclosures), operational noise levels from the proposed New Walpole B Substation would be below the threshold for potential significant adverse effects at all nearby NSR.

Receptor	Impact	Sensitivity/ Importance/ Value of Receptor	Magnitude of Change	Significance	Rationale
All NSR within the Section 6 Study Area	Operational Noise and Vibration from substantial maintenance activities	Residential, and medium and low 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 BPM 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 13) for certain construction activities.
- 10.8.4 Further detailed operational substation noise assessments will be undertaken as the design progresses, with appropriate mitigation specified where required to avoid significant adverse effects and reduce and minimise adverse effects.

References

- Ref 1 South East Lincolnshire Joint Strategic Planning Committee (2013). South East Lincolnshire Local Plan. Stragey and Policies DPD. Preferred Options Summary. Available at: <https://democracy.sholland.gov.uk/documents/s3502/Item%204%20Appendix%201.pdf> [Accessed 14 February 2025]
- Ref 2 Fenland District Council (2014). Fenland Local Plan. Adopted May 2014. Available at: <https://www.n-kesteven.gov.uk/sites/default/files/2023-03/Fenland%20Local%20Plan%20-%20adopted%202014.pdf> [Accessed 14 February 2025]
- Ref 3 Borough Council of King's Lynn and West Norfolk (2025) Kings Lynn and West Norfolk Local Plan 2021-2040 [online]. Available at: https://www.west-norfolk.gov.uk/info/20079/planning_policy_and_local_plan/1207/local_plan_2021-2040#:~:text=The%20current%20Local%20Plan%20was%20adopted%20in%20March,for%20the%20borough%20%28up%20to%2015%20years%20ahead%29. [Accessed 25 April 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 18 October 2024].
- 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 18 October 2024].
- 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 BS 4142:2014+A1:2019. Methods for rating and assessing industrial and commercial sound, British Standard Institution, 2019.
- Ref 11 ISO 9613-2:2014. Acoustics — Attenuation of sound during propagation outdoors. Part 2: Engineering method for the prediction of sound pressure levels outdoors. International Organization for Standardization, 2024.
- Ref 12 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 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 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].
- Ref 15 Control of Pollution Act 1974 [online]. Available at: <https://www.legislation.gov.uk/ukpga/1974/40/contents> [Accessed 18 September 2024].
- Ref 16 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 21 January 2025].

11. Socio- economics, Recreation and Tourism

Contents

11.	Socio-economics, recreation and tourism	11-5
11.1	Introduction	11-5
11.2	Legislation and Policy Framework	11-8
	Legislation and National Policy	11-8
	Regional and Local Policy	11-8
11.3	Scope of Assessment	11-9
11.4	Assessment Methodology	11-9
	Assessment Assumptions and Limitations	11-10
11.5	Baseline Conditions	11-10
	Study Area	11-10
	Data Collection	11-11
	Existing Baseline	11-12
	Future Baseline	11-24
11.6	Design, Control and Additional Mitigation Measures	11-25
	Design Mitigation Measures	11-25
	Control Mitigation Measures	11-25
	Additional Mitigation Measures	11-26
11.7	Preliminary Assessment of Effects	11-26
	Likely Significant Effects	11-27
	Likely Non-Significant Effects	11-27
11.8	Monitoring	11-58
	Table 11.1 Supporting documentation	11-6
	Table 11.2 Study Areas	11-11
	Table 11.3 Local businesses within the Study Area	11-12
	Table 11.4 Development land allocations, solar and onshore wind farms within the Study Area	11-17
	Table 11.5 Community facilities within the Study Area	11-19
	Table 11.6 Open space within the Study Area	11-20
	Table 11.7 PRoW and promoted/recreational routes within the Study Area	11-22
	Table 11.9 Preliminary summary of non-significant Socio-economics, recreation and tourism effects – Section 6	11-28
	References	11-59

11. Socio-economics, recreation and tourism

11.1 Introduction

- 11.1.1 This chapter presents the Preliminary Environmental Information (PEI) in relation to the Socio-economics, recreation and tourism assessment of the Refined Weston Marsh Substation Siting Zone to New Walpole B Substation Section (Section 6) of the Grimsby to Walpole Project (the Project). 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 **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 **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 6 (section 11.4). A detailed description of the assessment methods and scope, applicable to the whole Project, is contained in **PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**;
 - v. A description of the environmental baseline within the Section 6 Study Area relevant to the Socio-economics, recreation and tourism assessment (section 11.5);
 - vi. A description of mitigation measures included for the purposes of the Socio-economic, recreation and tourism assessment reported within the PEI Report (section 11.6). Further information regarding design development can be found in **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 Socio-economics, recreation and tourism effects arising during construction and operation of the Project within the Section 6, 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).
- 11.1.2 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
Topic Specific Supporting Documentation	
PEI Report Volume 2 Part B Section 6 Figures	<p>Figure 11.1 Local Business Receptors and Community Facilities Within the Study Area</p> <p>Figure 11.2 Development Land Allocations and Open Space Within the Study Area</p> <p>Figure 11.3 PRoW and Promoted Recreational Routes Within the Study Area</p> <p>Figure 11.4 Airfields and Airstrips Within the Study Area</p>
Project Supporting Documentation	
PEI Report Volume 2 Part B Section 6 Chapter 1 Overview of the Section and Description of the Project	A summary of the works within Section 6, including permanent infrastructure, temporary construction works, and operational activities.
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 of the Environmental Statement (ES).
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 PEI Report and ES.
PEI Report Volume 3 Part A Appendix 2Ci Local Plan Policy: Section Specific	An outline of the potentially relevant local planning policy allocations affecting each of the specific sections of the Project.
PEI Report Volume 3 Part A Appendix 2Cii Local Plan Policy: Route-wide	Details of planning policies applicable route-wide within the relevant Local Authority areas.
PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered	A summary of the main alternatives considered in relation to the Project during the design development process, including the main reasons for selecting the chosen option.
PEI Report Volume 2 Part A Chapter 4 Approach to Preliminary Environmental Information	Sets out the Environmental Impact Assessment (EIA) approach and general methodology that has been used in developing the PEI Report for the Project.
PEI Report Volume 2 Part A Chapter 5 Project Description	An overarching description of the Project and its key components, including available construction information.

Supporting Information	Description
PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice	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.

- 11.1.3 There are also interrelationships between the potential effects on Socio-economics, recreation and tourism and other environmental topics. Therefore, please also refer to the following chapters within **PEI Report Volume 2 Part B** and **Part C**:
- i. **PEI Report Volume 2 Part B Section 6, Chapter 3 Visual**, should be consulted in relation to amenity effects on users of Public Rights of Way (PRoWs) and promoted/recreational routes;
 - ii. **PEI Report Volume 2 Part B Section 6, Chapter 8 Agriculture and Soils**, should be consulted in regard to effects on agricultural landholdings;
 - iii. **PEI Report Volume 2 Part B Section 6, Chapter 9 Traffic and Movement**, should be consulted relation to impacts on access, PRoWs and promoted/recreational routes;
 - iv. **PEI Report Volume 2 Part B Section 6, 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. **PEI Report Volume 2 Part B Section 6, Chapter 12 Air Quality**, should be consulted in relation to effects on residential and community receptors, and local businesses;
 - vi. **PEI Report Volume 2 Part B Section 6 Chapter 13 Summary** provides a concise, consolidated summary of the likely significant effects reported for all topics, based upon the preliminary assessment;
 - vii. **PEI Report Volume 2 Part C Route-wide Assessment, Chapter 7 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. **PEI Report Volume 2 Part C Route-wide Assessment, Chapter 8 Health and Wellbeing**, should be consulted in relation to the amenity effects on population and users of PRoWs and promoted/recreational routes; and
 - ix. **PEI Report Volume 2 Part C Route-wide Assessment, 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.

11.2 Legislation and Policy Framework

Legislation and National Policy

- 11.2.1 Legislation and national policy relevant to the Project and this chapter is described in **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 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 (Adopted March 2019) (Ref 1)
 - Policy 33: Delivering a More Sustainable Transport Network – the policy encourages the protection of existing footpaths, cycle routes and public rights of way from development
 - ii. Fenland Local Plan (Adopted May 2014) (Ref 2)
 - Policy LP6: Employment, Tourism, Community Facilities and Retail - The rural economy will be supported and existing cultural, tourism and visitor facilities will be protected and where possible enhanced.
 - Policy LP15: Facilitating the Creation of a More Sustainable Transport Network in Fenland – proposals are expected to enable the Authority to deliver an integrated approach to transport in Fenland that is sustainable, facilitates growth, links town and country, encompasses cross boundary transport issues and improves accessibility for all.
 - iii. Fenland Local Plan 2021-2040 Draft Local Plan Consultation (Ref 3)
 - Policy LP21: Public Rights of Way – the policy seeks to protect existing public rights of way network and any development that will result in the loss or cause demonstrable harm to any public right of way will not be supported.
 - Policy LP29: Green Infrastructure- the policy seeks that all development proposals should ensure that existing and new green infrastructure is considered and integrated into the scheme's design from the outset. Any losses or harm will not be permitted unless there is an overriding reason of importance
 - Policy LP31: Open Space and Recreational Facilities – the policy seeks to improve and enhance existing facilities and ensure new developments protect and enhance them where possible.
 - iv. Kings Lynn and West Norfolk Local Plan 2021-2040 (Adopted March 2015) (Ref 4)
 - Policy LP36: Community and Culture: The Council encourages developers to engage with the community early in the planning process, focusing on the form, design, location, and layout of their proposals to promote community well-being. Additionally, the Council is committed to safeguarding and enhancing cultural assets. Development that compromises existing cultural facilities will only be permitted if there is a justified need and equivalent or

improved facilities are provided within the same settlement boundary or nearby.

11.3 Scope of Assessment

- 11.3.1 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 the submission 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 Socio-economic, recreation and tourism chapter is provided in **PEI Report Volume 3 Part A Appendix 4A Scoping Opinion Responses**. A summary of the stakeholder engagement undertaken to date is provided in **PEI Report Volume 3 Part A Appendix 4D Summary of Stakeholder Engagement**.
- 11.3.2 Non statutory consultation feedback is summarised within the **Grimsby to Walpole Stage 1 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 local 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 **PEI Report Volume 2 Part C Route-wide Assessment, Chapter 7 Socio-economics, recreation and tourism**.
- 11.3.5 As outlined in the Scoping Report (Ref 6), the effects of the Projects 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 5), 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 **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 are outlined below.

- 11.4.2 There is limited technical guidance available for Socio-economics, 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 **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 6.
- 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 used within that 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 5).
- 11.5.2 The proposed Study Areas for Section 6 is shown on:
- i. **PEI Report Volume 2 Part B Section 6 Figure 11.1 Local Business Receptors and Community Facilities Within the Study Area;**
 - ii. **PEI Report Volume 2 Part B Section 6 Figure 11.2 Development Land Allocations and Open Space Within the Study Area;**
 - iii. **PEI Report Volume 2 Part B Section 6 Figure 11.3 PRoW and Promoted Recreational Routes Within the Study Area;** and
 - iv. **PEI Report Volume 2 Part B Section 6 Figure 11.4 Airfields and Airstrips 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 for each of the receptor types 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 of the proposed overhead line alignment

- 11.5.5 The Study Area for aviation receptors is 5 km from the proposed overhead line infrastructure, as opposed to the draft Order Limits in their entirety. This is because of the nature of this specific receptor group, and the subsequent elements of the Project that has the potential to cause adverse or beneficial effects being limited to the placement of overhead line infrastructure only.
- 11.5.6 For the purposes of this assessment, direct effects can be defined as that which 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.
- 11.5.7 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 **PEI Report Volume 2 Part C Route-wide Assessment Chapter 7 Socio-economics, recreation and tourism**, owing to the nature of the impacts which are better considered at a route-wide level.

Data Collection

- 11.5.8 The following data has been used to inform the baseline conditions:
- South East Lincolnshire Adopted Local Plan (Ref 1);
 - Fenland District Council Local Plan (Ref 2);
 - Fenland District Council Emerging Local Plan (Ref 3);

- iv. Kings Lynn and West Norfolk District Council Local Plan (Ref 4);
- v. Ordnance Survey (OS) Open Greenspace (Ref 7);
- vi. OS Local Important Buildings (Ref 8);
- vii. OS AddressBase (Ref 9);
- viii. Traffic count data from surveys undertaken by Traffic and Movement, which include pedestrians, cyclists and equestrians; p
- ix. Designated non-motorised user (NMU) routes and PRowS from Sustrans (Ref 10 and Ref 11) and Local Authority Definitive Maps where applicable;
- x. Cambridgeshire County Council Definitive Maps (Ref 12); and
- xi. Lincolnshire County Council Definitive Maps (Ref 13).

Existing Baseline

11.5.9 The following section outlines the Socio-economics, recreation and tourism baseline. The baseline section should be read in conjunction with the following supporting Figures and Appendices as found within **PEI Report Volume 2** respectively:

- i. **PEI Report Volume 2 Part B Section 6 Figure 11.1 Local Business Receptors and Community Facilities Within the Study Area;**
- ii. **PEI Report Volume 2 Part B Section 6 Figure 11.2 Development Land Allocations and Open Space Within the Study Area;**
- iii. **PEI Report Volume 2 Part B Section 6 Figure 11.3 PRow and Promoted Recreational Routes Within the Study Area; and**
- iv. **PEI Report Volume 2 Part B Section 6 Figure 11.4 Airfields and Airstrips Within the Study Area.**

Local Businesses

11.5.10 The local businesses in this area generally 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.

11.5.11 **Table 11.3** identifies the local businesses, including farms, local tourist attractions and tourist accommodation which fall within the Study Area These are also shown on **PEI Report Volume 2 Part B Section 6 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
Foster Property Developments	At its closest point, this receptor is approximately 390 m from the draft Order Limits. The receptor is situated off Sutton Road.	Low

Receptor	Description	Sensitivity
Michael Tawn Air Gun Supplies	At its closest point, this receptor is located approximately 50 m from the draft Order Limits. The receptor is situated along Hannath Road.	Low
Emorsgate Seeds-Ingleborough Farm	At its closest point, this receptor is approximately 50 m from the draft Order Limits. The receptor is situated along Mill Road.	Medium
Bateman Farms	This receptor is located directly within the draft Order Limits. The receptor is situated off Mill Road.	Medium
X Bikes	At its closest point, this receptor is approximately 395 m from the draft Order Limits. The receptor is situated at the Paddocks, off Mill Road.	Low
Jackies Grooming Parlour	At its closest point, this receptor is approximately 25 m from the draft Order Limits. The receptor is situated along Cross Drove.	Medium
MGA Transport Ltd	At its closest point, this receptor is approximately 5 m from the draft Order Limits. The receptor is situated along Broadgate.	Low
Lift and Shift Self Storage Ltd	At its closest point, this receptor is approximately 15 m from the draft Order Limits. The receptor is situated along Broadgate.	Low
Skycraft Ltd - Bloodfold Farm	At its closest point, this receptor is approximately 265 m from the draft Order Limits. The receptor is situated along Ravens Bank.	Medium
Heron Orchard Caravan Park	At its closest point, this receptor is approximately 450 m from the draft Order Limits. The receptor is situated along Frostley Gate.	Medium
Blue Bell Inn	At its closest point, this receptor is approximately 235 m from the draft Order Limits. The receptor is situated along Cranesgate South.	Medium
Little Blossoms Hair Studio	At its closest point, this receptor is approximately 25 m from the draft Order Limits. The receptor is situated along Cranesgate South.	Low

Receptor	Description	Sensitivity
Bell Formwork & Civil Engineering Services Ltd	At its closest point, this receptor is approximately 275 m from the draft Order Limits. The receptor is situated along Mill Gate.	Low
Millgate Windows and Conservatories	At its closest point, this receptor is approximately 15 m from the draft Order Limits. The receptor is situated along High Road.	Low
Harrington House Boarding Cattery	At its closest point, this receptor is approximately 150 m from the draft Order Limits. The receptor is situated along Thorpes Lane.	Medium
Hub Rural Ltd	At its closest point, this receptor is approximately 5 m from the draft Order Limits. The receptor is situated along Hogs Gate.	Low
G.H. Myers Ltd- Poplar Farm	At its closest point, this receptor is approximately 90 m from the draft Order Limits. The receptor is located along Austendyke Road.	Medium
Cubit Electrical & Mechanical Engineering- Poplar Farm	At its closest point, this receptor is approximately 100 m from the draft Order Limits. The receptor is located along Austendyke Road.	Low
R G Laser Ltd- Poplar Farm	At its closest point, this receptor is approximately 100 m from the draft Order Limits. The receptor is located along Austendyke Road.	Medium
Moulton Bulb Company	At its closest point, this receptor is approximately 30 m from the draft Order Limits. The receptor is situated along Broad Lane.	Low
Broadgate Stables	At its closest point, this receptor is approximately 95 m from the draft Order Limits. The receptor is situated along Broadgate.	Medium
Hollytree Farm Shop	At its closest point, this receptor is approximately 7 m from the draft Order Limits. The receptor is situated along Broadgate.	Medium
Pharmawrite Ltd	At its closest point, this receptor is approximately 160 m from the draft Order	Low

Receptor	Description	Sensitivity
	Limits. The receptor is situated along Broadgate.	
Woad Farm Stables	At its closest point, this receptor is approximately 110 m from the draft Order Limits. The receptor is situated along Broadgate.	Medium
Lansen Nursery	At its closest point, this receptor is approximately 350 m from the draft Order Limits. The receptor is situated along Holbeach Road.	Medium
Top Score Bulbs and Flowers	At its closest point, this receptor is approximately 200 m from the draft Order Limits. The receptor is situated along Holbeach Road.	Medium
Wykeham Staff Services	At its closest point, this receptor is approximately 125 m from the draft Order Limits. The receptor is situated along Holbeach Road.	Low
Heatherdown Offices	At its closest point, this receptor is located approximately 215 m from the draft Order Limits. The receptor is situated along Elm Lane.	Low
Fun Farm	At its closest point, this receptor is approximately 155 m from the draft Order Limits. The receptor is situated along High Road.	Low
Doodles Pottery Painting Studio	At its closest point, this receptor is approximately 220 m from the draft Order Limits. The receptor is situated along High Road.	Medium
Omega Lifestyle	At its closest point, this receptor is approximately 30 m from the draft Order Limits. The receptor is situated along High Road.	Low
Wool Hall Farm: Including Produce World LFP Ltd- Lincolnshire Field Products & Packhouse and Premises	At its closest point, this receptor is approximately 110 m from the draft Order Limits. The receptor is situated adjacent to Cross Gate.	Medium
Baytree Garden Centre	At its closest point, this receptor is approximately 210 m from the draft Order	Medium

Receptor	Description	Sensitivity
	Limits. The receptor is situated along High Road.	
C Gregory Roses Ltd, Rose Tweed Nursery	At its closest point, this receptor is approximately 440 m from the draft Order Limits. The receptor is situated along Broadgate.	Medium
Bassodon Boarding Cattery	At its closest point, this receptor is approximately 190 m from the draft Order Limits. The receptor is situated along Broadgate.	Medium
Millgate Windows and Conservatories	At its closest point, this receptor is approximately 35 m from the draft Order Limits. The receptor is situated within Millgate Industrial Units.	Low
Leisure Skate	At its closest point, this receptor is approximately 20 m from the draft Order Limits. The receptor is situated along Ravens Gate.	Low
Rookery Farm Accommodation	At its closest point, this receptor is approximately 115 m from the draft Order Limits. The receptor is situated along Joys Bank.	Medium
Baytree Owl and Wildlife Centre	At its closest point, this receptor is approximately 210 m from the draft Order Limits. The receptor is situated along High Road.	Medium
Berberis House: Apiary, Cattery and Caravan Pitch	At its closest point, this receptor is approximately 50 m from the draft Order Limits. The receptor is situated along Old Fen Dike.	Medium
Tydd St Giles Golf and Country Club	At its closest point, the receptor is approximately 350 m from the draft Order Limits. The receptor is situated along Kirgate.	High
Alma House Kennels	At its closest point, this receptor is within approximately 10 m of the draft Order Limits. The receptor is situated along Broadgate Road.	Medium
Doubledays Agricultural Engineers	At its closest point, this receptor is within approximately 50 m of the draft Order Limits. The receptor is situated along Jekils Bank.	Medium

Receptor	Description	Sensitivity
Catering Directions	At its closest point, this receptor is within approximately 465 m of the draft Order Limits. The receptor is situated along Old Fen Dike.	Low

Development Land

- 11.5.12 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.
- 11.5.13 **Table 11.4** identifies 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 **PEI Report Volume 2 Part B Section 6 Figure 11.2 Development Land Allocations and Open Space Within the Study Area**.
- 11.5.14 The allocations within this Section are strategic in nature and are therefore considered to have limited potential for substitution. Unless allocations are considered unlikely to incur any loss or gain as a result of potential changes in the environment, they are considered to have a High sensitivity. Otherwise, they are considered to have a Medium sensitivity, which balances their limited potential for substitution and whether or not they are likely to incur any loss or gain as a result of potential changes in the local environment.
- 11.5.15 Further to this, it is considered that the solar farms within the Study Area are of a greater generating capacity and thus economic value than the identified wind turbines. As such, the identified solar farms are considered to have a High sensitivity, whereas the identified wind turbines have been assigned a Medium sensitivity.
- 11.5.16 It should be noted that the Rose and Crown Farm solar site is situated across both Section 6 (overhead line, Refined Weston Marsh Substation Siting Zone to New Walpole B Substation) and Section 7 (New Walpole B Substation). The receptor has been assessed in the **PEI Report Volume 2 Section 7, Chapter 11 Socio-economics, recreation and tourism** to avoid double counting where its impact from the Project is likely to be greatest.

Table 11.4 Development land allocations, solar and onshore wind farms within the Study Area

Local authority area	Receptor	Description	Sensitivity
Cambridgeshire Minerals and Waste Local Plan	Tydd St Giles Waste Site (WRA)	Designated site for a waste management facility situated east of the A1101 (Sutton Road) and west of the River Nene. At its closest point, the allocation is approximately 130 m from the draft Order Limits.	Medium
Cambridgeshire Minerals and Waste Local Plan	Tydd St Giles Waste Consultation Area (WRA)	WRA Consultation Area buffer surrounding the Tydd St Giles designated waste, situated east of Sutton Road. The allocation partly sits	Medium

Local authority area	Receptor	Description	Sensitivity
		within the south-east section of the draft Order Limits.	
South East Lincolnshire Local Plan	Weston Reserve Housing Allocation - Wsn036	Weston Reserve Housing Allocation site area of 7.06 ha, total capacity yield 141 dwellings on land between High Road and Broad Gate, Weston. At its closest point, the allocation is approximately 230 m from the draft Order Limits.	High
South East Lincolnshire Local Plan	Whaplode Fen proposed Residential Gypsy/Traveller Site	Allocation land at Bleu Raye Farm, Mill Gate, Whaplode Fen as a proposed Residential Gypsy/Traveller Site, to provide accommodation for 4 households. At its closest point, the allocation is approximately 110 m from the draft Order Limits.	High
South East Lincolnshire Local Plan	Whaplode St Catherine Residential Gypsy/Traveller Site	Existing allocated Residential Gypsy/Traveller Site off of Eccles Place, Whaplode St Catherine. At its closest point, the allocation is approximately 380 m from the draft Order Limits.	High
Norfolk Minerals and Waste Development Framework	West Walton Wastewater Consultation Area	Wastewater Consultation Area buffer surrounding the West Walton Anglian Water Service Ltd Site. At its closest point, the allocation is approximately 490 m from the draft Order Limits.	Medium
Fenland District Council	Fenland 5 km buffer Suggested Safeguarding Zone	Fenland Suggested Safeguarding Zone (CAA), forming a 5 km buffer surrounding Fenland Airfield Aerodrome. The allocated 5 km buffer partly sits within the draft Order Limits.	Medium
Norfolk County Council	Wind Turbine south of Hogens Lane	At its closest point, this receptor is approximately 400 m from the draft Order Limits. The receptor is situated south of Hogins Lane.	Medium
South East Lincolnshire Council	Grange Farm Solar Site	At its closest point, this receptor is approximately 430 m from the draft Order Limits. The receptor is situated along Fishergate.	High

Community Facilities

11.5.17 **Table 11.5** below identifies the community facilities which fall within the Study Area. This is also shown on **PEI Report Volume 2 Part B Section 6 Figure 11.1 Local Business Receptors and Community Facilities Within the Study Area.**

- 11.5.18 Generally, the community facilities possess some social and/or community value and would likely have limited potential for substitution in the immediately surrounding area. As such they should be considered to have a High sensitivity. The exceptions to this are the Post Offices situated on Cranesgate South and Church Lane. 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
Parish Church of St James	At its closest point, this receptor is approximately 270 m from the draft Order Limits. The receptor is situated along Church Lane.	High
Newton Village Hall including a Post Office	At its closest point, this receptor is approximately 465 m from the draft Order limits. The receptor is situated along Church Lane.	High
Kinderley CP School, including ABC Kids Club	At its closest point, this receptor is approximately 10 m from the draft Order Limits. The receptor is situated along Church Lane.	High
Ingleborough Tower Mill	At its closest point, this receptor is approximately 5 m from the draft Order Limits. The receptor is situated along Mill Road.	High
Norfolk Fire & Rescue Services	At its closest point, this receptor is approximately 50 m from the draft Order Limits. The receptor is situated off Mill Road.	High
Recycling Site on High Road	At its closest point, this receptor is approximately 480 m from the draft Order Limits. The receptor is situated along High Road.	High
Tydd Fen Methodist Church	At its closest point, this receptor is approximately 250 m from the draft Order Limits. The receptor is situated off Cross Drove.	High
Post Office on Church Lane	At its closest point, this receptor is approximately 460 m from the draft Order Limits. The receptor is situated along Church Lane.	Medium
Whaplode St Catherine Memorial Hall- building also used for a Royal Mail Post Office	At its closest point, this receptor is approximately 35 m from the draft Order Limits. This receptor is situated along Cranesgate South.	Medium
Community Centre along Broad Drove East	At its closest point, this receptor is within approximately 45 m of the draft Order Limits. This receptor is situated along Broad Drove East.	High

Open Space

- 11.5.19 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 14).

- 11.5.20 **Table 11.6** below identifies the areas of open space, either allocated via the relevant local development plan or recognised as an area of green space by local communities, within the Study Area. This is also shown on **PEI Report Volume 2 Part B Section 6 Figure 11.2 Development Land Allocations and Open Space Within the Study Area**.
- 11.5.21 The areas of open space have some social and/or community value with potential for substitution, and as such should be considered to have Medium sensitivity.
- 11.5.22 It should be noted that the Land at Church of St James, St Mary's Church and Tydd Fen Methodist Church are considered to be open space. However, these areas of land form part of the religious grounds (churches), which have been considered as community facilities. As such, the areas of open space have not been assessed separately to avoid double counting.

Table 11.6 Open space within the Study Area

Receptor	Description	Sensitivity
Play Space at Cranesgate North-Provision for Children and Young People	At its closest point, this receptor is approximately 8 m from the draft Order Limits. The receptor is situated along Cranesgate North.	Medium
Bowling Green at Church Lane	At its closest point, this receptor is approximately 450 m from the draft Order Limits. The receptor is situated along Church Lane.	Medium
Queen Elizabeth Playing Field	At its closest point, this receptor is approximately 290 m from the draft Order Limits. The receptor is situated along Goodens Lane.	Medium
Allotments/Community Growing Spaces along Delgate Bank	At its closest point, this receptor is approximately 330 m from the draft Order Limits. The receptor is situated along Delgate Bank.	Medium
Fishing Lake adjacent to Middle Broad Drove	At its closest point, this receptor is approximately 5 m from the draft Order Limits. The receptor is situated adjacent to Middle Broad Drove.	Medium
Play Area along Broad Drove East	At its closest point, this receptor is approximately 60 m from the draft Order Limits. The receptor is situated along Broad Drove East.	Medium
Recreation Field along Broad Drove East	At its closest point, this receptor is within approximately 50 m of the draft Order Limits. The receptor is situated along Broad Drove East.	Medium

Users of Public Rights of Way (PRoW) and Promoted/Recreational Routes

- 11.5.23 This section of the baseline considers people using PRoW for walking, wheeling, cycling and horse-riding. PRoW 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 **PEI Report Volume 2 Part B Section 6 Figure 11.3 PRoW and Promoted Recreational Routes Within the Study Area**.

- 11.5.24 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 Cambridgeshire County Council (Ref 12) and Lincolnshire County Council (Ref 13) definitive maps, and desk-top research. Such routes, paths and trails generally follow alignments utilising combinations of PRow.
- 11.5.25 PRowS are typically considered as:
- i. 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).
 - iv. Byways open to all traffic (BOATs), open to all including motor vehicles.
- 11.5.26 People using wheelchairs or mobility scooters can use all of the above designations.
- 11.5.27 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 may be subject to available alternative routes.
- 11.5.28 Relevant transport surveys are ongoing, which are considered in **PEI Report Volume 2 Part B Section 6 Chapter 9 Traffic and Movement**. At ES stage survey results will help further inform our consideration of sensitivity of routes by providing information about usage and condition, which are relevant to determining value and potential for substitution.
- 11.5.29 **Table 11.7** 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 are assessed within **PEI Report Volume 2 Part B Section 6 Chapter 9 Traffic and Movement**.

Table 11.7 PRow and promoted/recreational routes within the Study Area

Parish area	Receptor	Description	Sensitivity
Promoted/recreational routes			
N/A	Greenwich Meridian Trail	This receptor is a long distance walk that follows the line of the Prime Meridian. The route interacts with the study area at two locations in Section 6, and at its closest point, the route is within the draft Order Limits. The route is 269 miles in total length.	High
N/A	National Cycle Route 1	The route interacts with the study area at two locations in Section 6, and at its closest point, the route is within the draft Order Limits. The route is 1,264 miles in total length.	High
N/A	Nene Way	This receptor is a long-distance footpath which generally follows the course of the River Nene. At its closest point, this route is within the draft Order Limits. The route is 112 miles in total length.	High
Cambridgeshire County Council			
Newton-in-the-Isle	2 footpaths; 166/15 and 166/3	There are 2 footpaths located within the Newton-in-the-Isle parish which interact with the draft Order Limits.	Medium
Newton-in-the-Isle	2 footpaths; 161/1 and 166/6	There are 2 footpaths located within the Newton-in-the-Isle parish which are located within the Study Area and do not interact with the draft Order Limits.	Medium
Tydd St. Giles	2 footpaths; 238/4 and 238/18	There are 2 footpaths located within the Tydd St. Giles parish which interact with the draft Order Limits.	Medium
Tydd St. Giles	7 footpaths; 238/17, 238/8, 238/9, 238/2, 238/5, 238/16 and 166/7	There are 7 footpaths located within the Tydd St. Giles parish which are located within the Study Area and do not interact with the draft Order Limits.	Medium
Tydd St. Giles	1 bridleway; 238/20	There is 1 bridleway within the Tydd St. Giles parish which interact with the draft Order Limits.	Medium

Parish area	Receptor	Description	Sensitivity
Tydd St. Giles	1 byway; 238/14	There is 1 byway within the Tydd St. Giles parish which interact with the draft Order Limits.	Medium
Lincolnshire County Council			
Fleet	2 Bridleways; Flee/7/1 and Flee/8/1	There are 2 bridleways located within the Fleet parish which are located within the Study Area and do not interact with the draft Order Limits.	Medium
Holbeach	1 Footpath; Holb/13/1	There is 1 footpath located within the Holbeach parish which interacts with the draft Order Limits.	Medium
Holbeach	1 Footpath; Whap/3/1	There is 1 footpath located within the Holbeach parish which are located within the Study Area and does not interact with the draft Order Limits.	Medium
Holbeach	1 Bridleway; Holb/172	There is 1 bridleway located within the Holbeach parish which interacts with the draft Order Limits.	Medium
Sutton St. Edmund	3 Bridleways; SuSJ/1/2, SuSJ/2/3 and SuSJ/1/1	There are 3 bridleways within the Sutton St. Edmund parish which interact with the draft Order Limits.	Medium
Tydd St. Giles	1 Bridleway; Tydd/7/1	There is 1 bridleway located within the Tydd St. Giles parish which are located within the Study Area and does not interact with the draft Order Limits.	Medium
Tydd St. Mary	2 Footpaths; Tydd/1/1 and Tydd/2/1	There are 2 footpaths located within the Tydd St. Mary parish which are located within the Study Area and do not interact with the draft Order Limits.	Medium
Whaplode	1 Bridleway; Holb/17/1	There 1 is bridleway within the Whaplode parish which interacts with the draft Order Limits.	Medium
South Holland District, Whaplode	2 Footpaths; Whap/2/3 and Whap9/1	There are 2 footpaths located within the Whaplode parish which are located within the Study Area and do not interact with the draft Order Limits.	Medium

Aviation

- 11.5.30 The study area for aviation receptors is 5 km from the proposed overhead line infrastructure, as opposed to the draft Order Limits in their entirety. This is because of the nature of this specific receptor group, and the subsequent elements of the Project that has the potential to cause adverse or beneficial effects being limited to the placement of overhead line infrastructure only. As such, the baseline information presented in **Table 11.8** below identifies airfields and airstrips, operational or otherwise, which are located within 5 km of the proposed overhead line infrastructure. This is also shown on **PEI Report Volume 2 Part B Section 6 Figure 11.4 Airfields and Airstrips Within the Study Area**.
- 11.5.31 A specialist aviation consultant has been engaged by National Grid Electricity Transmission plc (National Grid) to support ongoing discussions and analysis relating to the operational safety of airfields in the vicinity of the Project. The findings of this initial analysis have been used to inform routing and siting decisions as part of the development of the Project. Further engagement will be undertaken with airfield owners and operators as the Project progresses. A more detailed analysis of potential impacts on aviation receptors will be used to inform the Socio-economic, recreation and tourism assessment at ES stage, including information that will inform the determination of the sensitivity and magnitude of change in connection with users of airfields as socio-economic receptors.

Table 11.8 Airfields and Airstrips within the Study Area

Receptor	Description
Fenland Airfield	This receptor is a licensed airfield located approximately 2.7 km from the proposed overhead line alignment. The airstrip is situated approximately 8 km southeast of Spalding.

Future Baseline

- 11.5.32 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.
- 11.5.33 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 **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.
- 11.5.34 Developments to be considered as part of the future baseline include the Moulton Bulb Solar Farm, Long Lane, which has recently been granted planning permission. This receptor is a proposed solar farm which is directly adjacent to the draft Order

Limits, specifically a proposed construction access track (haul road). It is located adjacent to The Gables and is considered to be of high sensitivity. The likely significance of effects for solar developments considered in the future baseline will be determined at ES stage when the necessary information from all relevant topic specialists is available and following further landowner engagement.

- 11.5.35 Population projections relevant to the local labour market and affected communities is considered as part of **PEI Report Volume 2 Part C Route-wide Chapter 9 Socio-economics, recreation and tourism**, owing to the nature of the impacts which will be felt at a regional level.
- 11.5.36 The future baseline for other local businesses, community facilities, open spaces, and visitor attractions over the medium to longer-term is uncertain beyond where allocated and planned development sites have been identified. Due to this uncertainty, it is assumed the future baseline for the Study Area would be unchanged from the current baseline to the completion of the Project, except where new development is expected to be delivered in line with allocated and planned development sites as set out above.

11.6 Design, Control and Additional Mitigation Measures

Design Mitigation Measures

- 11.6.1 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 15) applicable to routing of new overhead lines and the 'Horlock Rules' (Ref 16) 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 17) and **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 6. This has further contributed to the avoidance or reduction of the potential environmental impacts of the Project.

Control Mitigation Measures

- 11.6.3 A Preliminary CoCP is provided in **PEI Report Volume 3 Appendix 5A Preliminary Code of Construction Practice**. Measures relevant to the control and management of impacts that could specifically affect the socio-economic, recreation and tourism assessment are:
 - i. TT02: All affected 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 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.
- 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, maintenance and/or operational activities within Section 6.
- 11.7.2 The preliminary assessment of effects reported below take into account the Design and Control mitigation measures as previously described.
- 11.7.3 For a summary of the likely significant effects please refer to **PEI Report Volume 2 Part B Section 6 Chapter 13 Summary**. A supplementary summary of all non-significant effects is also included within this Section in **Table 11.9**, based upon the assessment scope detailed in **PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.
- 11.7.4 This 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.
- 11.7.5 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 detailed assessment will be included within the ES submitted with the DCO application.

Likely Significant Effects

Construction, Operation and Maintenance

- 11.7.6 An assessment of the direct effects of the Project on above ground renewable energy generating infrastructure (solar and onshore wind farms) as Socio-economics, recreation and tourism receptors will be presented in the ES.
- 11.7.7 For this PEI Report, a reasonable worst-case scenario approach has been applied in relation to solar farms that intercept with the draft Order limits. Within Section 6 this includes one such site considered in the Future Baseline (Moulton Bulb Solar Farm, Long Lane). The current assumption is that this receptor would be directly impacted, which could potentially result in likely significant effects by virtue of temporary or permanent loss of land during construction.
- 11.7.8 The likely level of effect and magnitude of changes will be determined within the ES following completion of the relevant interrelated assessments and landowner consultation.
- 11.7.9 Based upon the preliminary assessment, no other likely significant effects are predicted for Socio-economic, recreation and tourism receptors within Section 6, as a result of the construction or operation and maintenance phases of the Project.

Likely Non-Significant Effects

- 11.7.10 For completeness, **Table 11.9** summarises the findings of the preliminary assessment with respect to those impacts that are not predicted to result in significant Socio-economics, recreation and tourism effects.
- 11.7.11 As outlined in the Scoping Report (Ref 6), the effects of the Project's operation and maintenance phase on 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 5) and the request to report on significant effects resulting from the Project's operation and maintenance phase where they do arise, National Grid has considered this as part of this assessment.
- 11.7.12 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, it is considered that there would be a negligible impact on all receptors assessed as part of Section 6. This is due to the fact that access will be maintained or reinstated for all receptors and amenity impacts will be minimised through the implementation of mitigation.
- 11.7.13 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 **PEI Report Volume 2 Part B Section 6 Chapter 9 Traffic and Movement**. This Socio-economics, recreation and tourism assessment, also at ES stage, will 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 11.9 Preliminary summary of non-significant Socio-economics, recreation and tourism effects – Section 6

Receptor	Impact	Sensitivity/ Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
Local businesses					
Foster Property Developments, Sutton Road	At its closest point, this receptor is located approximately 390 m from the draft Order Limits and may be affected from adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	Low	Small, adverse	Minor adverse, not significant	<p>It is considered that this receptor possesses some economic value and has potential for substitution. This receptor is not considered likely to incur any loss or gain as a result of potential changes in the environment. It has therefore been assigned a low sensitivity.</p> <p>It is anticipated that there would be a small change given construction activities in the surrounding areas, and it is assumed that access would be maintained at all times.</p>
Michael Tawn Air Gun Supplies, Hannath Road	At its closest point, this receptor is located approximately 50 m from the draft Order Limits and may be affected from adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	Low	Small, adverse	Minor adverse, not significant	<p>It is considered that this receptor possesses some economic value and has potential for substitution. This receptor is not considered likely to incur any loss or gain as a result of potential changes in the environment. It has therefore been assigned a low sensitivity.</p> <p>It is anticipated that there would be a small change given construction activities in the surrounding areas, including the potential use of a construction access track nearby.</p>

Receptor	Impact	Sensitivity/ Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
					It is assumed that access would be maintained at all times.
Emorsegate Seeds-Ingleborough Farm, Mill Road	At its closest point, this receptor is located approximately 50 m from the draft Order Limits and may be affected from adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	Medium	Small, adverse	Minor adverse, not significant	<p>It is considered that this receptor possesses some economic value and has potential for substitution. It has therefore been assigned a medium sensitivity.</p> <p>It is anticipated that there would be a small change given construction activities in the surrounding areas, including the potential use of a construction access track nearby. It is assumed that access would be maintained at all times.</p>
Bateman Farms, Mill Road	This receptor is located within the draft Order Limits and may be affected from adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	Medium	Small, adverse	Minor adverse, not significant	<p>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 magnitude of change likely as a construction access track is proposed on the road adjacent to this receptor, however this is unlikely to compromise the overall viability, and it is assumed that access would be maintained at all times.</p>

Receptor	Impact	Sensitivity/ Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
X Bikes, Mill Road	At its closest point, this receptor is located approximately 395 m from the draft Order Limits and may be affected from adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	Low	Small, adverse	Minor adverse, not significant	<p>It is considered that this receptor possesses some economic value and has potential for substitution. This receptor is not considered likely to incur any loss or gain as a result of potential changes in the environment. It has therefore been assigned a low sensitivity.</p> <p>It is anticipated that there would be a minor change likely given construction activities in the surrounding areas, and it is assumed that access would be maintained at all times.</p>
Jackies Grooming Parlour, Cross Drove	At its closest point, this receptor is located approximately 25 m from the draft Order Limits and may be affected from adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	Medium	Small, adverse	Minor adverse, not significant	<p>It is considered that this receptor possesses some economic value and has potential for substitution. It has therefore been assigned a medium sensitivity.</p> <p>It is anticipated that there would be a small, magnitude of change likely as a construction access track is proposed on Cross Drove, however this is unlikely to compromise the overall viability, and it is assumed that access would be maintained at all times.</p>
MGA Transport Ltd, Broadgate	At its closest point, this receptor is located approximately 40 m	Low	Small, adverse	Minor adverse, not significant	It is considered that this receptor possesses some economic value

Receptor	Impact	Sensitivity/ Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
	from the draft Order Limits and may be affected from adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.				<p>and has potential for substitution. This receptor is not considered likely to incur any loss or gain as a result of potential changes in the environment. It has therefore been assigned a low sensitivity.</p> <p>It is anticipated that there would be a small, magnitude of change likely as a construction access track is proposed on the road adjacent to this receptor, however this is unlikely to compromise the overall viability, and it is assumed that access would be maintained at all times.</p>
Lift and Shift Self Storage Ltd, Joys Bank	At its closest point, this receptor is located approximately 95 m from the draft Order Limits and may be affected from adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	Low	Small, adverse	Minor adverse, not significant	<p>It is considered that this receptor possesses some economic value and has potential for substitution. This receptor is not considered likely to incur any loss or gain as a result of potential changes in the environment. It has therefore been assigned a low sensitivity.</p> <p>It is anticipated that there would be a small magnitude of change likely as a construction access track is proposed on Joys Bank, however this is unlikely to compromise the overall viability, and it is assumed</p>

Receptor	Impact	Sensitivity/ Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
					that access would be maintained at all times.
Skycraft Ltd - Bloodfold Farm, Ravens Bank	At its closest point, this receptor is located approximately 30 m from the draft Order Limits and may be affected from adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	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, given construction activities in the surrounding areas, and it is assumed that access would be maintained at all times.
Heron Orchard Caravan Park, Frostley Gate	At its closest point, this receptor is located approximately 450 m from the draft Order Limits and may be affected from adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	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 construction activities in the surrounding areas, and it is assumed that access would be maintained at all times.
Blue Bell Inn, Cranesgate South	At its closest point, this receptor is located approximately 235 m from the draft Order Limits and may be affected from adverse noise/vibration, air quality/dust, and visual impacts during	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 construction

Receptor	Impact	Sensitivity/ Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
	construction. No impact is anticipated during operation.				activities in the surrounding areas, and it is assumed that access would be maintained at all times.
Little Blossoms Hair Studio, Cranesgate South	At its closest point, this receptor is located approximately 25 m from the draft Order Limits and may be affected from adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	Low	Small, adverse	Minor adverse, not significant	<p>It is considered that this receptor possesses some economic value and has potential for substitution. This receptor is not considered likely to incur any loss or gain as a result of potential changes in the environment. It has therefore been assigned a low sensitivity.</p> <p>It is anticipated that there would be a small magnitude of change, as a construction access track is proposed on adjacent to this receptor, however this is unlikely to compromise the overall viability, and it is assumed that access would be maintained at all times.</p>
Bell Formwork & Civil Engineering Services Ltd, Mill Gate	At its closest point, this receptor is located approximately 275 m from the draft Order Limits and may be affected from adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	Low	Small, adverse	Minor adverse, not significant	<p>It is considered that this receptor possesses some economic value and has potential for substitution. This receptor is not considered likely to incur any loss or gain as a result of potential changes in the environment. It has therefore been assigned a low sensitivity.</p> <p>It is anticipated that there would be a small change, given construction activities in the surrounding areas,</p>

Receptor	Impact	Sensitivity/ Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
					and it is assumed that access would be maintained at all times.
Millgate Windows and Conservatories, High Road	At its closest point, this receptor is located approximately 15 m from the draft Order Limits and may be affected from adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	Low	Small, adverse	Minor adverse, not significant	<p>It is considered that this receptor possesses some economic value and has potential for substitution. This receptor is not considered likely to incur any loss or gain as a result of potential changes in the environment. It has therefore been assigned a low sensitivity.</p> <p>It is anticipated that there would be a small magnitude of change as a construction access track is proposed along Mill Gate, however this is unlikely to compromise the overall viability, and it is assumed that access would be maintained at all times.</p>
Harrington House Boarding Cattery, Thorpes Lane	At its closest point, this receptor is located approximately 150 m from the draft Order Limits and may be affected from adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	Medium	Small, adverse	Minor adverse, not significant	<p>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, given construction activities in the surrounding areas, and it is assumed that access would be maintained at all times.</p>

Receptor	Impact	Sensitivity/ Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
Hub Rural Ltd, Hogs Gate	At its closest point, this receptor is located approximately 5 m from the draft Order Limits and may be affected from adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	Low	Small, adverse	Minor adverse, not significant	<p>It is considered that this receptor possesses some economic value and has potential for substitution. This receptor is not considered likely to incur any loss or gain as a result of potential changes in the environment. It has therefore been assigned a low sensitivity.</p> <p>It is anticipated that there would be a small change, given construction activities in the surrounding areas, and it is assumed that access would be maintained at all times.</p>
G.H Myers Ltd – Poplar Farm, Austendyke Road	At its closest point, this receptor is located approximately 90 m from the draft Order Limits and may be affected from adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	Medium	Small, adverse	Minor adverse, not significant	<p>It is considered that this receptor possesses some economic value and has potential for substitution. It has therefore been assigned a medium sensitivity.</p> <p>It is anticipated that there would be a small magnitude of change as a construction access track is proposed adjacent to this receptor, however this is unlikely to compromise the overall viability, and it is assumed that access would be maintained at all times.</p>
Cubit Electrical & Mechanical Engineering –	At its closest point, this receptor is located approximately 100 m from the draft Order Limits and	Low	Small, adverse	Minor adverse, not significant	<p>It is considered that this receptor possesses some economic value and has potential for substitution.</p>

Receptor	Impact	Sensitivity/ Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
Poplar Farm, Austendyke Road	may be affected from adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.				<p>This receptor is not considered likely to incur any loss or gain as a result of potential changes in the environment. It has therefore been assigned a low sensitivity.</p> <p>It is anticipated that there would be a small magnitude of change, as a construction access track is proposed adjacent to this receptor, however this is unlikely to compromise the overall viability, and it is assumed that access would be maintained at all times.</p>
R G Laser Ltd – Poplar Farm, Austendyke Road	At its closest point, this receptor is located approximately 100 m from the draft Order Limits and may be affected from adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	Medium	Small, adverse	Minor adverse, not significant	<p>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, given construction activities in the surrounding areas, and it is assumed that access would be maintained at all times.</p>
Moulton Bulb Company, Broad Lane	At its closes point, this receptor is located approximately 30 m from the draft Order Limits and may be affected from adverse noise/vibration, air quality/dust, and visual impacts during	Low	Small, adverse	Minor adverse, not significant	<p>It is considered that this receptor possesses some economic value and has potential for substitution. This receptor is not considered likely to incur any loss or gain as a result of potential changes in the</p>

Receptor	Impact	Sensitivity/ Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
	construction. No impact is anticipated during operation.				environment. It has therefore been assigned a low sensitivity. It is anticipated that there would be a small magnitude of change as a construction access track is proposed adjacent to this receptor, however this is unlikely to compromise the overall viability, and it is assumed that access would be maintained at all times.
Broadgate Stables, Broadgate	At its closest point, this receptor is located approximately 95 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	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, given construction activities in the surrounding areas, and it is assumed that access would be maintained at all times.
Hollytree Farm Shop, Broadgate	At its closest point, this receptor is located approximately 7 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	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, given construction activities in the surrounding areas, and it is assumed that access would be maintained at all times.

Receptor	Impact	Sensitivity/ Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
Pharmawrite Ltd, Broadgate	At its closest point, this receptor is located approximately 160 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	Low	Small, adverse	Minor adverse, not significant	<p>It is considered that this receptor possesses some economic value and has potential for substitution. This receptor is not considered likely to incur any loss or gain as a result of potential changes in the environment. It has therefore been assigned a low sensitivity.</p> <p>It is anticipated that there would be a small change, given construction activities in the surrounding areas, and it is assumed that access would be maintained at all times.</p>
Woad Farm Stables, Broadgate	At its closest point, this receptor is located approximately 110 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust and visual impacts during construction. No impact is anticipated during operation.	Medium	Small, adverse	Minor adverse, not significant	<p>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, given construction activities in the surrounding areas, and it is assumed that access would be maintained at all times.</p>
Heatherdown Offices, Elm Lane	At its closest point, this receptor is located approximately 215 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust and visual impacts	Low	Small, adverse	Minor adverse, not significant	<p>It is considered that this receptor possesses some economic value and has potential for substitution. This receptor is not considered likely to incur any loss or gain as a result of potential changes in the environment. It has therefore been</p>

Receptor	Impact	Sensitivity/ Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
	during construction. No impact is anticipated during operation.				assigned a low sensitivity. It is anticipated that there would be a small change, given construction activities in the surrounding areas, and it is assumed that access would be maintained at all times.
Lansen Nursery, Holbeach Road	At its closest point, this receptor is located approximately 350 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	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, given construction activities in the surrounding areas, and it is assumed that access would be maintained at all times.
Top Score Bulbs and Flowers, Holbeach Road	At its closest point, this receptor is located approximately 200 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	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, given construction activities in the surrounding areas, and it is assumed that access would be maintained at all times.
Wykeham Staff Services, Holbeach Road	At its closest point, this receptor is located approximately 125 m from the draft Order Limits and	Low	Small, adverse	Minor adverse, not significant	It is considered that this receptor possesses some economic value and has potential for substitution.

Receptor	Impact	Sensitivity/ Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
	may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.				<p>This receptor is not considered likely to incur any loss or gain as a result of potential changes in the environment. It has therefore been assigned a low sensitivity.</p> <p>It is anticipated that there would be a small change, given construction activities in the surrounding areas, and it is assumed that access would be maintained at all times.</p>
Fun Farm, High Road	At its closest point, this receptor is located approximately 155 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	Low	Small, adverse	Minor adverse, not significant	<p>It is considered that this receptor possesses some economic value and has potential for substitution. This receptor is not considered likely to incur any loss or gain as a result of potential changes in the environment. It has therefore been assigned a low sensitivity.</p> <p>It is anticipated that there would be a small change, given construction activities in the surrounding areas, including the provision of a proposed grazing marsh. It is assumed that access would be maintained at all times.</p>
Doodles Pottery Painting Studio, High Road	At its closest point, this receptor is located approximately 220 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air	Medium	Small, adverse	Minor adverse, not significant	<p>It is considered that this receptor possesses some economic value and has potential for substitution.</p>

Receptor	Impact	Sensitivity/ Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
	quality/dust, and visual impacts during construction. No impact is anticipated during operation.				<p>It has therefore been assigned a medium sensitivity.</p> <p>It is anticipated that there would be a small change, given construction activities in the surrounding areas, including the provision of a proposed grazing marsh. It is assumed that access would be maintained at all times.</p>
Omega Lifestyle, High Road	At its closest point, this receptor is located approximately 30 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	Low	Small, adverse	Minor adverse, not significant	<p>It is considered that this receptor possesses some economic value and has potential for substitution. This receptor is not considered likely to incur any loss or gain as a result of potential changes in the environment. It has therefore been assigned a low sensitivity.</p> <p>It is anticipated that there would be a small change, given construction activities in the surrounding areas, including the provision of a proposed grazing marsh. It is assumed that access would be maintained at all times.</p>
Wool Hall Farm – including: Produce World LFP Ltd, Lincolnshire Field Products &	At its closest point, this receptor is located approximately 110 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts	Medium	Small, adverse	Minor adverse, not significant	<p>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</p>

Receptor	Impact	Sensitivity/ Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
Packhouse and Premises, High Road	during construction. No impact is anticipated during operation.				change, given construction activities in the surrounding areas, and it is assumed that access would be maintained at all times.
Baytree Garden Centre, High Road	At its closest point, this receptor is located approximately 210 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	Medium	Small, adverse	Minor adverse, not significant	<p>It is considered that this receptor possesses some economic value and has potential for substitution. It has therefore been assigned a medium sensitivity.</p> <p>It is anticipated that there would be a small change, given construction activities in the surrounding areas, including the provision of a proposed grazing marsh. It is assumed that access would be maintained at all times.</p>
C Gregory Roses Ltd, Broadgate	At its closest point, this receptor is located approximately 440 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	Medium	Small, adverse	Minor adverse, not significant	<p>It is considered that this receptor possesses some economic value and has potential for substitution. It has therefore been assigned a medium sensitivity.</p> <p>It is anticipated that there would be a small change, given construction activities in the surrounding areas, including the provision of a proposed grazing marsh. It is assumed that access would be maintained at all times.</p>

Receptor	Impact	Sensitivity/ Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
Bassodon Boarding Cattery, Broadgate	At its closest point, this receptor is located approximately 190 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	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, given construction activities in the surrounding areas, and it is assumed that access would be maintained at all times.
Millgate Windows and Conservatories, Millgate Industrial Units	At its closest point, this receptor is located approximately 35 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	Low	Small, adverse	Minor adverse, not significant	It is considered that this receptor possesses some economic value and has potential for substitution. This receptor is not considered likely to incur any loss or gain as a result of potential changes in the environment. It has therefore been assigned a low sensitivity. It is anticipated that there would be a small change, given construction activities in the surrounding areas, including the provision of a proposed grazing marsh. It is assumed that access would be maintained at all times.
Leisure Skate, Ravens Gate	At its closest point, this receptor is located approximately 20 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air	Low	Small, adverse	Minor adverse, not significant	It is considered that this receptor possesses some economic value and has potential for substitution. This receptor is not considered likely to incur any loss or gain as a

Receptor	Impact	Sensitivity/ Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
	quality/dust, and visual impacts during construction. No impact is anticipated during operation.				<p>result of potential changes in the environment. It has therefore been assigned a low sensitivity.</p> <p>It is anticipated that there would be a small change, given construction activities in the surrounding areas. It is assumed that access would be maintained at all times.</p>
Rookery Farm Accommodation, Joys Bank	At its closest point, this receptor is located approximately 115 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation. .	Medium	Small, adverse	Minor adverse, not significant	<p>It is considered that this receptor possesses some economic value and has potential for substitution. It has therefore been assigned a medium sensitivity.</p> <p>It is anticipated that there would be a small magnitude of change as a construction access track is proposed along Joys Bank, however this is unlikely to compromise the overall viability, and it is assumed that access would be maintained at all times.</p>
Berberis House Apiary, Old Fen Dike	At its closest point, this receptor is located approximately 50 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation	Medium	Small, adverse	Minor adverse, not significant	<p>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, given construction activities in the surrounding areas, including its proximity to a</p>

Receptor	Impact	Sensitivity/ Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
					proposed construction access track. It is assumed that access would be maintained at all times.
Alma House Kennels, Broadgate Road	At its closest point, this receptor is located approximately 10 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	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, given construction activities in the surrounding areas, including its proximity to a proposed construction access track. It is assumed that access would be maintained at all times.
Doubledays Agricultural Engineers, Jekils Bank	At its closest point, this receptor is located approximately 50 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	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, given construction activities in the surrounding areas, including its proximity to a proposed construction access track. It is assumed that access would be maintained at all times.

Receptor	Impact	Sensitivity/ Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
Catering Directions, Old Fen Dike	At its closest point, this receptor is located approximately 465 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	Low	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, given construction activities in the surrounding areas, and it is assumed that access would be maintained at all times.

Development land allocations

Cambridgeshire Minerals and Waste Local Plan- Tydd St Giles Waste Site (WRA)	At its closest point, this receptor is located approximately 130 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	Medium	Small, adverse	Minor adverse, not significant	Development land allocations are strategic in nature and are therefore considered to have limited potential for substitution, however because this receptor is not considered likely to incur any loss or gain as a result of potential changes in the environment, it has been assigned a medium sensitivity. It is anticipated that there would be a small change, given construction activities in the surrounding areas, and it is assumed that access would be maintained at all times.
Cambridgeshire Minerals and Waste Local	This receptor is located within the draft Order Limits and may be affected from adverse	Medium	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
Plan- Tydd St Giles Waste Consultation Area (WRA)	noise/vibration, air quality/dust, and visual impacts during construction. Loss of land (minor) as a direct impact.				limited potential for substitution, however because this receptor is not considered likely to incur any loss or gain as a result of potential changes in the environment, it has been assigned a medium sensitivity. It is anticipated that a small proportion of land would be required temporarily, which is unlikely to compromise the overall viability, and it is assumed that access would be maintained at all times.
South East Lincolnshire Local Plan – Weston Reserve Housing Allocation – Wsn036	At its closest point, this receptor is located approximately 230 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	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 construction activities in the surrounding areas, and it is assumed that access would be maintained at all times.
South East Lincolnshire Local Plan – Whaplode Fen proposed Residential	At its closest point, this receptor is located approximately 230 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts	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

Receptor	Impact	Sensitivity/ Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
Gypsy/Traveller Site	during construction. No impact is anticipated during operation.				there would be a small change, given construction activities in the surrounding areas, and it is assumed that access would be maintained at all times.
South East Lincolnshire Local Plan – Whaplode St Catherine Residential Gypsy/Traveller Site	At its closest point, this receptor is located approximately 380 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	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 construction activities in the surrounding areas, and it is assumed that access would be maintained at all times.
Norfolk Minerals and Waste Development Framework - West Walton Wastewater Consultation Area	At its closest point, this receptor is located approximately 490 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	Medium	Small, adverse	Minor adverse, not significant	Development land allocations are strategic in nature and are therefore considered to have limited potential for substitution, however because this receptor is not considered likely to incur any loss or gain as a result of potential changes in the environment, it has been assigned a medium sensitivity. It is anticipated that there would be a small change, given construction activities in the surrounding areas, and it is

Receptor	Impact	Sensitivity/ Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
					assumed that access would be maintained at all times.
Fenland District Council – Fenland 5 km buffer Suggested Safeguarding Zone	This receptor is located within the draft Order Limits and may be affected from adverse noise/vibration, air quality/dust, and visual impacts during construction. Loss of land (minor) as a direct impact.	Medium	Small, adverse	Minor adverse, not significant	Development land allocations are strategic in nature and are therefore considered to have limited potential for substitution, however because this receptor is not considered likely to incur any loss or gain as a result of potential changes in the environment, it has been assigned a medium sensitivity. It is anticipated that a small proportion of land would be required for proposed pylons, which is unlikely to compromise the overall viability. It is assumed that access would be maintained at all times.
Above ground renewable energy generating infrastructure (solar farms) not located within the draft Order Limits	The receptors may be indirectly affected from adverse noise/vibration, air quality/dust, and visual impacts during construction.	High	Small, adverse	Likely not significant	It is considered that this receptor group possesses some economic value and has potential for substitution. It has therefore been assigned a High sensitivity. It is anticipated that there would be a small change, given construction activities in the surrounding areas which would have a limited impact on the receptor's amenity and usability. It is assumed that access would be maintained at all times.

Receptor	Impact	Sensitivity/ Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
Above ground renewable energy generating infrastructure (onshore wind farms) not located within the draft Order Limits	The receptors may be indirectly affected from adverse noise/vibration, air quality/dust, and visual impacts during construction.	Medium	Small, adverse	Likely not significant	It is considered that this receptor group 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, given construction activities in the surrounding areas which would have a limited impact on the receptor's amenity and usability. It is assumed that access would be maintained at all times.
Above ground renewable energy generating infrastructure (onshore wind farms) not located within the draft Order Limits	The receptors may be indirectly impacted by changes to access during operation as a result of operation and maintenance activities.	Medium	Negligible, adverse	Likely not significant	It is considered that this receptor group 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 negligible change, given that any potential impacts to access would be agreed with the landowner in advance to minimise any potential effects.
Above ground renewable energy generating infrastructure (solar farms) not	The receptors may be indirectly impacted by changes to access during operation as a result of operation and maintenance activities.	High	Negligible, adverse	Likely not significant	It is considered that this receptor group has a limited potential for substitution. It has therefore been assigned a high sensitivity. It is anticipated that there would be a negligible change, given that any potential impacts to access would

Receptor	Impact	Sensitivity/ Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
located within the draft Order Limits					be agreed with the landowner in advance to minimise any potential effects.
Community facilities					
Parish Church of St James, Church Lane	At its closest point, this receptor is located approximately 270 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	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 likely construction activities in the surrounding areas. It is also assumed that access would be maintained at all times.
Newton Village Hall including a Post Office, Church Lane	At its closest point, this receptor is located approximately 465 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	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 therefore anticipated that a small change would be felt, given likely construction activities in the surrounding areas. It is also assumed that access would be maintained at all times.

Receptor	Impact	Sensitivity/ Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
Kinderley CP School including ABC Kids Club, Church Lane	At its closest point, this receptor is located approximately 10 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	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 likely construction activities in the surrounding areas. It is also assumed that access would be maintained at all times.
Ingleborough Tower Mill, Mill Road	At its closest point, this receptor is located approximately 5 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	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 likely construction activities in the surrounding areas. It is also assumed that access would be maintained at all times.
Norfolk Fire & Rescue Services, Mill Road	At its closest point, this receptor is located approximately 50 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts	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

Receptor	Impact	Sensitivity/ Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
	during construction. No impact is anticipated during operation.				sensitivity. It is anticipated that a small change would be felt, given likely construction activities in the surrounding areas. It is also assumed that access would be maintained at all times.
Recycling Site on High Road, High Road	At its closest point, this receptor is located approximately 480 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	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 likely construction activities in the surrounding areas. It is also assumed that access would be maintained at all times.
Tydd Fen Methodist Church, Cross Drove	At its closest point, this receptor is located approximately 250 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	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 likely construction activities in the surrounding areas. It is also assumed that access would be maintained at all times.

Receptor	Impact	Sensitivity/ Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
Post Office on Church Lane	At its closest point, this receptor is located approximately 460 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	Medium	Small, adverse	Minor adverse, not significant	It is considered that this receptor possesses some community value and has potential for substitution. It has therefore been assigned a medium sensitivity. It is anticipated that a small change would be felt, given likely construction activities in the surrounding areas. It is also assumed that access would be maintained at all times.
Whaplode St Catherine Memorial Hall – building also used for a Royal Mail Post Office, Cranesgate South	At its closest point, this receptor is located approximately 35 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	Medium	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 likely construction activities in the surrounding areas. It is also assumed that access would be maintained at all times.
Community Centre along Broad Drove East	At its closest point, this receptor is located approximately 45 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	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

Receptor	Impact	Sensitivity/ Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
					likely construction activities in the surrounding areas. It is also assumed that access would be maintained at all times.
Open space					
Play Space at Cranesgate North – Provision for Children and Young People	At its closest point, this receptor is located approximately 8 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	Medium	Small, adverse	Minor adverse, not significant	The identified Open space receptor has some social and/or community value, but has potential for substitution, and is therefore considered to have a medium sensitivity. It is anticipated that there would be a small change felt, given likely construction activities in the surrounding areas. It is also assumed that access would be maintained at all times.
Bowling Green at Church Lane	At its closest point, this receptor is located approximately 450 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	Medium	Small, adverse	Minor adverse, not significant	The identified Open space receptor has some social and/or community value, but has potential for substitution, and is therefore considered to have a medium sensitivity. It is anticipated that there would be a small change felt, given likely construction activities in the surrounding areas. It is also assumed that access would be maintained at all times.

Receptor	Impact	Sensitivity/ Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
Queen Elizabeth Playing Field, Goodens Lane	At its closest point, this receptor is located approximately 290 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	Medium	Small, adverse	Minor adverse, not significant	The identified Open space receptor has some social and/or community value, but has potential for substitution, and is therefore considered to have a medium sensitivity. It is anticipated that there would be a small change felt, given likely construction activities in the surrounding areas. It is also assumed that access would be maintained at all times.
Allotments/Com munity Growing Spaces along Delgate Bank	At its closest point, this receptor is located approximately 330 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	Medium	Small, adverse	Minor adverse, not significant	The identified Open space receptor has some social and/or community value, but has potential for substitution, and is therefore considered to have a medium sensitivity. It is anticipated that there would be a small change felt, given likely construction activities in the surrounding areas. It is also assumed that access would be maintained at all times.
Fishing Lake adjacent to Middle Broad Drove	At its closest point, this receptor is located approximately 5 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	Medium	Small, adverse	Minor adverse, not significant	The identified Open space receptor has some social and/or community value, but has potential for substitution, and is therefore considered to have a medium sensitivity. It is anticipated that there would be a small change felt, given likely construction activities

Receptor	Impact	Sensitivity/ Importance /Value of Receptor	Magnitude of Change	Significance	Rationale
					in the surrounding areas. It is also assumed that access would be maintained at all times.
Play Area along Broad Drove East	At its closest point, this receptor is located approximately 60 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	Medium	Small, adverse	Minor adverse, not significant	The identified Open space receptor has some social and/or community value, but has potential for substitution, and is therefore considered to have a medium sensitivity. It is anticipated that there would be a small change felt, given likely construction activities in the surrounding areas. It is also assumed that access would be maintained at all times.
Recreation Field along Broad Drove East	At its closest point, this receptor is located approximately 50 m from the draft Order Limits and may be affected from access, adverse noise/vibration, air quality/dust, and visual impacts during construction. No impact is anticipated during operation.	Medium	Small, adverse	Minor adverse, not significant	The identified Open space receptor has some social and/or community value, but has potential for substitution, and is therefore considered to have a medium sensitivity. It is anticipated that there would be a small change felt, given likely construction activities in the surrounding areas. It is also 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 South East Lincolnshire Joint Strategic Planning Committee (2019) South East Lincolnshire Local Plan [online]. Available at: <https://southeastlincslocalplan.org/> [Accessed 25 September 2024].
- Ref 2 Fenland District Local Council (2014). Fenland District Local Council Local Plan [online]. Available at: https://www.fenland.gov.uk/media/10010/Fenland-Local-Plan-May-2014/pdf/Fenland_Local_Plan1.pdf?m=1590591524653 [Accessed 25 September 2024].
- Ref 3 Fenland District Council (2022) Fenland Local Plan 2021-2040 Draft Local Plan Consultation August 2022 [online] Available at: https://www.fenland.gov.uk/media/18814/Draft-Local-Plan-August-2022/pdf/Draft_Local_Plan_for_Consultation_Aug_2022.pdf?m=1661177156537 [Accessed May 2025].
- Ref 4 Borough Council of King's Lynn and West Norfolk (2025) King's Lynn and West Norfolk Local Plan 2021-2040 [online]. Available at: https://www.west-norfolk.gov.uk/info/20079/planning_policy_and_local_plan/1207/local_plan_2021-2040#:~:text=The%20current%20Local%20Plan%20was%20adopted%20in%20March,for%20the%20borough%20%28up%20to%2015%20years%20ahead%29. [Accessed 15 April 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 8 January 2025].
- 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 8 January 2025].
- Ref 7 Ordnance Survey, 2024. OS Open Greenspace [online]. Available at: <https://www.ordnancesurvey.co.uk/products/os-open-greenspace> [Accessed 24 September 2024].
- Ref 8 Ordnance Survey, 2024. OS OpenMap Local Important Buildings [online]. Available at: <https://www.ordnancesurvey.co.uk/products/os-open-map-local> [Accessed 24 September 2024].
- Ref 9 Ordnance Survey, 2024. OS AddressBase [online]. Available at: <https://www.ordnancesurvey.co.uk/products/addressbase> [Accessed 24 September 2024].
- Ref 10 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 October 2024]

- Ref 11 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 October 2024].
- Ref 12 Cambridgeshire County Council (no date). Definitive Map and Statement [online]. Available at: <https://www.cambridgeshire.gov.uk/residents/libraries-leisure-culture/countryside-access/definitive-map-and-statement> [Accessed 5 March 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/2> [Accessed 5 March 2025].
- Ref 14 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 15 National Grid, no date. The Holford Rules [online]. Available at: <https://www.nationalgrid.com/sites/default/files/documents/13795-The%20Holford%20Rules.pdf> [Accessed 6 March 2025]
- Ref 16 National Grid, no date. The Horlock Rules [online]. Available at: <https://www.nationalgrid.com/sites/default/files/documents/13796-The%20Horlock%20Rules.pdf> [Accessed 6 March 2025]
- Ref 17 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].

12. Air Quality

Contents

12.	Air Quality	12-1
12.1	Introduction	12-1
12.2	Legislation and Policy Framework	12-3
	Legislation and National Policy	12-3
	Regional and Local Policy	12-3
12.3	Scope of Assessment	12-5
12.4	Assessment Methodology	12-6
	Assessment Assumptions and Limitations	12-7
12.5	Baseline Conditions	12-7
	Study Area	12-7
	Data Collection	12-8
	Existing Baseline	12-9
	Future Baseline	12-17
12.6	Design, Control and Additional Mitigation Measures	12-18
	Design Mitigation Measures	12-18
	Control Mitigation Measures	12-18
	Additional Mitigation Measures	12-22
12.7	Preliminary Assessment of Effects	12-23
	Likely Significant Effects	12-23
	Likely Non-Significant Effects	12-27
12.8	Monitoring	12-34

Table 12.1	Supporting documentation	12-2
Table 12.2	Section 6 local authority NO ₂ monitoring data	12-10
Table 12.3	Section 6 local authority PM ₁₀ monitoring data	12-12
Table 12.4	2024 modelled Defra background concentrations within the Section 6 Study Area	12-12
Table 12.5	Ammonia critical level and concentration, nitrogen and acid deposition rates and critical loads for the ecological sites within the Section 6 Study Area	12-13
Table 12.6	2029 modelled Defra background concentrations within the Section 6 Study Area	12-18
Table 12.7	Road links exceeding the relevant assessment criteria – construction traffic	12-25
Table 12.8	Potential dust emission magnitude	12-29
Table 12.9	Count of human sensitive receptors within defined distances	12-30
Table 12.10	Sensitivity of the Section 6 Study Area	12-30
Table 12.11	Summary dust risk table	12-31
Table 12.12	Preliminary summary of non-significant Air Quality effects – Section 6	12-32

References	12-35
------------	-------

12. Air Quality

12.1 Introduction

- 12.1.1 This chapter presents the Preliminary Environmental Information (PEI) in relation to the Air Quality assessment for the Refined Weston Marsh Substation Siting Zone to Walpole B Substation Section (Section 6) of the Grimsby to Walpole Project (the Project). 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 the Project is presented within **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 **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 6 (section 12.4). A detailed description of the assessment methods and scope, applicable to the whole Project, is contained in **PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**;
 - v. A description of the environmental baseline within the Section 6 Study Area relevant to the Air Quality assessment (section 12.5);
 - vi. A description of mitigation measures included for the purposes of the assessment reported within the PEI Report (section 12.6). Further information regarding design development can be found in **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 Air Quality effects arising during construction and operation of the Project within the Section 6 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).
- 12.1.2 Further supporting information is set out in **Table 12.1**, including supporting figures and technical appendices.

Table 12.1 Supporting documentation

Supporting Information	Description
Topic Specific Supporting Documentation	
PEI Report Volume 2 Part B Section 6 Figures	Figure 12.1 Construction Dust Study Area Figure 12.2 Preliminary Affected Road Network and Local Authority Monitoring Locations
Project Supporting Documentation	
PEI Report Volume 2 Part B Section 6 Chapter 1 Overview of the Section and Description of the Project	A summary of the works within Section 6, including permanent infrastructure, temporary construction works, and operational activities.
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).
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 PEI Report and ES.
PEI Report Volume 3 Part A Appendix 2Ci Local Policy: Section Specific	An outline of the potentially relevant local planning policy allocations affecting each of the specific sections of the Project.
PEI Report Volume 3 Part A Appendix 2Cii Local Policy: Route Wide	Details of planning policies applicable route-wide within the relevant Local Authority areas.
PEI Report Volume 2 Part A Chapter 3 Main Alternatives Considered	A summary of the main alternatives considered in relation to the Project during the design development process, including the main reasons for selecting the chosen option.
PEI Report Volume 2 Part A Chapter 4 Approach to Preliminary Environmental Information	Sets out the Environmental Impact Assessment (EIA) approach and general methodology that has been used in developing the PEI Report for the Project.
PEI Report Volume 2 Part A Chapter 5 Project Description	An overarching description of the Project and its key components, including available construction information.
PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice	Sets out control and management measures that will be undertaken during construction of the Project if granted consent. The Code of Construction Practice (CoCP) will be submitted in support of the Development Consent Order (DCO) application.

- 12.1.3 There are also interrelationships between the potential effects on Air Quality and other environmental topics. Therefore, please also refer to the following chapters within **PEI Report Volume 2 Part B** and **Part C**:
- i. **PEI Report Volume 2 Part B Section 6 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. **PEI Report Volume 2 Part B Section 6 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. **PEI Report Volume 2 Part B Section 6 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 and thus acting in combination with other impacts to result in effects upon amenity.
 - iv. **PEI Report Volume 2 Part B Section 6 Chapter 13 Summary** provides a concise, consolidated summary of the likely significant effects reported for all topics, based upon the preliminary assessment.
 - v. **PEI Report Volume 2 Part C Route-wide Chapter 8 Health and Wellbeing** assesses the potential effects of changes in Air Quality upon health and wellbeing.
 - vi. **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.

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 **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 28 - the Natural Environment: with exceptions, development proposals will not be permitted which cause direct or indirect adverse effects at nationally or locally-designated sites and protected or priority habitats and species;

- 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.
- ii. Fenland Local Plan (Adopted May 2014) (Ref 3):
- Policy LP16 - Delivering and Protecting High Quality Environments across the District: Proposals will identify, manage and mitigate any existing or proposed risks from sources of pollution and dust.
- iii. Fenland Local Plan 2021 – 2040: Draft Local Plan Consultation (Ref 4):
- Policy LP4 - Securing Fenland's Future: Development proposals should clearly demonstrate how they will achieve the requirements for emission minimisation.
 - Policy LP6 - Renewable and Low Carbon Energy Infrastructure: Renewable and low carbon energy schemes will be supported where the air quality and dust impacts on local amenities are acceptable;
 - Policy LP7 - Design: All developments must not result in adverse impacts on air quality from dust and other sources;
 - Policy LP8 - Amenity Provision: New developments will not result in adverse impacts to air quality from dust sources;
 - Policy LP24 - Development likely to have an adverse effect on locally designated sites, their features or their function as part of the ecological network including County Wildlife Sites, Local Geological Sites and sites supporting Biodiversity Action Plan habitats and species, will only be permitted where the need and benefits of the development clearly outweigh the loss and the coherence of the local ecological network is maintained.
 - Policy LP33 - Development on Land Affected by Contamination: All developments must take into account the potential environmental impacts on air from the development itself.
 - Policy LP34 - Air Quality: An air quality assessment will be presented for each development proposal proportionate to the nature and scale of the proposal.
- iv. King's Lynn and West Norfolk Local Plan 2021 to 2040 (Adopted 2025) (Ref 5):
- Policy LP04 - Presumption in Favour of Sustainable Development (Strategic Policy): A positive, proactive approach will be taken by the Council in considering development proposals, in accordance with the policies in the National Planning Policy Framework (NPPF);
 - Policy LP06 - Climate Change Policy: Development shall recognise and contribute to the importance of, and future proofing against, the challenges of climate change. Amongst other factors, this includes minimising and mitigating air pollution so as to reduce the potential for higher temperatures which in turn leads to poorer air quality;

- Policy LP18 - Design and Sustainable Development: Development should seek to identify opportunities to improve air quality or mitigate impacts that have been identified, through measures such as traffic and travel management, and green infrastructure provision and enhancement;
- Policy LP21 - Environment, Design and Amenity (Strategic Policy): Development must conserve and enhance the amenity of the wider environment. Proposals will be assessed against their air quality impact on neighbouring uses and (future) occupants as well as the amenity of any future occupiers of the proposed development. Factors against which proposals will be assessed include odour and air quality; and
- Policy LP24 - Renewable Energy (Strategic Policy): Developments will be assessed to determine whether the energy benefits outweigh the impact individually or cumulatively in terms of air quality.

12.3 Scope of Assessment

- 12.3.1 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 the submission of the EIA Scoping Report (Ref 6). A summary of the Scoping Opinion together with a response against each point of relevance to the Air Quality chapter is provided in **PEI Report Volume 3 Part A Appendix 4A Planning Inspectorate Scoping Opinion Responses**.
- 12.3.2 Non-statutory consultation feedback is summarised within the **Grimsby to Walpole Stage 1 Consultation Feedback Report**.
- 12.3.3 The scope of the 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 (PM₁₀ and PM_{2.5})).
 - 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_x) (comprising Nitrogen Monoxide, NO, and Nitrogen Dioxide, NO₂), Ammonia (NH₃) and Particulate Matter (PM₁₀ and PM_{2.5}). 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) are yet to be determined and are therefore not detailed within the PEI Report. An assessment of any likely significant effects due to use of NRMM will be included in the ES, in accordance with the Scoping Opinion (Ref 5).
- 12.3.5 As proposed within the Scoping Report and subsequently agreed in principle in the Scoping Opinion, the assessment of emissions from diverted traffic and road closures has been provisionally scoped out. However, further details of any potential changes in traffic flows due to the diversion of traffic will be presented in the ES.

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 **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 outlined below.
- 12.4.2 This PEI Report chapter presents a baseline appraisal of air quality within Section 6. It assesses the impact of dust and PM₁₀ 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 7). 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 PEI Report, an initial screening assessment of construction traffic flows has been completed based upon 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 a 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 8).
- 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 9), and set out below, then detailed dispersion modelling will be undertaken to determine the impact on existing human sensitive receptors:
- a change in Light Duty Vehicle (LDV)¹ 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
 - a change in Heavy Duty Vehicle (HDV) (>3.5 tonnes)² 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

¹ Light Duty Vehicles = cars and light goods vehicles (LGVs).

² Heavy Duty Vehicles = Heavy Goods Vehicles (HGVs) plus Public Service Vehicles, e.g., buses and coaches.

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 10). There are no road links where the projected change in total traffic (LDV + HDV) flows exceeds the 1000 AADT criterion also given in the IAQM guidance.

- 12.4.8 An initial review of operational/maintenance vehicle movements associated with the Project has also been undertaken against the EPUK/IAQM screening criteria described above (Ref 9) for human sensitive receptors and the IAQM criteria (Ref 10) 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 **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 this section.
- 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 applicable to the full assessment, particularly drawing attention to any areas that may have changed from that presented in this preliminary assessment.

12.5 Baseline Conditions

Study Area

Construction Dust

- 12.5.1 For the construction phase dust impacts, the Study Area has been defined by the screening criteria from the IAQM guidance (Ref 7) and additional guidance given by Natural England during the Scoping Opinion (Ref 5). The construction dust Study Area is shown within **PEI Report Volume 2 Part B Section 6 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 or 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 7),

and has been used following the advice given by Natural England during the Scoping Opinion consultation (Ref 5).

- 12.5.2 Background NO_x, NO₂, PM₁₀ and PM_{2.5} concentrations presented in the baseline assessment for the existing and future years have been extracted from Defra's background maps³ (Ref 11) 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 NH₃ concentrations and nitrogen deposition rates, have been taken from Air Pollution Information System (APIS) (Ref 12), along with acid deposition rates and the relevant critical levels and loads for the designated sites.

Road Traffic Emissions

- 12.5.4 The Section 6 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 9). The Section 6 Study Area comprises any roads where these criteria are exceeded, and any human receptors within 200 m of these roads. The Section 6 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 6 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 10).
- 12.5.6 Roadside concentrations from local authority monitoring sites within 200 m of the routes within the Section 6 Study Area that are expected to be used by construction and operational/maintenance traffic have therefore been used determine baseline conditions.

Data Collection

- 12.5.7 The following data has been used to inform the baseline conditions:
- iii. Defra's Background Maps (based on a 2021-base year) (Ref 11);
 - iv. Air Pollution Information System (APIS) (Ref 12);
 - v. Defra's AQMA dataset (Ref 13);
 - vi. Defra's Multi-Agency Geographic Information for the Countryside (MAGIC) (Ref 14);
 - vii. Local authority Air Quality management reports (Ref 15, Ref 16, Ref 17);
 - viii. Ordnance Survey (OS) AddressBase Plus dataset;
 - ix. Google Earth Imagery; and

³ 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 boundary and those immediately adjacent, a 500m buffer has been applied.

- x. Data on Part A1⁴ Permitted Installations held by the Environment Agency and Part A2 and B⁵ Installations held by the local authorities within the Section 6 Study Area (Ref 18, Ref 19, Ref 20, Ref 21).

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 **PEI Report Volume 2 Part B Section 6 Chapter 9 Traffic and Movement** and supporting appendices.

Existing Baseline

- 12.5.9 The following section outlines the Air Quality baseline for the Section 6 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_x, NO₂, PM₁₀ and PM_{2.5} 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 **PEI Report Volume 2 Part B Section 6 Figure 12.1 Construction Dust Study Area**.
- 12.5.11 The Section 6 Study Area is predominantly rural in nature and the land is mostly used for agriculture. To the north of the Section 6 Study Area, the overhead line route passes between the town of Spalding and the village of Weston, crossing the A151 High Road which links these settlements. The overhead line route then continues in a southwestern direction through agricultural land to the south of the villages of Weston, Moulton, Whaplode and Holbeach. Once east of Whaplode St Catherine, the overhead line route runs more directly south, again through predominantly agricultural land, before continuing in a west to east direction, intersecting Tydd St Giles and Newton in the Isle. After crossing the A1101 and River Nene at the southern end of the Section 6 route, the draft Order Limits pass directly south of Ingleborough.
- 12.5.12 As **PEI Report Volume 2 Part B Section 6 Figure 12.1 Construction Dust Study Area** illustrates, assessed sensitive receptor locations across the Section 6 Study Area are either at the extents of these settlements, closest to the draft Order Limits, or represent individual scattered properties within the wider rural area, including those located in several small hamlets.
- 12.5.13 There are no statutory designated ecological sites within the Section 6 Study Area. Non-statutory ecological sites within 200 m of the draft Order Limits which are sensitive to effects due to construction dust are:
- i. Honington House Farm (County Wildlife Site) is situated at the southern extend of Section 6 to the west of the draft Order Limits;
 - ii. Moulton Park and River (Local Wildlife Site) is situated in the northern extent of Section 6, to the north of the draft Order Limits; and

⁴ Large-scale industrial processes emitting to land, air and/or water.

⁵ 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).

- iii. River Nene (County Wildlife Site) passes through the southern extend of Section 6.

12.5.14 The sites are shown on **PEI Report Volume 2 Part B Section 6 Figure 4.3 Sites Non-Statutorily Designated for their County Biodiversity Importance.**

Local Authority Air Quality Monitoring Data

- 12.5.15 Section 6 is located across three local authorities: South Holland District Council (SHDC), Fenland District Council (FDC) and the Borough Council of King's Lynn and West Norfolk (BCKLWN).
- 12.5.16 There are no declared AQMAs within SHDC's administrative area. However, there are four AQMAs within FDC's administrative area. Wisbech AQMAs No.1 and No.2 were declared in 2001 for exceedances of the 15-minute mean Sulphur Dioxide (SO₂) and 24-hour mean PM₁₀ concentrations. Wisbech AQMA No.3 encompasses an area along the B198 Lynn Road and A1101 which was declared for exceedances of the annual mean NO₂ AQO. The fourth AQMA covers areas to the north, northwest and east of Whittlesey brickworks, and was declared in 2006 for exceedances of the 15-minute mean SO₂ concentrations (Ref 13). These AQMAs are located over 2.5 km from the draft Order Limits so are not deemed representative of the onsite conditions.
- 12.5.17 There are two AQMAs within BCKLWN's administrative area, both are in King's Lynn: one on Railway Road (declared in 2003) and another encompassing Wootton Road and Lynn Road (declared in 2009). Both AQMAs were declared due to exceedances of the annual mean NO₂ objective but are located over 14.5 km from the draft Order Limits so are not deemed representative of the onsite conditions (Ref 13).
- 12.5.18 Each local authority undertakes monitoring of pollutants: FDC measures NO₂ and SO₂; SHDC measures NO₂, PM₁₀ and ozone (O₃), and BCKLWN measure NO₂, PM₁₀ and PM_{2.5}. There are no anticipated sources of SO₂ or O₃ during the construction or operation of this Project.
- 12.5.19 Monitoring of annual mean NO₂ is undertaken through a network of continuous passive diffusion tubes and automatic monitoring stations and are reported in the local authorities' respective 2024 Annual Status Reports (ASRs), which present the concentrations from the calendar years 2019 to 2023. The locations and annual mean NO₂ concentrations of roadside diffusion tubes in the administrative areas of SHDC, FDC and BCKLWN that are within 200 m of construction traffic routes are presented in **Table 12.2** and shown in **PEI Report Volume 2 Part B Section 6 Figure 12.2 Preliminary Affected Road Network and Local Authority Monitoring Locations.**

Table 12.2 Section 6 local authority NO₂ monitoring data

ID	Location	Local Authority	Distance to draft Order Limits (km)	Annual Mean NO ₂ Concentration (µg/m ³)				
				2019	2020	2021	2022	2023
SH5	Station Road, Surfleet	SHDC	3.9	12.8	11.0	11.6	12.1	11.1
SH6	Boston Rd A17		3.7	27.9	20.9	23.8	27.6	24.3

ID	Location	Local Authority	Distance to draft Order Limits (km)	Annual Mean NO ₂ Concentration (µg/m ³)				
				2019	2020	2021	2022	2023
SH7	Gedney A17		5.8	26.4	20.0	19.5	21.6	18.3
SH19 (formerly SH14)	Whaplode		0.8	16.3	13.4	14.5	14.5	13.1
SH16	Gosberton		7.5	17.0	12.1	13.4	13.6	12.3
S3*	Ramnoth Road	FDC	5.4	21.6	17.7	18.1	17.4	16.6
S5*	Churchill Road		4.6	30.1	23.7	26.8	23.7	23.5
S9	Thorney Toll		11.8	19.9	15.0	17.0	17.4	16.8
S15*	Weasenham Lane		5.4	30.3	24.4	25.5	25.1	23.5
S20*	Napier Court		4.7	26.9	21.8	24.5	23.3	21.6
S32*	North End, Wisbech		4.4	-	17.2	18.2	17.8	17.1
S34*	Weasenham Lane		5.4	-	-	-	19.9	18.8
101	62 Elm High Road, Wisbech	BCKLWN	6.0	-	-	27.8	28.3	26.5
Air Quality Objective				40				
Note:								
* Within AQMA								
- Denotes no data								

- 12.5.20 **Table 12.2** shows that annual mean NO₂ concentrations generally decreased from 2019 to 2021, before increasing in 2022 (as is consistent with national trends due to behavioural change during coronavirus lockdowns). The majority of concentrations decreased between 2022 and 2023. There are no exceedances of the Air Quality Objective (AQO) seen within the scoped-in monitoring locations.
- 12.5.21 Although BCKLWN and SHDC undertake monitoring of PM₁₀, only station (CM1) within SHDC is considered representative of the conditions within Section 6, because the other automatic monitoring stations are over 14 km from the Section 6 draft Order Limits. The annual mean PM₁₀ concentrations from 2019 to 2023 are presented in **Table 12.3**.
- 12.5.22 The PM₁₀ data shows similar trends to those seen in the NO₂ data. There have been no exceedances of the AQO between 2019 and 2023.

Table 12.3 Section 6 local authority PM₁₀ monitoring data

ID	Location	Distance to draft Order Limits (km)	Annual Mean PM ₁₀ Concentration (µg/m ³)				
			2019	2020	2021	2022	2023
CM1	Spalding Monkhouse School	4.4	13.7	10.9	9.0	11.5	10.9
Air Quality Objective			40				

12.5.23 A review of permitted industrial sources with within 2 km of the draft Order Limits was completed (Ref 18, Ref 19, Ref 20 and Ref 21). 41 sources have been identified within the Section 6 Study Area, however, they are unlikely to substantially contribute to dust and PM₁₀ levels within the Section 6 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

12.5.24 **Table 12.4** displays the arithmetic mean, minimum and maximum of modelled annual mean background pollutant concentrations of NO_x, NO₂, PM₁₀, and PM_{2.5} for 2024 within the Section 6 Study Area (Ref 11).

Table 12.4 2024 modelled Defra background concentrations within the Section 6 Study Area

Average (Minimum – Maximum) 2024 Concentration µg/m ³			
NO _x	NO ₂	PM ₁₀	PM _{2.5}
6.7 (6.3 - 8.2)	5.3 (5.0 - 6.5)	13.0 (11.3 - 13.9)	5.9 (5.7 - 6.2)

- 12.5.25 The background concentrations of NO₂ and PM₁₀ are generally low within the Section 6 Study Area, which is under half of the limit value of 40 µg/m³ for both pollutants.
- 12.5.26 Background NO_x concentrations (relevant to ecological receptors) are also low within the Section 6 Study Area. There are three non-statutory designated sites of local importance within 200 m of Section 6. The average NO_x concentration across the Section 6 Study Area is 6.7 µg/m³ which falls below the critical level for the protection of vegetation of 30 µg/m³.
- 12.5.27 Concentrations of PM_{2.5} are below the relevant limit value (20 µg/m³), the average concentration within the Section 6 Study Area is 5.9 µg/m³. PM_{2.5} is the pollutant for which background concentrations are closest to the limit value in 2024.
- 12.5.28 **Table 12.5** shows the NH₃ critical level and concentration, nitrogen and acid deposition rates and critical loads for the County and Local Wildlife Sites identified within the Section 6 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 6 Study Area

Ecological Site (Grid Reference X, Y)	2020 - 2022 Average Concentration					
	Ammonia Critical Level (µg/m³)*	Ammonia Concentration (µg/m³)	Nitrogen Deposition Rate (kg N/ha/yr)	Nitrogen Critical Load Range (kg N/ha/yr)	Acid Deposition Rate (keq/ha/yr)	Acid Critical Load (CLmaxS/CLminN/CLMax N) (keq/ha/yr)
Honington House Farm (County Wildlife Site)¹						
545500, 313500	1 - 3	1.69	15.52	10 - 20	1.1 (N:1.11 S: 0.13)	N/A
545500, 314500	1 - 3	1.7	15.58	10 - 20	1.09 (N:1.11 S: 0.12)	N/A
546500, 314500	1 - 3	1.7	15.53	10 - 20	1.09 (N:1.11 S: 0.12)	N/A
546500, 315500	1 - 3	1.7	15.58	10 - 20	1.09 (N:1.11 S: 0.12)	N/A
Moulton Park and River (Local Wildlife Site)²						
530500, 323500	1 - 3	1.66	15.41	10 - 15	1.03 (N:1.1 S: 0.11)	4/1.071/5.071
530500, 324500	1 - 3	1.64	15.38	10 - 15	1.03 (N:1.1 S: 0.12)	4/1.071/5.071
530500, 323500	1 - 3	1.66	15.41	10 - 15	1.03 (N:1.1 S: 0.11)	4/1.071/5.071
530500, 324500	1 - 3	1.64	15.38	10 - 15	1.03 (N:1.1 S: 0.12)	4/1.071/5.071

Moulton Park and River (Local Wildlife Site)³						
530500, 323500	N/A	1.66	15.41	N/A	1.03 (N:1.1 S: 0.11)	N/A
530500, 324500	N/A	1.64	15.38	N/A	1.03 (N:1.1 S: 0.12)	N/A
530500, 323500	N/A	1.66	15.41	N/A	1.03 (N:1.1 S: 0.11)	N/A
530500, 324500	N/A	1.64	15.38	N/A	1.03 (N:1.1 S: 0.12)	N/A
River Nene (County Wildlife Site)³						
539500, 302500	N/A	1.67	15.01	N/A	1.09 (N:1.07 S: 0.13)	N/A
539500, 303500	N/A	1.71	15.16	N/A	1.1 (N:1.08 S: 0.13)	N/A
540500, 303500	N/A	1.68	15.15	N/A	1.1 (N:1.08 S: 0.13)	N/A
540500, 304500	N/A	1.71	15.3	N/A	1.1 (N:1.09 S: 0.13)	N/A
541500, 304500	N/A	1.67	15.28	N/A	1.1 (N:1.09 S: 0.13)	N/A
541500, 305500	N/A	1.77	15.43	N/A	1.11 (N:1.1 S: 0.13)	N/A
542500, 305500	N/A	1.73	15.41	N/A	1.11 (N:1.1 S: 0.12)	N/A
542500, 306500	N/A	1.8	15.55	N/A	1.11 (N:1.11 S: 0.12)	N/A

543500, 306500	N/A	1.74	15.49	N/A	1.11 (N:1.11 S: 0.12)	N/A
544500, 306500	N/A	1.7	15.42	N/A	1.1 (N:1.1 S: 0.12)	N/A
544500, 307500	N/A	1.73	15.54	N/A	1.11 (N:1.11 S: 0.12)	N/A
544500, 308500	N/A	1.73	15.53	N/A	1.11 (N:1.11 S: 0.12)	N/A
545500, 308500	N/A	1.72	15.47	N/A	1.1 (N:1.1 S: 0.12)	N/A
545500, 309500	N/A	1.72	15.46	N/A	1.1 (N:1.1 S: 0.12)	N/A
545500, 310500	N/A	1.72	15.46	N/A	1.1 (N:1.1 S: 0.13)	N/A
545500, 311500	N/A	1.71	15.45	N/A	1.1 (N:1.1 S: 0.13)	N/A
545500, 312500	N/A	1.7	15.45	N/A	1.1 (N:1.1 S: 0.13)	N/A
545500, 313500	N/A	1.69	15.52	N/A	1.1 (N:1.11 S: 0.13)	N/A
545500, 314500	N/A	1.7	15.58	N/A	1.09 (N:1.11 S: 0.12)	N/A
545500, 315500	N/A	1.71	15.65	N/A	1.09 (N:1.12 S: 0.12)	N/A
546500, 309500	N/A	1.72	15.4	N/A	1.1 (N:1.1 S: 0.12)	N/A

546500, 310500	N/A	1.72	15.41	N/A	1.1 (N:1.1 S: 0.12)	N/A
546500, 315500	N/A	1.7	15.58	N/A	1.09 (N:1.11 S: 0.12)	N/A
546500, 316500	N/A	1.7	15.64	N/A	1.08 (N:1.12 S: 0.12)	N/A
546500, 317500	N/A	1.7	15.69	N/A	1.08 (N:1.12 S: 0.12)	N/A

Note:

*The NH₃ critical level is 3 µg/m³ unless lichens and bryophytes are known to be present in which case it reduces to 1 µg/m³.

¹ The habitat has been defined as floodplain grazing marsh for which APIS does not provide acid critical load data.

² The habitat has been defined as neutral grassland.

³ The habitat has been defined as a watercourse. APIS does not provide critical levels or loads for watercourses.

- 12.5.29 **Table 12.1** shows that the average NH₃ concentration is estimated to be above the lower critical level of 1 µg/m³ at all sites. The nitrogen deposition is over the lower critical load at Honington House Farm and over the upper critical load at Moulton Park and River (neutral grassland). The total acid deposition is below the minimum critical load for Moulton Park and River (neutral grassland).

Summary

- 12.5.30 Overall, the Air Quality in the Section 6 Study Area is very good. There are no exceedances of the annual mean NO₂ or PM₁₀ objective in the Local Authority local monitoring data and the background concentrations within the Section 6 Study Area are low in comparison to the Air Quality objectives.
- 12.5.31 There are habitats in the Section 6 Study Area where the current predicted NH₃ concentrations and nutrient nitrogen deposition rates are above their respective lower critical levels and upper critical loads whereas acid deposition rates are below the respective critical load.

Future Baseline

- 12.5.32 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 the 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.
- 12.5.33 At this preliminary stage, a full assessment of the implications of any committed developments 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 **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.
- 12.5.34 Projected background air pollutant concentrations available from a base year of 2021 (Ref 11) have been used to determine future baseline conditions. Levels of NO_x, NO₂, PM₁₀ and PM_{2.5} 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 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 22); and
 - improved emission standards for NRMM and static generators.
- 12.5.35 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 11).

- 12.5.36 The arithmetic mean, minimum and maximum of predicted air pollutant concentrations for the future baseline Section 6 Study Area for 2029 are shown in **Table 12.6**. There are reductions in both NO_x and NO₂ levels within the Section 6 Study Area compared to the 2024 forecast as shown in **Table 12.4**. There is a steady reduction in both NO_x and NO₂ concentrations of about 0.7 – 1.0 µg/m³, and whilst there is a reduction in PM₁₀ and PM_{2.5} of 0.3 – 0.4 µg/m³.

Table 12.6 2029 modelled Defra background concentrations within the Section 6 Study Area

Average (Minimum – Maximum) 2029 Concentration (µg/m ³)			
NO _x	NO ₂	PM ₁₀	PM _{2.5}
5.7 (5.4 - 6.9)	4.6 (4.3 - 5.5)	12.6 (10.9 - 13.5)	5.5 (5.4 - 5.9)

- 12.5.37 Future baseline background NH₃ concentrations, rates of nutrient nitrogen and acid deposition are currently unknown. For the ES, these will be calculated using data from APIS projected growth factors taken from best practice guidance.

12.6 Design, Control and Additional Mitigation Measures

Design Mitigation Measures

- 12.6.1 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 23) applicable to routing of new overhead lines and the ‘Horlock Rules’ (Ref 24) 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 25) and **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 6. This has further contributed to the avoidance or reduction of the potential environmental impacts of the Project. Specific examples relevant to the assessment include the removal of an access bellmouth location and the haul road from a priority habitat area; this resulted in an update to the haul road design. This limited the potential impact on the priority habitat area from pollutants from vehicle emissions and dust associated with the construction of the overhead lie.

Control Mitigation Measures

- 12.6.1 A Preliminary CoCP is provided in **PEI Report Volume 3 Part A Appendix 5A Preliminary Code of Construction Practice**. The general control measures included within the Preliminary CoCP relevant to the Air Quality assessment of Section 7 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), DrMPP 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.

12.6.2 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_x and PM₁₀ 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

- 12.6.3 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.
- 12.6.4 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.

- 12.6.5 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 impacts by filtering dust and air pollutants emitted by construction site activities.
- 12.6.6 No additional mitigation measures specifically relating to Air Quality effects have been assumed within the Preliminary Assessment of Effects reported in the following section.

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 6 Study Area, as a result of construction, maintenance and/or operational activities within Section 6.
- 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 **PEI Report Volume 2 Part B Section 6 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 **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 effects are likely due to construction dust and PM₁₀. 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 the construction traffic flows is given in **PEI Report Part B Volume 2 Section 2 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 of 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, FDC and BCKLWN local authority areas are shown in **PEI**

Report Volume 2 Part B Section 6 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, 17 road links which form parts of the A16, A151, A47, Marsh Road and Stone Gate in Spalding and Lynn Road and West Drove North In Wisbech are expected to exceed the EPUK/IAQM 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 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 ID	Road Name	2024 Baseline		2031 Future Baseline		2031 Construction		
		AADT (total vehicles/day)	HGV (vehicles/day)	AADT (total vehicles/day)	HGV (vehicles/day)	Change in AADT Flows (total vehicles/day)	Change in LGV Flows (vehicles/day)	Change in HGV Flows (vehicles/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 Road, Spalding	145	20	156	22	502	348	155
LK66	Stone Gate, 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
CR13-4	A47	20240	2310	21855	2495	203	69	134

Road Link ID	Road Name	2024 Baseline		2031 Future Baseline		2031 Construction		
		AADT (total vehicles/day)	HGV (vehicles/day)	AADT (total vehicles/day)	HGV (vehicles/day)	Change in AADT Flows (total vehicles/day)	Change in LGV Flows (vehicles/day)	Change in HGV Flows (vehicles/day)
CR13-5	A47	25068	2657	27068	2869	233	98	134
CR13-6	A47	17581	1987	18460	2086	233	98	134
CR13-7	A47	17670	1514	18553	1590	183	48	134
LK14	Lynn Road, Wisbech	2416	253	2537	266	225	101	124
LK15	West Drove North, Wisbech	42	3	44	3	392	268	124

Note:

All traffic data presented in the table has been rounded to the nearest whole number.

- 12.7.10 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 IAQM criteria have been screened out of any further assessment and therefore significant effects at these locations are considered unlikely.
- 12.7.11 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 **PEI Report Volume 3 Part A Appendix 4B Environmental Impact Assessment Methodologies and Scope**.
- 12.7.12 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.
- 12.7.13 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

- 12.7.14 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

- 12.7.15 **PEI Report Volume 2 Part B Section 6 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 **PEI Report Volume 2 Part B Section 6 Chapter 1 Overview of the Section and Description of the Project**.
- 12.7.16 Construction activities (for the construction of the overhead line between Weston Marsh Substation and Walpole B Substation) that have the potential to generate and/or re-suspend dust and PM₁₀ include:
- site surveys and preparation;
 - enabling works, including localised utility works;
 - establishment of temporary access/egress to the Site and haul roads;
 - establishment of construction compounds;
 - earthworks, including the groundworks (soil stripping and excavation for pylon foundations);
 - materials handling, storage, stockpiling and disposal;

- vii. 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. pylon assembly;
- x. establishment of scaffolding and crossing protection;
- xi. conductor stringing;
- xii. demobilisation of construction compounds and temporary accesses; and
- xiii. site reinstatement.

12.7.17 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 reinstated.

12.7.18 The construction dust assessment methodology adopts a worst-case approach and treats all receptors within the Section 6 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.

Therefore, the risk of impacts to local amenity will vary throughout construction and will be greater during certain periods (e.g. during the peak of earthwork activities). Several receptors within the Section 6 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

12.7.19 The IAQM assessment methodology has been used to determine the potential dust emission magnitude for the following four different dust and PM₁₀ sources: demolition; earthworks; construction; and trackout. The findings of the assessment are presented below.

Demolition

12.7.20 Demolition works within the Section 6 Study Area will be limited to localised enabling works to existing electricity supply infrastructure crossed by the overhead line route. Specifically, this is anticipated to include the removal of existing wooden poles and steel lattice pylons over short sections of existing lower voltage overhead lines to be replaced by underground cable where required to provide a clear route for the new 400 kV overhead line.

- 12.7.21 Based upon precautionary assumptions, the total volume of assumed works is more than 75,000 m³ and is therefore defined as large.

Earthworks

- 12.7.22 The main earthworks that will be undertaken are localised preparation for pylon foundation construction and landscaping. The soil type varies across the Section 6 Study Area, between Wallasea 2, Wisbech and Normoor. These soil types are defined as clayey and silty soils which are deemed prone to suspension when dry due to the small particle size by the IAQM. More information on each soil type is given within **PEI Volume 2 Section 6 Chapter 8 Agriculture and Soils**.
- 12.7.23 The total area of the draft Order Limits falls within the IAQM range for large sites (over 110,000 m²). 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

- 12.7.24 The total volume of buildings⁶ (pylons and construction compounds) to be constructed on the Site will be above 75,000 m³ with potentially dusty construction materials being used. Therefore, the potential dust emission magnitude is judged to be large for construction activities.

Trackout

- 12.7.25 There will be more than 50 HDV outward movements in any one day, travelling over potentially dusty surface material. It is considered that the potential dust emission magnitude of is large for trackout.

Dust Emission Magnitude Summary

- 12.7.26 **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

Assessment of Sensitivity of the Study Area

- 12.7.27 The prevailing wind direction is from the southwest. Therefore, receptors located to the northeast of the draft Order Limits (specifically the residential properties within

⁶ 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)”.

Weston) are more likely to be affected by dust and particulate matter emitted and re-suspended during the construction phase.

- 12.7.28 There are three ecological receptors identified within 200 m of the draft Order Limits as outlined in **Table 12.5**. As per the IAQM guidance (Ref 7), Local and County Wildlife Sites are classified as low sensitivity receptors.
- 12.7.29 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 residential receptors including but not limited to those along Hall Gate, Millgate, Ravens Gate and Draw Dike along public highways that could be used as construction routes within 250 m of the Site that may be sensitive to trackout, earthworks and construction. Background PM₁₀ levels are predicted to be well below the annual mean objective (**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
6	41	194	312	555	710

- 12.7.30 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 PM₁₀ 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 6 Study Area

Potential Impact	Sensitivity of the Surrounding Area			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	High	High	High	High
Human Health	Low	Low	Low	Low
Ecological	Low	Low	Low	Low

Assessment of Dust Risk to Define Site-Specific Mitigation

- 12.7.31 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 summarises 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	High	High	High
Human Health	Medium	Low	Low	Low
Ecological	Medium	Low	Low	Low

- 12.7.32 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

- 12.7.33 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 9) and IAQM guidance (Ref 10) and the outcomes reported within the ES.

Operation and Maintenance

- 12.7.34 Once operational, traffic movements associated with the permanent works within Section 6 will be limited to those associated with the inspection and maintenance of infrastructure. However, the numbers of vehicle movements are expected to be small in number and as such it is considered that there will be no likely significant effects. This will be confirmed within the ES once screening of the anticipated traffic volumes against the relevant criteria have been undertaken.
- 12.7.35 Therefore, no likely significant effects are expected upon air quality during operation of the Project.

Summary

- 12.7.36 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 6

Receptor	Impact	Sensitivity/Importance/ Value of Receptor	Magnitude of Change	Significance	Rationale
Construction					
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 more than 10 high sensitivity receptors within 20 m of the draft Order Limits, therefore, according to the IAQM guidance, the area sensitivity is classified as high.	Negligible	Not Significant	With the appropriate mitigation in place as described in the chapter and as will be secured in the 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 owing to construction dust impacts.	There are two County Local Wildlife Sites and one Local Wildlife Site 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 CoCP, construction dust impacts are not considered significant.
Receptors sensitive to loss of amenity from construction dust	Without mitigation, there may be adverse impacts to receptors sensitive to amenity loss within 250 m of the draft Order Limits.	There are more than 10 high sensitivity receptors within 20 m of the draft Order Limits, therefore, according to the IAQM guidance, the area sensitivity is classified as high.	Negligible	Not Significant	With the appropriate mitigation in place as described in the chapter and as will be secured in the CoCP, construction dust impacts are not considered significant.

Operation and Maintenance

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 concentrations due to operational/maintenance traffic are not predicted to be significant.
Ecological Receptors sensitive to changes in air quality					

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 will be undertaken by the Contractor(s) to monitor dust levels. These inspection findings will 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 will be required during the construction and operational phases of the Project.

References

- Ref 1 Borough Council of King's Lynn & West Norfolk (2025). Local Plan (Adopted 2025) [online]. Available at: https://www.west-norfolk.gov.uk/info/20079/planning_policy_and_local_plan/1207/local_plan_2021-2040#:~:text=The%20current%20Local%20Plan%20was%20adopted%20in%20March,for%20the%20borough%20%28up%20to%2015%20years%20ahead%29. [Accessed 29 April 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 Fenland District Council (2014). Fenland Local Plan (Adopted May 2014) [online]. Available at: https://www.fenland.gov.uk/media/10010/Fenland-Local-Plan-May-2014/pdf/Fenland_Local_Plan1.pdf?m=1590591524653 [Accessed 09 January 2024].
- Ref 4 Fenland District Council (2022). Fenland Local Plan 2021-2040: Draft Local Plan Consultation [online]. Available at: https://www.fenland.gov.uk/media/18814/Draft-Local-Plan-August-2022/pdf/Draft_Local_Plan_for_Consultation_Aug_2022.pdf?m=1661177156537 [Accessed 09 January 2024].
- 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 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 8 Laxen, D. & Marner, B. (2008). NO₂ Concentrations and Distance from Roads [online]. Available at: <https://iaqm.defra.gov.uk/documents/FallOffWithDistanceReptJuly08.pdf> [Accessed 15 January 2025].
- Ref 9 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 10 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://iaqm.co.uk/text/guidance/air-quality-impacts-on-nature-sites-2020.pdf>
[Accessed 18 December 2024].

- Ref 11 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 12 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 13 Defra (2025). AQMAs Interactive Map [online]. Available at: <https://uk-air.defra.gov.uk/aqma/maps/> [Accessed 11 March 2025].
- Ref 14 Defra (2024). Multi-Agency Geographic Information for the Countryside Interactive Map [online]. Available at: <https://magic.defra.gov.uk/> [Accessed 18 October 2024].
- Ref 15 Borough Council of King's Lynn & West Norfolk (2024). 2024 Air Quality Annual Status Report (2024). Available at: https://www.west-norfolk.gov.uk/downloads/file/8811/air_quality_annual_status_report_2024 [Accessed 27 November 2024].
- Ref 16 South Holland District Council (2024). South Holland District Council Annual Progress Report 2024 [online]. Available at: http://shollandair.aeat.com/Reports/South_Holland_District_Council_ASR_2024.pdf [Accessed 02 December 2024].
- Ref 17 Fenland District Council (2024). 2024 Air Quality Annual Status Report (ASR) [online]. Available at: https://www.fenland.gov.uk/media/21463/Air-Quality-Annual-Status-Report-2024/pdf/Fenland_Air_Quality_Annual_Status_Report__2024.pdf?m=1727088605257 [Accessed 09 January 2024].
- Ref 18 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 19 South Holland District Council (2024). Environmental Permitting [online]. Available at: <https://www.sholland.gov.uk/article/5654/Environmental-Permitting> [Accessed 02 January 2025].
- Ref 20 Fenland District Council (2022). PPC Public Register [online]. Available at: https://www.fenland.gov.uk/media/16749/PPC-Public-Register/pdf/PPC_Public_register_for_web_161122.pdf?m=1680695871467 [Accessed 09 January 2025].
- Ref 21 Borough Council of King's Lynn & West Norfolk [online]. Available at: https://www.west-norfolk.gov.uk/downloads/file/3199/public_register_of_permitted_installations [Accessed 09 January 2025].
- Ref 22 Defra (2019). Clean Air Strategy 2019 [online]. Available at: <https://www.gov.uk/government/publications/clean-air-strategy-2019> [Accessed 18 October 2024].
- Ref 23 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 24 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 25 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

Contents

13.	Likely Significant Effects Summary - Refined Weston Marsh Substation Siting Zone to New Walpole B Substation	13-1
13.1	Introduction	13-1

Table 13.1	Confidence level definitions	13-1
Table 13.2	Summary of significant effects during the construction phase – Section 6	13-3
Table 13-3	Summary of significant effects during the operation and maintenance phase – Section 6	13-16

13. Summary for Section 6 Refined Weston Marsh Substation Siting Zone to New Walpole B Substation

13.1 Introduction

- 13.1.1
- This chapter summarises the findings of the preliminary assessment of likely significant environmental effects arising from the construction, operation and maintenance of the Project within the Refined Weston Marsh Substation Siting Zone to New Walpole B Substation section (Section 6). The full preliminary assessments, including the rationale as to why an effect is considered to be significant or not significant can be found in **PEI Report Volume 2 Part B Section 6 Chapter 2 to 12**.
- 13.1.2
- 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 Chapter 2-12. Where additional mitigation measures have been determined, 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 confirmed additional mitigation measures only.
- 13.1.3
- 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**.
- 13.1.4
- 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	<div>A high level of confidence in the prediction of significant effects can be justified through:<ul style="list-style-type: none">The consideration of, and routeing and/or siting of the Project away from, designated features and high sensitivity receptors;Complete baseline data to inform the prediction;Mitigation measures are fully defined and/or the application of mitigation measures has proven to be effective in similar projects; and</div>

Confidence Level	Definition
	<ul style="list-style-type: none"> • A thorough understanding of Project activities.
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"> • Particular surveys or assessments are incomplete at this stage, but it is possible to extrapolate results; • Mitigation measures will continue to be developed up to the submission of the application for consent; and • 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.
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"> • Only limited baseline data is available at this stage; • 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. • Exact project activities are unknown; • Mitigation measures remain in the early stages of development; and • Where this is the case, a precautionary, worst-case approach is taken.

Table 13.2 Summary of significant effects during the construction phase – Section 6

Description of receptor and potential impact	Key embedded and control measures	Proposed additional mitigation measures	Preliminary likely significant effects	Confidence rating (high/moderate/low)
Landscape				
No likely significant effects are predicted as a result of the construction phase of the Project, based upon the preliminary assessment.				
Visual				
Users of the Greenwich Meridian Trail within Section 6 would be impacted by the presence of construction activities, particularly close range views of those associated with pylons SW33 to SW46, resulting in adverse impacts upon views from this route.	Amendments to locations of haul road (temporary access routes), bellmouths and the overhead line alignment, to minimise loss of mature vegetation, which in turn would help to screen and filter views of the Project.	Areas of supplementary woodland planting to replace those affected by the Project to provide visual screening.	Adverse effect	High
Users of the Nene Way would be impacted by the presence of construction activities, particularly close range views of those associated with pylons SW73 to SW74 where the overhead line crosses the River Nene, resulting in adverse impacts upon views from this route.	Construction impacts would be managed through the control measures outlined within the Preliminary Code of Construction Practice (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)
Ecology and Biodiversity				
Designated Sites				
<p>Bird species which are qualifying features of the following European Designated Sites may be impacted by construction activities within functionally linked land, potentially resulting in temporary displacement and/or habitat degradation:</p> <ul style="list-style-type: none"> • Nene Washes Special Protection Area (SPA) and Ramsar site; • Ouse Washes SPA and Ramsar site; and • The Wash SPA and Ramsar site. 	<p>The positioning of pylons and associated haul roads (temporary access routes) has sought to avoid or reduce direct and indirect impacts on notable species and habitats, including woodland and trees. Construction impacts would be managed through the control measures outlined within the Preliminary CoCP.</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>	<p>Significant adverse effects cannot be excluded at this stage</p>	<p>Low – further assessment is required once bird surveys are completed and data assessed. The potential for Likely Significant Effects (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 Wash and North Norfolk Coast Special Area of Conservation (SAC) may be indirectly impacted by construction activities resulting in changes in water quantity, level and flow, or impacts upon otter species, within watercourses which are hydrologically linked to the SAC.</p>	<p>The positioning of pylons and haul roads has sought to avoid or reduce direct and indirect impacts on high value aquatic habitats. Where new culverts are unavoidable, these would either be arch culverts, leaving the natural bed undisturbed, or as far as reasonably</p>	<p>No additional mitigation measures have been identified for this preliminary assessment.</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 LSE upon this site will be assessed within the Report to Inform the Habitat Regulations Assessment, informed by discussions with</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)
	<p>practicable, they would be installed with the invert set below the natural bed level for a semi-natural bed to establish.</p> <p>Construction impacts would be managed through the control measures outlined within the Preliminary CoCP.</p>			Natural England other statutory bodies.
<p>Bird species which are features of the following Nationally Designated Sites may be impacted by construction activities within functionally linked land, potentially resulting in temporary displacement and/or habitat degradation:</p> <ul style="list-style-type: none"> • The Wash Site of Special Scientific Interest (SSSI): • Islington Heronry SSSI 	<p>The positioning of pylons and haul roads (temporary access routes) to avoid or reduce direct and indirect impacts on notable species and habitats, including woodland and trees.</p> <p>Construction impacts would be managed through the control measures outlined within the Preliminary CoCP.</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>	<p>Significant adverse effects cannot be excluded at this stage</p>	<p>Low - potential impacts upon the bird assemblages will be assessed once all baseline surveys are complete.</p>
<p>The River Nene watercourse County Wildlife Site (CWS) and the grazing marsh at Honnington House Farm CWS may be impacted by construction activities, including vehicle emissions, resulting in potential habitat degradation within these</p>			<p>Significant adverse effects cannot be excluded at this stage</p>	<p>Low - Survey works are ongoing and will inform further assessment of impacts and effects and the design of any required mitigation measures.</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)
sites and/or disturbance of associated fauna.				
Habitats				
Areas of Habitat of Principal Importance (HPI), including the coastal and floodplain grazing marsh in the Weston area, the Sutton St James area and near the River Nene, would be directly impacted directly by construction activities, resulting in habitat loss and degradation.	The positioning of pylons and access routes has sought to avoid or reduce direct and indirect impacts on HPI. All pylons have been located outside coastal and floodplain grazing marsh where practicable, with the exception of pylon SW2. Construction impacts would be managed through the control measures outlined within the Preliminary CoCP.	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
Terrestrial habitats including hedgerows, arable field margins, scrub and small woodland parcels would be directly impacted by construction activities associated with the overhead line, including the establishment of the construction compound and haul roads, resulting in temporary loss and severance. Terrestrial habitats may also be indirectly impacted	The positioning of pylons and access routes to avoid or reduce direct and indirect impacts on notable species and habitats, including woodland and trees. Construction impacts would be managed through the control measures outlined within the Preliminary CoCP.		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)
through the release of pollutants during construction.				
Aquatic habitats would be directly impacted by construction activities associated with the new overhead line, including temporary watercourse crossings and diversions required to facilitate temporary haul roads, resulting in temporary loss and/or damage to aquatic habitats. Aquatic habitats may also be indirectly impacted through the release of pollutants during construction.	<p>The positioning of pylons and access routes to avoid or reduce direct and indirect impacts on aquatic habitats, including the setting back of pylons from existing channels.</p> <p>Where new culverts are unavoidable, these would 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.</p> <p>Construction impacts would be managed through the control measures outlined within the Preliminary CoCP.</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 may 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.
Protected or Notable Species				
The following species may be impacted by construction activities resulting in: loss,	The positioning of pylons and haul roads has sought to avoid or	The assessment does not take into account additional mitigation	Significant adverse effects cannot be excluded at this stage	Low - survey works are ongoing and will inform further assessment of

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>damage or fragmentation of suitable habitats; disturbance and/or death/injury:</p> <ul style="list-style-type: none"> • Terrestrial Invertebrates; • Great Crested Newts; • Reptiles; • Breeding and wintering birds; • Badgers; • Bats; • Otters; • Fish; • Aquatic macroinvertebrates and macrophytes; • Water Vole 	<p>reduce direct and indirect impacts on notable habitats, including woodland, ponds and hedgerows. Construction impacts would be managed through the control measures outlined within the Preliminary CoCP.</p>	<p>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>		<p>impacts and effects and the design of any required mitigation measures.</p>

Historic Environment

Designated Assets

<p>The following Scheduled Monuments would be temporarily impacted by construction activities associated with the overhead line, including the establishment and presence of haul roads, resulting in temporary changes to their setting:</p> <ul style="list-style-type: none"> • King's Hall moated Site (NHLE 1017217) 	<p>Temporary impacts on the setting of heritage assets may be lessened or avoided through consideration of the detailed design of individual pylons, haul roads, construction compounds and temporary structures. This will be assessed fully within the historic</p>	<p>No additional mitigation measures have been identified for this preliminary assessment.</p>	<p>Moderate adverse effect</p>	<p>High</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)
	environment chapter of the ES submitted with the DCO application. Construction impacts would be managed through the control measures outlined within the Preliminary CoCP.			
<p>The following Scheduled Monuments would be permanently impacted by the presence of pylons and overhead line within the open agricultural landscape, resulting in permanent impacts upon their setting:</p> <ul style="list-style-type: none"> King's Hall moated Site (NHLE 1017217) Romano-British settlement south of Shell Bridge (NHLE 1004982) 	Permanent impacts on the setting of heritage assets may be lessened or avoided through consideration of the detailed design of individual pylons. This will be assessed fully within the historic environment chapter of the ES submitted with the DCO application.	No additional mitigation measures have been identified for this preliminary assessment.	Moderate adverse effect	High
The following Listed Buildings would be temporarily impacted by construction activities associated with the overhead line, including the establishment and presence of haul roads, resulting in temporary changes to their setting:	Impacts on the setting of heritage assets may be lessened or avoided through consideration of the detailed design of individual pylons, haul roads, construction compounds and temporary structures. This will be assessed	No additional mitigation measures have been identified for this preliminary assessment.	Moderate 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)
<ul style="list-style-type: none"> Grade I Listed Moulton Windmill (NHLE 1308557); Grade II Listed Ingleborough Mill (NHLE 1077675) 	<p>fully within the historic environment chapter of the ES submitted with the DCO application.</p> <p>Construction impacts would be managed through the measures outlined within the Preliminary CoCP.</p>			
<p>The following Listed Buildings would be permanently impacted by the presence of pylons and overhead line within the open agricultural landscape, resulting in permanent changes to their setting:</p> <ul style="list-style-type: none"> Grade I Listed Moulton Windmill (NHLE 1308557); Grade II Listed Ingleborough Mill (NHLE 1077675) 	<p>Permanent impacts on the setting of heritage assets may be lessened or avoided through consideration of the detailed design of individual pylons. This will be assessed fully within the historic environment chapter of the ES submitted with the DCO application.</p>		Moderate adverse effect	High
<p>The following non-designated historic environment assets would be temporarily impacted by construction activities associated with the overhead line, including the establishment and presence of haul roads, resulting in temporary changes to their setting:</p>	<p>Temporary impacts on the setting of heritage assets may be lessened or avoided through consideration of the detailed design of individual pylons, haul roads, construction compounds and temporary structures. This will be assessed</p>	<p>No additional mitigation measures have been identified for this preliminary assessment.</p>	Moderate 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)
<ul style="list-style-type: none"> Sunset Cottage (King's Hall) (MLI123186) New England Farm (MLI116358) An unnamed farmstead (MLI123272) The Cottage (MLI123269) 	<p>fully within the historic environment chapter of the ES submitted with the DCO application.</p> <p>Construction impacts would be managed through the measures outlined within the Preliminary CoCP.</p>			

Water Environment and Flood Risk

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 floodplain flow conveyance (under conditions of flood defence overtopping or breach)	Impacts upon floodplain storage and flow conveyance during construction would be managed through the measures outlined within the Preliminary CoCP.	The assessment does not take into account additional mitigation measures which 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.
---	---	--	----------------------------------	--

Geology and Hydrogeology

No likely significant effects are predicted as a result of the construction phase of the Project, based upon the preliminary assessment.

Agriculture and Soils

Agricultural Land Classification

422.5 ha of agricultural land (assumed to be BMV land) would	The Project has been designed to minimise the	No additional mitigation measures have been	Moderate 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)
be temporarily impacted by construction activities, including establishment and presence of haul roads and temporary compounds, resulting in temporary loss of agricultural land.	extent of land take required to construct, maintain and operate the proposed assets and position infrastructure (such as pylons and haul roads) as close as is practicable to field boundaries to minimise impacts to agricultural operations.	identified for this preliminary assessment.		
58.6 ha of agricultural land (assumed to be BMV land) would be permanently impacted by the construction of operational infrastructure, within the extents of pylon foundations, resulting in the permanent loss of agricultural land.	Construction impacts would be managed through the measures outlined within the Preliminary CoCP.		Major adverse effect	High
Soil Function				
Soils within the draft order limits would be temporarily impacted by construction activities including topsoil/subsoil stripping and storage, resulting in temporary effects on soil quality and ecosystem services.	The Project has been designed to minimise the extent of land take required to construct, 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.	No additional mitigation measures have been identified for this preliminary assessment.	Major, or Moderate adverse effect	High
58.6 ha of soils would be permanently impacted by the construction of operational infrastructure, including that within the extents of pylon foundations, resulting in loss of			Major adverse effect	Moderate – the magnitude of impacts may be reduced if it is practicable to beneficially re-use the soil resources.

Description of receptor and potential impact	Key embedded and control measures	Proposed additional mitigation measures	Preliminary likely significant effects	Confidence rating (high/moderate/low)
soil quality and ecosystem services.	Construction impacts would be managed through the measures outlined within the Preliminary CoCP.			

Traffic and Movement

Users of Highway Links

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.	No additional mitigation measures have been identified for this preliminary assessment.	Significant adverse effects cannot be excluded at this stage	Low - baseline data for some of the identified construction traffic routes is not currently available. 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.	Construction impacts would be managed through the measures outlined within the Preliminary CoCP.		Significant adverse effects cannot be excluded at this stage	
Pedestrians and cyclists may be impacted on those routes where projected increases in traffic flows			Significant adverse effects cannot be	

Description of receptor and potential impact	Key embedded and control measures	Proposed additional mitigation measures	Preliminary likely significant effects	Confidence rating (high/moderate/low)
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.			excluded at this stage	

Noise and Vibration

No likely significant effects are predicted as a result of the construction phase of the Project, based upon the preliminary assessment.

Socio-economics, Recreation and Tourism

A planned solar farm at Long Lane, Moulton, which is assumed to become operational in 2026, will be located directly adjacent the draft Order Limits and may be impacted by temporary loss of land and/or disruption during construction.	The Project will be designed to minimise the extent of land take required to construct, maintain and operate the proposed infrastructure. The positioning of pylons and haul road will seek to avoid or reduce direct and indirect impacts for receptors through minimising permanent and temporary land take. Construction related disturbance would be managed through the measures outlined within the Preliminary CoCP.	No additional mitigation measures have been identified for this preliminary assessment.	Significant adverse effects cannot be excluded at this stage	Low – further assessment work and landowner consultation is required in order to determine the magnitude of impacts upon this receptor.
---	---	---	--	---

Description of receptor and potential impact	Key embedded and control measures	Proposed additional mitigation measures	Preliminary likely significant effects	Confidence rating (high/moderate/low)
Air Quality				
Human sensitive receptors (including residential properties, schools, care homes and hospitals) 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.	Maximising separation between sensitive receptors and the proposed temporary haul roads as far as reasonably practicable. Construction impacts would be managed through the measures outlined within the Preliminary CoCP.	No additional mitigation measures have been identified for this preliminary assessment.	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.
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 – Section 6

Description of potential impact	Key embedded and control measures	Proposed additional mitigation measures	Preliminary likely significant effects	Confidence rating (high/moderate/low)
Landscape				
No likely significant effects are predicted as a result of the operation and maintenance of the Project, based upon the preliminary assessment.				
Visual				
<p>Visual receptors within the following 12 community areas would be impacted by both close proximity views and distant views of the new pylons and overhead lines:</p> <ul style="list-style-type: none"> • Fleet • Gedney • Gedney Hill • Holbeach • Newton-in-the-Isle • Sutton St Edmund • Sutton St James • The Moultons • Tydd St Giles • Weston • West Walton; and • Whaplode <p>Although views are already affected by existing overhead line within these areas, the Project would spread the visual effects of</p>	<p>The overhead line alignment has sought to avoid areas of highest amenity value, taking advantage of natural screening provided by existing landform.</p> <p>Amendments to locations of overhead line alignment, to minimise loss of mature vegetation, which in turn would help to screen and filter views of the Project.</p>	<p>Areas of supplementary woodland planting to replace those affected by the Project to provide visual screening.</p>	Adverse Effects	High

overhead line infrastructure across a wider area and increase the numbers of pylons visible for people living and moving around these parishes.				
Users of the Greenwich Meridian Trail within Section 6 would be impacted by the presence of pylons and overhead line with both close range and distant views of operational infrastructure, resulting in adverse impacts upon views from this route.	The overhead line alignment has sought to avoid areas of highest amenity value, taking advantage of natural screening provided by existing landform.	Areas of supplementary woodland planting to replace those affected by the Project to provide visual screening.	Adverse effect	High
Users of the Nene Way would be impacted through both close range and distant views of operational infrastructure due to the presence of pylons and overhead line, resulting in adverse impacts on views from this route.	Amendments to locations of overhead line alignment, to minimise loss of mature vegetation, which in turn would help to screen and filter views of the Project.		Adverse effect	High

Ecology and Biodiversity

Designated Sites

<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"> • The Wash Special Protection Area (SPA) and Ramsar Site; • Nene Washes SPA and Ramsar Site; 	The positioning of pylons to avoid or reduce direct and indirect impacts on notable species and habitats, including woodland and trees	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	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
---	--	---	--	--

<ul style="list-style-type: none"> • Ouse Washes SPA and Ramsar Site • Islington Heronry SSSI. 		and are likely to include the use of bird diverters to reduce collision risk.		Inform the Habitat Regulations Assessment, informed by discussions with Natural England other statutory bodies.
Internationally designated sites within the Section 6 Study Area may be impacted by operational activities causing changes in flow regimes, including the volume of water supplied, water depth and water flow rates which may lead to indirect impacts on species in these sites.	The design of new overhead line, pylons and permanent access routes and associated drainage will seek to reduce runoff to existing greenfield rates (i.e. the pre-development baseline), thereby preventing any material changes in hydrological flows.	No additional mitigation measures have been identified for this preliminary assessment.	Significant adverse effects cannot be excluded at this stage.	

Protected or Notable Species

Wintering and breeding birds will be impacted by operation and maintenance activities causing increased risk of collision with the overhead line leading to killing/injury of bird species.	The positioning of pylons and access routes to avoid or reduce direct and indirect impacts on notable species and habitats, including woodland and trees.		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.
---	---	--	--	--

Historic Environment

No likely significant effects are predicted as a result of the operation and maintenance of the Project, based upon the preliminary assessment.

Water Environment and Flood Risk

No likely significant effects are predicted as a result of the operation and maintenance of the Project, based upon the preliminary assessment.

Geology and Hydrogeology

No likely significant effects are predicted as a result of the operation and maintenance of the Project, based upon the preliminary assessment.

Agriculture and Soils

No likely significant effects are predicted as a result of the operation and maintenance of the Project, based upon the preliminary assessment.

Traffic and Movement

No likely significant effects are predicted as a result of the operation and maintenance of the Project, based upon the preliminary assessment.

Noise and Vibration

No likely significant effects are predicted as a result of the operation and maintenance of the Project, based upon the preliminary assessment.

Socioeconomics, Recreation and Tourism

No likely significant effects are predicted as a result of the operation and maintenance of the Project, based upon the preliminary assessment.

Air Quality

No likely significant effects are predicted as a result of the operation and maintenance of the Project, based upon the preliminary assessment.

National Grid plc
National Grid House,
Warwick Technology Park,
Gallows Hill, Warwick.
CV34 6DA United Kingdom

Registered in England and Wales
No. 4031152
nationalgrid.com