The Great Grid Upgrade

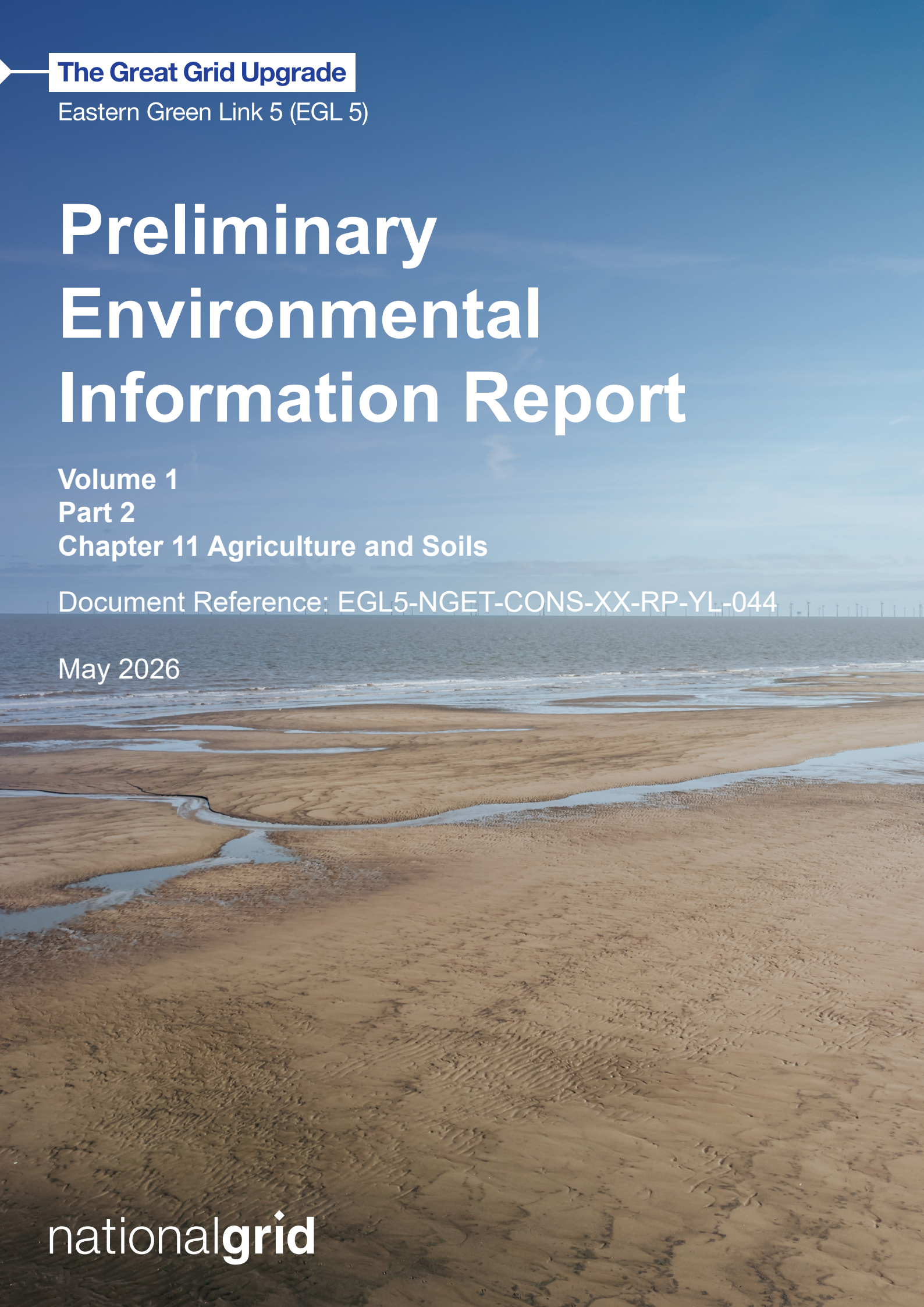
Eastern Green Link 5 (EGL 5)

Preliminary Environmental Information Report

Volume 1
Part 2
Chapter 11 Agriculture and Soils

Document Reference: EGL5-NGET-CONS-XX-RP-YL-044

May 2026



nationalgrid

Contents

11. Agriculture and Soils

11.1 Introduction

11.1.1 This chapter presents the preliminary findings of the Environmental Impact Assessment (EIA) undertaken to date for the Eastern Green Link (EGL) 5 English Onshore Scheme, with respect to agriculture and soils including agricultural land quality (as defined by the Agricultural Land Classification (ALC) system), soils and their function and agricultural landholdings. The preliminary assessment is based on information obtained to date. It should be read in conjunction with the description of the Project provided in **Volume 1, Part 1, Chapter 4: Description of the Project**.

11.1.2 This chapter describes the methodology used, the datasets that have informed the preliminary assessment, current baseline conditions, current environmental mitigation measures, and the preliminary agriculture and soils effects that could result from the English Onshore Scheme during the construction, operation (and maintenance), and decommissioning phases. Specifically, it relates to the English onshore elements of the Project landward of Mean Low Water Springs (MLWS).

11.1.3 This chapter should be read in conjunction and considered alongside the following technical aspect chapters found in **Volume 1:**

- **Part 2, Chapter 6: Biodiversity;**
- **Part 2, Chapter 9: Water Environment;**
- **Part 2, Chapter 10: Geology and Hydrology;**
- **Part 2, Chapter 15: Socio-economics, Recreation and Tourism,** and**;**
- **Part 4, Chapter 27: Cumulative Effects.**

11.1.4 This chapter is supported by the following figures in **Volume 3:**

- **Part 2, Figure 11-1 : National Soil Associations;**
- **Part 2, Figure 11-2: Provisional Agricultural Land Classification;**
- **Part 2, Figure 11-3: Woodland and Forestry Schemes,**
- **Part 2, Figure 11-4: Agri-Environment Schemes;**
- **Part 1, Figure 4-2: English Onshore Scheme Temporary Components;** and
- **Part 1, Figure 4-3: English Onshore Scheme Permanent Components.**

11.1.5 This chapter is supported by the following appendices in **Volume 2:**

- **Part 1, Appendix 2.A: Regulatory and Planning Context;**
- **Part 1, Appendix 5.B: Outline Code of Construction Practice (CoCP),** and**;**
- **Part 1, Appendix 5.A: Outline Register of Design Measures.**

Limitations

11.1.6 The information provided in this Preliminary Environmental Information Report (PEIR) is preliminary, the final assessment of potentially significant effects will be reported in the Environmental Statement (ES). The PEIR has been produced to fulfil National Grid Electricity Transmission plc (NGET)'s consultation duties in accordance with Section 42 of the PA2008 and enable consultees to develop an informed view of the preliminary significant effects of the English Onshore Scheme.

11.1.7 The assessment has been undertaken based on the preliminary Project design information. This is an iterative process, and the assessment will be updated in the ES to reflect the evolved design. These updates may lead to changes, for example, in areas of land-take and soil disturbance, all of which will be accounted for in the assessment presented in the ES.

11.1.8 For the preliminary assessment, it is assumed that all areas temporarily disturbed during construction would be reinstated and the existing land use resumed. It is assumed that permanent land take includes permanent access roads and the converter station. Permanent land use change (for example relating to landscape planting or ecological mitigation will also be assessed.

11.1.9 The proposed ALC assessment assumes that the auger borings at one auger per ha are sufficient to determine the spatial distribution of ALC grades.

11.1.10 Along the proposed route of the cable, boreholes will be spaced at 100 m intervals, which assumes that the width of the corridor does not exceed 100 m. Since the assessment of the corridor will be based on linear point data, it may be possible that the boundaries would be drawn slightly differently than if a wider area was surveyed. The potential implications of this will be addressed in the ES.

11.1.11 The full assessment will be reliant on land access to enable focused soil and ALC surveys; the extent of surveys undertaken will be fully detailed in the assessment reported in the ES.

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

11.1.13 The preliminary assessment of agricultural land quality presented within this PEIR is based upon publicly available Provisional ALC mapping which does not differentiate between Grade 3a (best and most versatile (BMV)) and Grade 3b (non-BMV) land. Therefore, where Provisional ALC Grade 3 has been identified within the English Onshore Scheme draft Order Limits a worst-case scenario has been assumed and this land has been assessed as potentially comprising BMV land for the purpose of assessing the significance of impacts. A detailed ALC survey will be conducted and presented in the ES and this will confirm the actual areas of each ALC grade and the total area of BMV land affected.

11.1.14 The assessment of impacts on farm holdings will be dependent on obtaining sufficient and accurate information from landowner/land managers. If individual landowners/land managers do not engage sufficiently the assessment will be based on the best available publicly available information and this will be clearly noted in the assessment.

11.1.15 Mitigation works for existing land drainage networks may be required for the English Onshore Scheme. Land drainage surveys are currently being undertaken; however, to date results are not available for inclusion in this chapter but will be considered within the ES.

Preliminary significance conclusions

11.1.16 For ease of reference, a summary of the potentially significant effects from the preliminary agriculture and soils assessment is provided in **Table 11-1.** All other effects in relation to agriculture and soils have been assessed as not significant. Further details of the methodology behind the assessment, and a detailed narrative of the assessment itself are provided within the sections below.

11.1.17 Aspects scoped out of assessment are not included in **Table 11-1**. These are detailed in Section 11.3.

Table 11-1 Preliminary summary of significance of effects

Receptor and summary of predicted effects	Sensitivity / importance / value of receptor[1]	Magnitude of change[2]	Significance[3]	Summary rationale
Construction Phase				
Agricultural Land Quality – Any construction activity on agricultural land – temporary loss of BMV land.	Very High to High	Minor	Slight to Moderate (Significant)	Temporary loss of 464.61 ha of BMV land during the construction phase. This land will be reinstated/re-used within the Project by the end of the construction phase in accordance with the Outline Soil Management Plan (SMP).
Agricultural Land Quality – Any construction activity on agricultural land – permanent loss of BMV land.	Very High to High	Major	Very Large (Significant)	Estimated permanent loss of 20 to 30 ha of BMV land during the construction phase (including permanent access routes and converter station; final value to be confirmed when design is finalised).

[1] The sensitivity / importance / value of a receptor is defined using the criteria set out in Section 11.9 and is defined as negligible, low, medium, high and very high.

[2] The magnitude of change on a receptor resulting from activities relating to the development is defined using the criteria set out in Section 11.9 and is defined as negligible, minor, moderate, major.

[3]The significance of the environmental effects is based on the combination of the sensitivity / importance / value of a receptor and the magnitude of change and is expressed as very large (significant), large (significant), moderate (potentially significant) or slight / neutral (not significant), subject to the evaluation methodology outlined in Section 11.9.

Receptor and summary of predicted effects	Sensitivity / importance / value of receptor[1]	Magnitude of change[2]	Significance[3]	Summary rationale
Soil Function – Soil disturbance for temporary construction areas, access routes, and permanent infrastructure resulting in temporary loss of function.	Very High to Low	Minor	Moderate to Neutral (Significant)	Temporary disturbance to soils across an area of approximately 477.22 ha which will be reinstated / re-used within the English Onshore Scheme by the end of the construction phase in accordance with the Outline SMP.
Agricultural Landholdings – Temporary disruption to agricultural enterprises.	Low	Minor to Moderate	Neutral (Not significant)	The temporary removal of land from an agricultural enterprise would be dealt with through compensation in accordance with the compensation code (which would include consideration of any active agri-environment schemes[4]).
Agricultural Landholdings – Permanent loss of land from agricultural enterprises.	Low	Minor to Moderate	Neutral (Not significant)	The permanent removal of land from an agricultural enterprise would be dealt with through compensation in accordance with the compensation code (which would include consideration of any active agri-environment schemes).

[4] This would also account for woodland and forestry schemes and grants, though none are recorded within the draft Order Limits of the English Onshore Scheme.

11.2 Relevant Technical Guidance

11.2.1 The legislation and planning policy which has informed the assessment of effects with respect to Agriculture and Soils is provided within **Volume 2, Part 2, Appendix 2.A: Regulatory and Planning Context**. Further information on policies relevant to the English Onshore Scheme are provided in **Volume 1, Part 2, Chapter 2: Regulatory and Policy Overview.** Relevant technical guidance, specific to Agriculture and Soils, that has informed this PEIR and will inform the assessment within the ES, is summarised below.

Technical guidance

11.2.2 A summary of the technical guidance for Agriculture and Soils is given in **Table 11-2**.

Table 11-2 Technical guidance relevant to the agriculture and soils assessment

Technical guidance document	Context
Safeguarding our Soils. A strategy for England: Defra, 2009 (Ref 11.1)	This outlines how to better manage, reduce degradation, and build resilience to increasing pressures on soil in order to provide a sustainable food supply.
Guide to Assessing Development Proposals on Agricultural Land: Natural England, 2021 (Ref 11.2) (taking into account Technical Information Note 049 Agricultural Land Classification Protecting the Best and Most Versatile Agricultural Land: Natural England, 2012 (Ref 11.3)	This outlines how construction activities can manage soils sustainably while protecting them from damage and avoiding peat extraction.
Working with Soil Guidance Note on Benefitting from Soil Management in Development and Construction: The British Society of Soil Science, 2022 (Ref 11.4)	This assists soil professionals in developing Soil Management Plans (SMPs).
Specification for topsoil (BS3882:2015): British Standards Institute, 2015 (Ref 11.5)	This outlines the specific characteristics required to be assessed to classify topsoil for import / export against a range of re-use options.
Agricultural Land Classification of England and Wales, Guidelines for Grading the Quality of Agricultural Land (JP069): Defra & Welsh Government, Updated 2025 (Ref 11.6)	This sets out the required methodology for the assessment of the quality of agricultural land across England and Wales.
Construction Code of Practice for the Sustainable Use of Soils on Construction Sites: Defra, 2009 (Ref 11.7)	This provides a practical guide to the protection of soil resources throughout construction work.

Technical guidance document	Context
Good Practice Guide for Handling Soils in Mineral Workings, Institute of Quarrying, 2021 (Ref 11.8)	This is a practical guide containing theory and knowledge to best protect soil during handling.
A New Perspective on Land and Soil in Environmental Impact Assessment: Institute of Environmental Management and Assessment (herein the 'ISEP Guidance' (formerly IEMA)), 2022[5] (Ref 11.9)	This outlines the EIA assessment approach in relation to land and soil to ensure all soil functions are accounted for in the assessment.
Design Manual for Roads and Bridges (DMRB) LA 112 Population and Human Health (Ref 11.10)	This sets out the EIA assessment approach to ensure that impacts to agricultural land holdings are accounted for within the assessment.
Soil Health and Environmental Assessment: Institute of Sustainability and Environmental Professionals (ISEP, formerly IEMA), 2025 (Ref 11.11)	This supplements the ISEP (2022) guidance and provides guidance on the consideration of soil health within EIA, supporting the assessment of development effects on soil beyond physical disturbance alone.

11.3 Consultation and Engagement

Overview

11.3.1 The assessment has been informed by consultation responses and ongoing stakeholder engagement. An overview of the approach to consultation is provided in Section 5.9 of **Volume 1, Part 1, Chapter 5: PEIR Approach and Methodology**.

Scoping Opinion

11.3.2 A Scoping Opinion was adopted by the Secretary of State, administered by the Planning Inspectorate, on 13 October 2025 (Ref 11.12). A summary of the relevant responses received in the Scoping Opinion in relation to agriculture and soils, and confirmation of how these have been addressed within the assessment to date, is presented in **Table 11-3**.

[5] The Institute of Environmental Management and Assessment (IEMA) officially changed its name to The Institute of Sustainability and Environmental Professionals (ISEP) on 17 July 2025.

Table 11-3 Summary of EIA scoping opinion responses for the agriculture and soils assessment

Consultee	Consideration	How addressed in this PEIR
Planning Inspectorate ID 3.6.1	**Operation and maintenance – temporary and permanent loss of agricultural land** The Planning Inspectorate agrees that this matter can be scoped out of further assessment on the basis that the loss of agricultural land is proposed to be assessed during construction. However, the ES should include a description of expected maintenance activities, including their extent and duration. It should also explain how the intention to undertake all soil handling in line with good practice would be secured.	The ES will provide a description of likely maintenance activities (to include likely extent and duration) and how the application of good practice soil handling measures will be secured. An Outline Soil Management Plan (Outline SMP) will be produced and submitted alongside the ES outlining proposed soil handling measures for the soils across the English Onshore Scheme. The Outline SMP will be updated pre-construction to a final SMP which will include details of construction approach and phasing. The final SMP will include reference to the measures required to be implemented during operation and maintenance.
Planning Inspectorate ID 3.6.2	**Operation and maintenance – impacts to soil ecosystem services** The Planning Inspectorate agrees that this matter can be scoped out. However, the ES should provide a description of the expected maintenance activities including their extent and duration. It should also explain how the intention to undertake all soil handling in line with good practice would be secured.	The ES will provide a description of likely maintenance activities (to include likely extent and duration) and how the application of good practice soil handling measures will be secured. The Outline SMP will be updated pre-construction to a final SMP which will include details of construction approach and phasing. The final SMP will include reference to the measures required to be implemented during operation and maintenance.
Planning Inspectorate ID 3.6.3	**Operation and maintenance – temporary acquisition and permanent loss of agricultural land holdings** The Planning Inspectorate agrees that this matter can be scoped out on the basis that maintenance would require only periodic vehicle access and impacts would be limited in extent and access arrangements. The ES should demonstrate how access	Any maintenance or repair works are likely to be small-scale and temporary, with works undertaken in accordance with relevant good practice. An indication of typical maintenance activities is presented in **Volume 1, Part 1, Chapter 4: Description of the Project**, and this will be expanded where needed for the ES and the potential for impacts will be re-assessed.

Consultee	Consideration	How addressed in this PEIR
	arrangements are designed to limit disturbance to landowners.	
Planning Inspectorate ID 3.6.4	**Agricultural Land** The ES should contain a clear tabulation of the areas of land in each Agricultural Land Class which would be temporarily or permanently lost as a result of the proposed development, with reference to accompanying map(s) depicting the grades. The assessment should take into account the presence of Best and Most Versatile (BMV) land and any use of BMV land should be addressed in the applicant's discussion of alternatives.	A full characterisation of the ALC grades (including BMV) within the Order Limits will be presented in the ES, following the completion of detailed ALC surveys during summer to autumn 2026.

Technical engagement

11.3.3 Technical engagement with consultees in relation to Agriculture and Soils is ongoing. Engagement with stakeholders including Natural England and local planning authorities will inform the ES through the formal consultation process. Statements of Common Ground will be used to record engagement and ongoing discussions with these stakeholders throughout the DCO process.

11.4 Data Gathering Methodology

11.4.1 The assessment presented in the PEIR has been supported by a collation and review of available baseline data. This includes:

- Online Geology Viewer from the British Geological Survey (BGS) (Ref 11.13);
- Soil data and maps from the National Soil Resources at Cranfield University (Ref 11.14);
- Provisional ALC map available via Multi-Agency Geographic Information for the Countryside (MAGIC) (Ref 11.15);
- Likelihood of BMV Agricultural Land map (Ref 11.16);
- Post-1988 ALC survey data and map via MAGIC (Ref 11.15); and
- Climate data sets for ALC assessment (Ref 11.17).

11.4.2 Field data collection will be undertaken through a soil and ALC survey. The survey outcome will then be used to finalise the assessment of impacts on agricultural land and soils as a result of the Project and will be presented in the ES.

Study area

11.4.3 The study area for the Scoping Report was the English Onshore Scheme Scoping Boundary; this has been refined for the PEIR to comprise the English Onshore Scheme draft Order Limits. This change results from intervening design development. In both cases, the study area comprises only land within the boundary defined, which is considered appropriate as no agriculture and soil receptors will be affected outside of the boundary in each case.

Desk study

11.4.4 A summary of the organisations that have supplied data, together with the nature of that data is outlined in **Table 11-4**.

Table 11-4 Data sources used to inform the agriculture and soils assessment

Organisation	Data source	Data provided
British Geological Survey	Geology Viewer (Ref 11.13)	Bedrock and superficial drift geology
Cranfield University	National Soil Resources (Ref 11.14)	Soil data and maps
Department for Food and Rural Affairs (Defra)	MAGIC (Ref 11.15)	Provisional ALC map
Department for Food and Rural Affairs (Defra)	MAGIC (Ref 11.15)	Post-1988 ALC survey data and map
Natural England	Natural England (Ref 11.16)	Likelihood of BMV Agricultural Land map
Met Office	Climatological Data for Agricultural Land Classification (Ref 11.17)	Climate data sets for ALC assessment

Survey work

11.4.5 Field data collection, through soil and ALC surveys, is scheduled to take place during Spring-Summer 2026. This information is therefore not available for the PEIR but will be used to inform the assessment presented in the ES. The survey outcome will be used to confirm the extent of each ALC grade, and the characteristics of the associated soils, affected as a result of the English Onshore Scheme.

11.4.6 The soil and ALC survey and assessment will be undertaken in accordance with the Soil Survey Field Handbook (Ref 11.18) and the ALC guidelines (Ref 11.6).

11.4.7 The detailed ALC survey will involve the examination of the soil's physical properties, from which the agricultural land grade as well as the soil's resilience can be calculated and assessed.

11.4.8 Soil profiles will be examined with a hand-held soil auger at a sampling density of approximately one auger point per 100 m for linear sections of the English Onshore Scheme, and one auger point per hectare (ha) for wider areas such as the converter station and construction compounds. The soil profile will be examined at each sample location to a maximum depth of approximately 1.2 m by hand with the use of a 5 cm Dutch (Edelman) soil auger. Soil pits will also be excavated by hand with a spade to examine certain soil physical properties such as stone content and the structural condition of the subsoil more closely.

11.4.9 Survey data gathered will be used to inform the development of an Outline SMP, to minimise the risk of damage to soils and ensure their appropriate reinstatement or re-use.

11.4.10 Natural England will be consulted on the soil and ALC survey methodology prior to the survey commencing.

11.4.11 Information on individual landholdings will be gathered through landowner / land manager engagement to collate information on the extent of land held, how land is accessed, fixed capital, and the type of land management employed.

11.5 Overall Baseline

Current baseline

Geology

11.5.1 The area within the English Onshore Scheme draft Order Limits is mapped as comprising chalky sedimentary bedrock of shallow marine origin, formed during the Cretaceous period. The formations lie northwest to southeast in three main bands crossing the area. From the east, moving inland they are:

- The Burnham Chalk Formation, present to the east of the area as far as Huttoft (towards the south) and Hannah (further north);
- The Welton Chalk Formation, reaching the outskirts of Alford in the west;
- The Ferriby Chalk Formation, underlying much of Alford; and
- There is also an area mapped as comprising the Carstone Formation Sandstone (also sedimentary rocks of shallow marine origin) to the west of Alford.

11.5.2 Mapping of superficial deposits indicates the presence of Tidal Flat Deposits (clay and silt) primarily from Landfall, westwards to the A52 (Sutton Road). A combination of glaciofluvial Devensian (sand and gravel) and Devensian diamicton till are mapped across the remaining English Onshore Scheme draft Order Limits.

Soils

11.5.3 Within the English Onshore Scheme draft Order Limits, there are five different Soil Associations shown on the available soil mapping presented on **Volume 3, Part 2, Figure 11-1**. The English Onshore Scheme draft Order Limits largely comprises loamy and clayey mineral soils, often affected by seasonal waterlogging. The five Soil Associations are outlined on the LandIS Soils Guide (Ref 11.14) which summarises their characteristics. These are described below:

- Fladbury 2: stoneless clayey soils variably affected by groundwater, some with sandy subsoils. This Soil Association occurs on flat land which is often at risk of flooding.
- Holderness: slowly permeable seasonally waterlogged fine loamy soils and similar soils with only slight waterlogging. Areas of Holderness can include narrow strips of clayey alluvial soils.
- Salop: slowly permeable, seasonally waterlogged reddish fine loamy and clayey soils. These soils have slowly permeable subsoils and slight seasonal waterlogging.
- Wallasea 2: deep stoneless clayey soils which are calcareous in places and can include deep calcareous silty soils. Wallasea 2 occurs on flat land, often with low ridges due to former creeks, which can result in a complex soil pattern. Groundwater is often controlled by ditches and pumps. This Soil Association is a potentially acid sulphate soil (PASS), and as such any disturbance has the possibility of releasing acidic material into the wider environment, including the potential for negative impacts on growing crops.
- Wick 1: deep, well drained coarse loamy and sandy soils locally over gravel. Some Series within the Association are affected by high groundwater. These soils can be at risk of water erosion.

11.5.4 Available Soil Association mapping indicates that there are not anticipated to be any peat soils present within the draft Order Limits.

Agricultural Land Classification

11.5.5 ALC is a classification system used to assess the agricultural quality of land within England and Wales. Provisional ALC mapping for the English Onshore Scheme draft Order Limits is presented on **Volume 3, Part 2, Figure 11-2** and shows that the English Onshore Scheme draft Order Limits are likely to comprise BMV land.

11.5.6 ALC grades are defined as follows:

- Grade 1 – excellent quality agricultural land;
- Grade 2 – very good quality agricultural land;
- Grade 3 – good to moderate quality agricultural land;
  - Subgrade 3a: good quality agricultural land;
  - Subgrade 3b: moderate quality agricultural land;
- Grade 4 – poor quality agricultural land; and
- Grade 5 – very poor-quality agricultural land.

11.5.7 Provisional ALC mapping does not split Grade 3 land into Subgrades 3a and 3b. Subgrade 3a land, along with Grade 1 and Grade 2 land, comprises BMV agricultural land. The distinction between Grade 3a and Grade 3b land can only be confirmed through a detailed ALC survey (which will be undertaken to inform the ES). As such, land mapped as Provisional ALC Grade 3, along with land mapped as Provisional Grade 1 and Grade 2, is assumed to be BMV land for the purpose of this PEIR assessment. This is to ensure that the PEIR assessment accounts for the worst-case scenario.

11.5.8 There is no existing detailed (i.e., non-provisional and resulting from physical surveys) ALC mapping for land within the English Onshore Scheme draft Order Limits.

11.5.9 Provisional ALC mapping shows that land within the English Onshore Scheme draft Order Limits is predominantly mapped as comprising Provisional Grade 3 land with areas of Provisional Grade 2 land mapped north of Alford and east of Bilsby.

Land Use

11.5.10 Satellite imagery indicates that the agricultural land within the English Onshore Scheme draft Order Limits is predominantly arable land and grassland. Field boundaries are lined with hedges, trees, drainage ditches and roads throughout the English Onshore Scheme draft Order Limits.

11.5.11 There are no Woodland Grant Schemes or Felling Licences within the English Onshore Scheme draft Order Limits, as confirmed in **Volume 3, Part 2, Figure 11-3.**

11.5.12 Within the English Onshore Scheme draft Order Limits there are areas of land mapped as being under Countryside Stewardship Agreements. There are no Environmental Stewardship Agreements mapped as present within the English Onshore Scheme draft Order Limits. Agri-Environment Schemes are shown on **Volume 3, Part 2, Figure 11-4.**

Future baseline

11.5.13 The Met Office's UK Climate Projects (UKCP18) predict that the future climate will consist of warmer winters with more intense rainfall events. However, the overall annual rainfall is expected to remain consistent with current levels as there is expected to be a change to a larger volume in winter and lower volume in summer. The increased intensity of rainfall events will increase the risk of soil erosion and runoff, risking reducing topsoil thickness and thus land quality if not properly mitigated (Ref 11.19).

11.5.14 The global annual temperature is predicted to increase by around two degrees Celsius by 2100 (Ref 11.19), which is likely to increase soil surface cracking and decrease total field capacity days. However, these changes will be slight to negligible.

11.5.15 Therefore, the overall future baseline of soils and land use is likely to be impacted by climate change; however, the change would be negligible within the timeframe of the construction of the English Onshore Scheme.

11.5.16 There could be changes to land management practices and business approaches across the landowners / land managers within the timeframe of the construction and operation of the English Onshore Scheme. These changes may arise from evolving agricultural techniques, economic factors, or policy shifts. Such management adaptions are not expected to alter ALC grades, or the soil resources present unless major disturbances to the land are anticipated.

11.5.17 It is recognised that there are a number of other proposed and committed developments within the surrounding area that could alter the future baseline in the absence of the English Onshore Scheme. The potential for inter-project cumulative effects will be considered later in the EIA process according to the approach outlined within **Volume 1, Part 4, Chapter 27: Cumulative Effects**.

11.6 Environmental Measures

11.6.1 As set out in **Volume 1, Part 1, Chapter 5: PEIR Approach and Methodology**, the environmental measures are characterised as design measures or control and management measures. A range of environmental measures would be implemented as part of the English Onshore Scheme and will be secured in the DCO as relevant.

11.6.2 **Table 11-5** outlines how these design and control measures will influence the Agriculture and Soils assessment. In addition to the measures listed in **Table 11-5**, standard mitigation measures, comprising management activities and techniques, would be implemented during the construction of the English Onshore Scheme to limit effects through adherence to good site practices and achieving legal compliance.

11.6.3 Relevant environmental measures will be developed to avoid and minimise the impact on agricultural land, soils, and agricultural landholdings. Of particular relevance will be the development of an Outline SMP which will be produced and submitted alongside the ES. The Outline SMP will sit alongside **Volume 2, Part 1, Appendix 5.B: Outline CoCP.**

11.6.4 Measures listed in **Table 11-5** have been assigned references, for example (AS01(C)). These align with the references provided in **Volume 2, Part 1, Appendix 5.B: Outline CoCP** for ease of cross-reference. Any references identified with ID reference including MT (for example, MT01) include measures which may also be listed in other aspects considered as part of this PEIR therefore have been identified as measures which apply to multiple aspects.

Table 11-5 Summary of the environmental measures

Receptor	Potential changes and effects	Environmental measures	ID reference
Construction			
ALC Grade / Soil Function / Landholdings	Potential impacts from temporary and permanent land take.	The English Onshore Scheme will be run in compliance with all relevant legislation, consents and permits, ensuring the soil is handled correctly.	AS01 (C)
ALC Grade / Soil Function / Landholdings	Potential impacts on land grade and soil function, and thus the productivity of the land.	Land used temporarily will be reinstated where practicable to its pre-construction condition (including pre-construction ALC grade) and use (or a condition agreed with the landowner). Hedgerows, fences, and walls (including associated earthworks and boundary features) will be reinstated to a similar style and quality to those that were removed, with landowner agreement. Soils will be reinstated to a minimum depth of 0.9 m over the cable protective tiles (or the maximum natural soil depth if this is shallower), except where this impacts reinstatement to pre-construction ALC grade.	AS02 (C)
ALC Grade / Soil Function / Landholdings	Potential impacts on land grade and soil function, and thus the productivity of the land.	An Outline SMP will provide guidelines to mitigate likely significant effects on agriculture and soils by ensuring proper soil handling and reinstatement of pre-construction condition. Measures will include but not be limited to the following: 1. Details of the soil resources and ALC grades present; 2. Roles and responsibilities (and required competencies and training); 3. How different topsoil and subsoil resources will be stripped and stockpiled separately; 4. Suitable conditions for when handling soil will be undertaken, for example avoiding handling of waterlogged soil; 5. Indicative soil storage locations; 6. How soil stockpiles will be designed taking into consideration site conditions and the nature / composition of the soil;	AS03 (C)

Receptor	Potential changes and effects	Environmental measures	ID reference
		7. Specific measures for managing sensitive soils, such as peaty soils or those supporting valuable habitats; 8. Suitable protective surfacing (such as Trackway or similar products) where soil stripping can be avoided, and weed suppression encouraged, based on sensitivity of the environment and proposed works; 9. Approach to reinstating soil that has been compacted; 10. Details of measures required for and objectives of soil restoration; 11. Requirements for monitoring; and 12. Requirements for aftercare, including details of what surveys / testing will be required at defined times during aftercare and in advance of land hand back.	
ALC Grade / Soil Function / Landholdings	Potential impacts on land grade and soil function, and thus the productivity of the land.	Consultation with affected landowners will be carried out to investigate the current extent of land drainage. Existing land drainage systems impacted by the English Onshore Scheme during their construction would be re-provided to maintain the land drainage regime. 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 or rerouted ensuring their existing function is maintained. A specialised drainage contractor will review the designs and provide technical advice to NGET and its Contractor during relevant construction and reinstatement activities. The English Onshore Scheme 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.	MT06 (C)
ALC Grade / Soil Function / Landholdings	Potential impacts on land grade and soil function, and thus the productivity of the land.	Clay bungs or other vertical barriers will be constructed within trench excavations where deemed necessary, to prevent the creation of preferential drainage pathways.	AS04 (C)

Receptor	Potential changes and effects	Environmental measures	ID reference
Soil Function	Potential impacts on soil function.	Soil excavated from the Projects will be reused on site through the backfilling of trenches and for landscaping where practicable and where soil is suitable for reuse (for example, not contaminated and giving consideration to land holdings and applicable biosecurity measures). It is intended that all soil will be reused on site, however if it arises that excess spoil topsoil or subsoil cannot be reused on site, this soil will be taken off site in accordance with measures outlined within the Outline SMP and in line with the requirements of the Site Waste Management Plan.	AS05 (C)
Landholdings	Potential disruption to agricultural operations.	A record of condition will be carried out (photographic and descriptive) of the working areas that may be affected by the construction activities. 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. This record will ensure that agricultural land is reinstated to its preconstruction condition and can be used for agricultural purposes post-construction.	AS06 (C)
Landholdings	Potential disruption to agricultural operations.	Access to and from residential, commercial, community and agricultural land uses will be maintained throughout the construction period or as agreed through landowner / land user discussions. This may require signed diversions or temporary restrictions to access. The means of access to affected properties, facilities and land parcels will be communicated to affected parties at the start of the English Onshore Scheme, 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. By only accessing the land under an agreed permission, impact to the landowners' business will be minimised, by preventing any unnecessary damage to their land.	AS07 (C)
Landholdings	Potential disruption to agricultural operations.	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. By providing alternative supplies during construction, farm	AS08 (C)

Receptor	Potential changes and effects	Environmental measures	ID reference
		operations will be allowed to continue and any potential significant effects to Agricultural Landholdings will be reduced.	
Landholdings	Potential disruption to agricultural operations.	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 likely origin and age of the materials found.	AS09 (C)
Landholdings	Potential disruption to agricultural operations.	All movement of plant and vehicles between fields will cease in the event of a notification by the 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.	AS10 (C)
Operation			
ALC Grade / Soil Function / Landholdings	Permanent land take.	The design will be rationalised to minimise the total quantum of land required as far as practicable.	AS01 (D)
Landholdings	Potential disruption to agricultural operations.	The English Onshore Scheme design would be compliant with the policy framework for electric and magnetic fields set out in the National Policy Statement (NPS) for Electricity Networks Infrastructure (EN-5), which requires compliance with relevant Government Electromagnetic Field (EMF) policy, exposure guidelines and associated Codes of Practice. Compliance with these detailed guidelines is demonstrated through the EMF Study presented in **Volume 2, Part 1, Appendix 4.A Electromagnetic Field (EMF) Study**. (Ref 11.20).	MT01 (D)

11.7 Scope of the Assessment

Spatial scope and study area

11.7.1 The spatial scope of the Agriculture and Soils assessment covers the area of the English Onshore Scheme contained within the draft Order Limits. Since the submission of the Scoping Report the study area has been refined to form purely the land within the English Onshore Scheme draft Order Limits and is shown in **Volume 3, Part 2, Figure 11-1**.

Temporal scope

11.7.2 The temporal scope of the Agriculture and Soils assessment is consistent with the period over which the English Onshore Scheme would be carried out. Impacts to soils and the ALC grades they support (both temporary and permanent) would occur during both the construction and operational phases. As detailed in **Volume 1, Part 1, Chapter 4: Description of the Project**, it covers the period 2029 – 2035 for construction, and the lifetime of the Project for operation (expected to operate for 40 years, although likely extended through replacement and repair).

11.7.3 The English Onshore Scheme is expected to have a minimum life span of approximately 40 years. If decommissioning is required at this point in time, then activities and effects associated with the decommissioning phase are expected to be of a similar level to those during the construction phase works, albeit with a lesser duration of two years. Acknowledging the complexities of completing a detailed assessment for decommissioning works up to 40 years in the future, it is considered that the significance of effects relating to the decommissioning phase would be no greater than those from the construction phase and decommissioning effects are not discussed in detail in this chapter; however, **Table 4-19** in **Volume 1, Part 1, Chapter 4: Description of the Project** provides a high level summary assessment of the likely significant effects associated with decommissioning. Furthermore, should decommissioning take place it is expected that an assessment in accordance with the legislation and guidance at the time of decommissioning would be undertaken.

Identification of receptors

11.7.4 The principal agriculture and soils receptors that have been identified as being subject to potentially significant effects are summarised in **Table 11-6**.

11.7.5 The baseline for these receptors is shown in **Volume 3:**

- **Part 2, Figure 11-1: National Soil Associations;**
- **Part 2, Figure 11-2: Provisional Agricultural Land Classification;**
- **Part 2, Figure 11-3: Woodland and Forestry Schemes,** and;
- **Part 2, Figure 11-4: Agri-Environment Schemes.**

Table 11-6 Agriculture and soils receptors subject to potential effects

Receptor	Reason for consideration
Agricultural land quality (defined by the ALC system)	Potential for temporary and permanent loss of BMV land.
Soil function	Potential for temporary and permanent loss of soil functions.
Agricultural landholdings / land use	Potential for temporary and permanent disruption to agricultural enterprises.

Potential effects considered within this assessment

11.7.6 During the construction phase there would be a potential for both permanent and temporary loss of agricultural land. All land within the English Onshore Scheme draft Order Limits is mapped as Provisional Grade 2 and Grade 3, and thus, is potentially BMV land. Therefore, the English Onshore Scheme could potentially have significant adverse effects on the quality of this land and on the associated agricultural productivity, affecting associated landholdings. Therefore, agricultural land and landholdings at construction are scoped into the ES.

11.7.7 The English Onshore Scheme could potentially result in soil quality being adversely affected during construction. Due to the presence of heavy, clayey and potentially waterlogged soils within the English Onshore Scheme draft Order Limits, a potentially significant effect on soil function cannot be ruled out during the construction phase and as such soil function is scoped into the ES.

11.7.8 The effects on agriculture and soils receptors, which have the potential to be significant and have been taken forward for detailed assessment, are summarised in **Table 11-7**.

Table 11-7 Agriculture and soils receptors scoped in for further assessment

Receptor	Likely significant effects
Agricultural land quality during construction	During the construction phase there would be a potential for both permanent and temporary loss of agricultural land. All of the land within the English Onshore Scheme draft Order Limits are mapped as potentially being BMV land and thus the English Onshore Scheme could have potentially significant effects on agricultural land quality.
Soil function during construction	The extent of soils which will be disturbed to enable construction, together with the presence of clayey and waterlogged soils, results in the potential for significant effects on soil function and associated ecosystem services.
Disruption to agricultural landholdings during construction	During the construction phase, the temporary acquisition of land to accommodate construction activities will result

Receptor	Likely significant effects
	in temporary disruption and severance to agricultural landholdings. This has the potential for significant effects. Permanent loss of land to accommodate permanent infrastructure resulting in reduction in the operational capacity and loss of income to farm businesses has the potential for significant effects.

11.7.9 The receptors / effects detailed in **Table 11-8** have been scoped out from being subject to further assessment because the potential effects are not considered likely to be significant.

11.7.10 These scoped out receptors have been agreed by the Planning Inspectorate, as detailed in **Table 11-3** and discussed in Section 11.3.

Table 11-8 Summary of effects scoped out of the agriculture and soils assessment

Receptors / potential effects	Justification
Agricultural land quality / soil function / agricultural landholdings during operation	As the construction phase will account for both the temporary and permanent losses, there would be no further permanent losses of agricultural land as a result of operation of the English Onshore Scheme. Maintenance and repair work that may result in disturbance to agricultural land and soils during operation would be undertaken in accordance with standard good practice soil handling methods and are likely to be small-scale and temporary in nature.

11.8 Key Parameters for Assessment

Realistic worst-case design scenario

11.8.1 In relation to Agriculture and Soils the following assumptions are made regarding the English Onshore Scheme design parameters to ensure that a realistic worst-case assessment has been undertaken.

11.8.2 The assessment has followed the Rochdale Envelope approach as outlined in **Volume 1, Part 1, Chapter 4: Description of the Project.** The assessment of effects has been based on the description of the Project and parameters outlined in **Volume 1, Part 1, Chapter 4: Description of the Project**. However, where there is uncertainty regarding a particular design parameter, the realistic worst-case design parameters are provided below with regards to Agriculture and Soils along with the reasons why these parameters are considered worst-case. The preliminary assessment for Agriculture and Soils has been undertaken on this basis. Effects of greater adverse significance are not likely to arise should any other development scenario, based on details within the Rochdale Envelope (e.g., different infrastructure layout within the draft Order Limits), to that assessed here be taken forward in the final design of the Project.

- It is assumed that there would be a potential loss of BMV land (defined as ALC Grades 1, 2 and 3a) from agricultural productivity, during construction. There is no detailed ALC data available for the English Onshore Scheme draft Order Limits, therefore publicly available Provisional ALC data has been used to make this assessment. 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 mapped as Provisional Grade 1, 2, and 3 being considered BMV land. This approach has been taken at PEIR stage as detailed ALC surveys have not yet been undertaken. The ES submitted with the DCO application will include detailed ALC survey data showing the split between Grade 3a and 3b land.
- With regards to the extents of temporary and permanent land take, the assessment presented in the PEIR is based on the emerging design overlain on the Provisional ALC mapping. The elements of the English Onshore Scheme shown within the draft Order Limits (compounds, cable routes, access / haul routes etc.) have the potential to be moved within the draft Order Limits post consultation and as such the assessment takes account of the potential for higher grade land to be affected should a design change occur. The assessment presented in this PEIR has therefore focussed on the likely total extent of BMV land affected; the impact on individual grades will be fully presented in the ES based on the outcome of the ALC surveys.
- With regards to the impacts on soil functions, it is assumed that all land within the footprint of the permanent infrastructure will be sealed. All soils excavated from within this footprint will then be reused within the project, and so are able to continue to deliver a range of ecosystem services and function.

Consideration of construction scenarios

11.8.3 As detailed in **Volume 1, Part 1, Chapter 4: Description of the Project**, the timing of construction activities set out within this PEIR is indicative. To allow for any unexpected circumstances, the impact assessment for the English Onshore Scheme considers that all land within the draft Order Limits will be required for construction and may be disturbed for the maximum duration of the construction phase to ensure the worst-case scenario for Agriculture and Soils can be identified and assessed.

11.9 Assessment Methodology

Overview

11.9.1 The project-wide approach to the assessment methodology is set out in **Volume 1, Part 1, Chapter 5: PEIR Approach and Methodology**, and specifically in Sections 5.4 - 5.6. However, whilst this has informed the approach used in this Agriculture and Soils assessment, it is necessary to set out how this methodology has been applied, and adapted as appropriate, to address the specific needs of this assessment. Details are provided below.

11.9.2 The ISEP Guidance (Ref 11.9) will be used to assess the impact on agricultural land quality and soils. The DMRB LA112 (Ref 11.10) will be used to assess the impact on agricultural landholdings.

11.9.3 **Table 11-9** to **Table 11-15** set out the criteria which will be used to determine the sensitivity of and the magnitude of impacts on agricultural land and soils through assessing soil quality, the presence of BMV land and agricultural landholdings. Once the

magnitude and sensitivity of receptors have been identified this will be used to determine the significance of the effect. Effects that are deemed to be potentially significant for the purpose of this assessment are those that are described as being moderate or major, beneficial or adverse. Terminology used in the criteria tables is consistent with the terminology used within the ISEP guidance.

Receptor sensitivity / value

Table 11-9 Determination of sensitivity of soil resources / functions

Receptor sensitivity	Soil resource and function
Very High	• Biomass production: ALC Grades 1 & 2; • Ecological habitat, soil biodiversity and platform for landscape: Soils supporting protected features within a European site (e.g., SAC, SPA, Ramsar site); Peat soils; Soils supporting a National Park, or Ancient Woodland; • Soil carbon: Peat soils; • Soils with potential for ecological / landscape restoration; • Soil hydrology: Very important catchment pathway for water flows and flood risk management; • Archaeology, Cultural Heritage, Community Benefits and Geodiversity: Scheduled Monuments and adjacent areas; World Heritage and European designated sites; Soils with known archaeological interest; Soils supporting community / recreational / educational access to land covered by National Park designation; and • Source of materials: Important surface mineral reserves that would be sterilised (i.e., without future access).
High	• Biomass production: ALC Grade 3a; • Ecological habitat, soil biodiversity and platform for landscape: Soils supporting protected features within a UK designated site (e.g., United Nations Educational, Scientific and Cultural Organisation (UNESCO) Geoparks, SSSI or National Landscape, Special Landscape Areas (SLAs), and Geological Conservation Review sites); Native Forest and woodland soils; Unaltered soils supporting seminatural vegetation; • Soil carbon: Organo-mineral soils (e.g., peaty soils); • Soil hydrology: Important catchment pathway for water flows and flood risk management; • Archaeology, Cultural Heritage, Community Benefits and Geodiversity: Soils with probable but as yet unproven (prior to being revealed by construction) archaeological interest; historic parks and gardens; Regionally Important Geological Site (RIGS);

Receptor sensitivity	Soil resource and function
	Soils supporting community / recreational / educational access to RIGS and National Landscapes; and • Source of materials: Surface mineral reserves that would be sterilised (i.e., without future access).
Medium	• Biomass production: ALC Grade 3b; • Ecological habitat, soil biodiversity and platform for landscape: Soils supporting protected or valued features within non-statutory designated sites (e.g., LNRs, Local Geological Sites (LGSs), Sites of Nature Conservation Importance (SNCIs), SLAs; Non-Native Forest and woodland soils; • Soil carbon: Mineral soils; • Soil hydrology: Important minor catchment pathway for water flows and flood risk management; • Archaeology, Cultural Heritage, Community Benefits and Geodiversity: Soils with possible but as yet unproven (prior to being revealed by construction) archaeological interest; Soils supporting community / recreational / educational access to land; and • Source of materials: Surface mineral reserves that would remain accessible for extraction.
Low	• Biomass production: ALC Grade 4 and 5 or Urban soils; • Ecological habitat, soil biodiversity and platform for landscape: Soils supporting valued features within non designated notable or priority habitats / landscapes. Agricultural soils; • Soil carbon: Mineral soils; • Soil hydrology: Pathway for local water flows and flood risk management; • Archaeology, Cultural Heritage, Community Benefits and Geodiversity: Soils supporting no notable cultural heritage, geodiversity nor community benefits; Soils supporting limited community / recreational / educational access to land; and • Source of materials: Surface mineral reserves that would remain accessible for extraction.
Negligible	• As for low sensitivity, but with only indirect, tenuous, and unproven links between sources of impact and soil functions.

Table 11-10 Determination of sensitivity of soils in handling

Receptor sensitivity	Soil texture, Field capacity days (FCD), and Wetness class (WC)
High (low resilience to structural damage)	• Soils with high clay and silt fractions (clays, silty clays, sandy clays, heavy silty clay loams and heavy clay loams) and organo-mineral and peaty soils where the FCD are 150 or greater; • Medium-textured soils (silt loams, medium silty clay loams, medium clay loams and sandy clay loams) where the FCDs are 225 or greater; and • All soils in wetness class (WC) V or WC VI.
Medium (medium resilience to structural damage)	• Clays, silty clays, sandy clays, heavy silty clay loams, heavy clay loams, silty loams and organo-mineral and peaty soils where the FCDs are fewer than 150; • Medium-textured soils (silt loams, medium silty clay loams, medium clay loams and sandy clay loams) where FCDs are fewer than 225; and • Sands, loamy sands, sandy loams and sandy silt loams where the FCDs are 225 or greater or are in WC III and IV.
Low (high resilience to structural damage)	• Soils with a high sand fraction (sands, loamy sands, sandy loams and sandy silt loams) where the FCDs are fewer than 225 and are in wetness classes WC I to WC II.

Table 11-11 Determination of sensitivity of agricultural land holdings

Receptor sensitivity	Description
Very High	• Areas of land in which the enterprise is wholly reliant on the spatial relationship of land to key agricultural infrastructure; and • Access between land and key agricultural infrastructure is required on a frequent basis (daily).
High	• Areas of land in which the enterprise is dependent on the spatial relationship of land to key agricultural infrastructure; and • Access between land and key agricultural infrastructure is required on a frequent basis (weekly).
Medium	• Areas of land in which the enterprise is partially dependent on the spatial relationship of land to key agricultural infrastructure; and

Receptor sensitivity	Description
	• Access between land and key agricultural infrastructure is required on a reasonably frequent basis (monthly).
Low	• Areas of land which the enterprise is not dependent on the spatial relationship of land to key agricultural infrastructure; and • Access between land and key agricultural infrastructure is required on an infrequent basis (monthly or less frequent).
Negligible	• Areas of land which are infrequently used on a non-commercial basis.

Table 11-12 Determination of magnitude criteria for impact on agricultural land and soils

Magnitude of impact (change)	Description of impacts restricting proposed land use
Major	Permanent, irreversible loss of one or more soil functions or soil volumes (including permanent sealing or land quality downgrading), over an area of more than 20 ha or loss of soil-related features as set out in **Table 11-9** (including effects from 'Temporary Developments'*). OR Potential for permanent improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of more than 20 ha or gain in soil-related features set out in **Table 11-9** (including effects from 'Temporary Developments'*).
Moderate	Permanent, irreversible loss of one or more soil functions or soil volumes, over an area of between 5 and 20 ha or loss of soil-related features as set out in **Table 11-9** (including effects from 'Temporary Developments'*). OR Potential for improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of between 5 and 20 ha or gain in soil related features as set out in **Table 11-9** (including effects from 'Temporary Developments'*).
Minor	Permanent, irreversible loss over less than 5 ha or a temporary, reversible loss of one or more soil functions or soil volumes), or temporary, reversible loss of soil related features set out in **Table 11-9**. OR Potential for permanent improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of less than 5 ha or a temporary improvement in one or more soil functions due to remediation or restoration or off-site improvement, or temporary gain in soil-related features set out in **Table 11-9**.

Magnitude of impact (change)	Description of impacts restricting proposed land use
Negligible	No discernible loss or reduction or improvement of soil functions or soil volumes that restrict current or proposed land use.

* Temporary developments can result in a permanent impact if resulting disturbance or land use change causes permanent damage to soils.

Magnitude of impact

Table 11-13 Determination of magnitude criteria for impact of agricultural land holdings

Magnitude of impact (change)	Description of impacts restricting proposed land use
Major	Private property and housing, community land and assets, development land and businesses and agricultural land holdings: 1) Loss of resource and / or quality and integrity of resource; Severe damage to key characteristics, features or elements. e.g., direct acquisition and demolition of buildings and direct development of land to accommodate highway assets; and / or 2) Introduction (adverse) or removal (beneficial) of complete severance with no / full accessibility provision.
Moderate	Private property and housing, community land and assets, development land and businesses and agricultural land holdings: 1) Partial loss of / damage to key characteristics, features or elements, e.g., partial removal or substantial amendment to access or acquisition of land compromising viability of property, businesses, community assets or agricultural holdings; and / or 2) Introduction (adverse) or removal (beneficial) of severe severance with limited / moderate accessibility provision.
Minor	Private property and housing, community land and assets, development land and businesses and agricultural land holdings: 1) A discernible change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements, e.g., amendment to access or acquisition of land resulting in changes to operating conditions that do not compromise overall viability of property, businesses, community assets or agricultural holdings; and / or 2) Introduction (adverse) or removal (beneficial) of severance with adequate accessibility provision.
Negligible	Private property and housing, community land and assets, development land and businesses and agricultural land holdings:

Magnitude of impact (change)	Description of impacts restricting proposed land use
	1) Very minor loss or detrimental alteration to one or more characteristics, features or elements. e.g., acquisition of non-operational land or buildings not directly affecting the viability of property, businesses, community assets or agricultural holdings; and / or 2) Very minor introduction (adverse) or removal (beneficial) of severance with ample accessibility provision.
No Change	No loss or alteration of characteristics, features, elements or accessibility; no observable impact in either direction.

Significance of effect

11.9.4 The significance of the effect is determined using the matrix as set out in **Table 11-14** and as defined in **Table 11-15.** Where there is a choice, for example between Moderate and Large, professional judgement has been used to determine which one is relevant.

11.9.5 The significance of the environmental effects is based on the combination of the sensitivity / importance / value of a receptor and the magnitude of change and is expressed as very large (significant), large (significant), moderate (potentially significant) or slight / neutral (not significant), subject to the evaluation methodology outlined in Section 11.9.

Table 11-14 Determination of significance matrix

Nature of receptor (sensitivity / value / importance)	Nature of impact (magnitude / probability / reversibility)			
	Major	**Moderate**	**Minor**	**Negligible**
Very High	Large or Very large	Moderate or Large	Slight or Moderate	Slight
High	Moderate or Large	Moderate	Slight	Neutral
Medium	Slight or Moderate	Slight	Neutral or Slight	Neutral
Low	Slight	Neutral	Neutral	Neutral
Negligible	Neutral	Neutral	Neutral	Neutral

Table 11-15 Significance categories

Significance category	Description
Very Large	Effects at this level are material in the decision-making progress.
Large	Effects at this level are likely to be material in the decision-making progress.
Moderate	Effects at this level can be considered to be material in the decision-making process.
Slight	Effects at this level are not material in the decision-making process.
Neutral	No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.

Preliminary assessment of cumulative effects

11.9.6 At the current stage of the Project (PEIR stage), the design information is insufficient to allow for a robust cumulative assessment to be undertaken. Furthermore, with much of the environmental surveying to still be undertaken during 2026, the baseline identified at this PEIR stage cannot be taken as a complete picture of the potential presence and significance of sensitive receptors. Therefore, a cumulative assessment has not been undertaken at this stage; however, **Volume 1, Part 4, Chapter 27: Cumulative Effects** and **Volume 2, Part 4, Appendix 27.A Long List of other Developments** present the long and short lists of 'other developments' for the inter-project cumulative effects which will be considered at the ES stage (with updates as necessary), and the methodology which allowed for the identification of these other developments, to enable consultation bodies to form a view and provide comment on the other developments included. The long list will be reviewed, and if necessary, updated in the lead up to the ES, as the Project design evolves further and in response to any comments raised at statutory consultation.

11.9.7 Intra-project cumulative effects result principally from different types of impacts from one development acting in combination on a specific receptor. In this chapter, intra-project cumulative effects on agricultural landholdings arising from noise, dust, and traffic impacts during construction, and from additional land take resulting from required ecological mitigation will need to be considered. However, at this stage of the English Onshore Scheme, data is insufficient to allow for an assessment to be undertaken. These will be considered in the ES. For further information on these impacts, please also refer to **Volume 1:**

- **Part 2, Chapter 6: Biodiversity;**
- **Part 2, Chapter 13: Noise and Vibration;**
- **Part 2, Chapter 14: Air Quality,** and;
- **Part 2, Chapter 12: Traffic and Transport.**

11.10 Preliminary Assessment of Agriculture and Soils Effects

11.10.1 The following section presents the findings of the preliminary assessment of effects upon Agriculture and Soil receptors as a result of the construction activities associated with the English Onshore Scheme. Impacts resulting from maintenance and / or operational activities have been scoped out of this assessment (see Section 11.3) and therefore are not included here.

11.10.2 It is noted that this is an ongoing assessment and is subject to change as a result of ongoing design development of the English Onshore Scheme and the outputs of the soil and ALC surveys which will be undertaken later in 2026 (and so are not available for inclusion in this PEIR). A full assessment will be included within the ES submitted with the DCO application.

Preliminary assessment of effects – Agricultural land quality (as defined by the ALC system)

11.10.3 During construction there is the potential for loss (temporary and permanent) of BMV land (defined as ALC Grades 1, 2, and 3a) from agricultural productivity as a result of the installation of infrastructure and facilities required for construction, such as compounds and access roads.

11.10.4 Available baseline information indicates that it is possible that all the agricultural land within the draft Order Limits comprises BMV land. Therefore, for the purpose of this assessment it is assumed that all the agricultural land within the draft Order Limits comprises BMV land which could be impacted (temporarily and permanently) and could be removed (temporarily and permanently) from agricultural production.

11.10.5 ALC Grade 1 and Grade 2 land is considered to have a **Very High** sensitivity, with Grade 3a land considered to have a **High** sensitivity. The total extent of all land within the draft Order Limits during construction is 477.22 ha. Of this 464.61 ha comprise agricultural land which is provisionally mapped as BMV land (Provisional Grades 2 and 3). The remaining area of land is categorised as non-agricultural and therefore not included in the agriculture and soils assessment.

11.10.6 Of this total, approximately 430 ha would be restored to preconstruction condition and ALC grade and therefore would be considered as having been temporarily impacted. Combining the temporary impact with Very High to High sensitivity represents **Minor** magnitude which would be a **Slight to Moderate** temporary adverse effect and would be considered **Significant.**

11.10.7 With all land required temporarily for construction being reinstated by the end of the construction phase there will be a total of 8.75 ha of agricultural land lost permanently for the required Converter station. An additional area of up to 20 ha may be used permanently for works including widening of existing roads, creation of new access routes, mitigation planting and drainage. The actual area will be confirmed once the design is finalised. The land is mapped as Provisional Grade 2 and 3 land and is therefore of **Very High to High** sensitivity. As such, this permanent loss would be of **Major** magnitude which would be a **Very Large** adverse effect which would be **Significant**.

11.10.8 ALC grade distribution for temporary and permanent land take within the English Onshore Scheme draft Order Limits is detailed in **Table 11-16**.

Table 11-16 Areas of ALC grades affected

	Provisional ALC grade land affected (ha)					
	Grade 2	**Grade 3**	***Potential BMV land***	**Non-agricultural**	**Other**	**Total**
Total Order Limits (Temporary)	143.21	321.40	*464.61*	0.04	12.57	477.22
Converter Station (Permanent)	8.75	0.00	*8.75*	0.00	0.00	8.75
Converter Station Access Routes (Permanent)	Est. approx. 20 ha		*Est. approx. 20 ha*			Est. approx. 20 ha
Highways Widening (Permanent)						

Preliminary assessment of effects – Soil function

11.10.9 During construction there would be disturbance to soils, from the soil stripping required to create the cable trench, access routes and working areas and for the footprint of the above ground infrastructure.

11.10.10 Soils within the draft Order Limits will be providing a range of soil functions, and as such are considered to have a range of sensitivities from **Very High** (for example in relation to carbon storage in organic soils) to **Low** (for example as a pathway for local water flows and flood risk management).

11.10.11 The stripping and stockpiling of soil resources would have a temporary effect on the soil function and ecosystem services provided. This could include affecting soil hydrology as well as soils' natural carbon storage ability. The implementation of effective soil handling, storage, and reinstatement measures, which will be detailed in the Outline SMP (submitted as part of the DCO application), will therefore be critical in ensuring minimisation of effects on these functions and the successful restoration and re-use of soils.

11.10.12 It is assumed that all land within the draft Order Limits may be temporarily impacted by construction activities involving soil handling, with soils temporarily affected being later reinstated to their pre-construction condition. The permanent loss of 20 to 30 ha of soils would affect the associated ecosystem services. However, where practicable, all surplus soil resources will be re-used within the English Onshore Scheme where, depending on the proposed land use, some ecosystem services will be retained, restored, or potentially enhanced. As such, it is considered that the effect of the construction phase on soil function and associated ecosystem services is assessed as being of **Minor** magnitude and thus a **Moderate to Neutral** effect and therefore considered **Significant**.

Preliminary assessment of effects – Agricultural land holdings / land use

11.10.13 Land use within the draft Order Limits is predominantly arable, and as such would be considered as **Low** sensitivity (i.e., the enterprise is not dependent on the spatial relationship of land to key agricultural infrastructure and access between land and infrastructure is required on an infrequent basis). For the purposes of this assessment, the presence of an agri-environment scheme is considered in relation to potential commercial benefits received.

11.10.14 During construction, agricultural land within the draft Order Limits would be taken out of use and there would be a temporary and permanent loss of productive agricultural land. The removal of land from an agricultural enterprise will be dealt with through compensation in accordance with the compensation code (which would include consideration of any active agri-environment scheme). As such it is considered that the temporary and permanent impacts would be of **Minor** to **Moderate** magnitude and thus a **Neutral** effect and therefore **Not Significant**.

11.11 Further Work to be Undertaken

11.11.1 The information provided in this PEIR is preliminary and the final assessment of potentially significant effects will be reported in the ES. This section describes further work to be undertaken to support the Agriculture and Soils assessment presented in the ES.

Baseline

11.11.2 Field data collection (soil and ALC surveys) are to be undertaken in Spring-Summer 2026. The survey outcome will be used to confirm the extent of each ALC grade affected, and the characteristics of the associated soils as a result of the English Onshore Scheme; this will be presented in the ES.

11.11.3 The soil and ALC survey and assessment will be undertaken in accordance with the Soil Survey Field Handbook (Ref 11.18) and the ALC Guidelines (Ref 11.6).

11.11.4 The detailed ALC survey will involve the examination of the soil's physical properties from which agricultural land grade as well as soil resilience can be calculated and assessed. Soil profiles will be examined with a hand-held soil auger and a spade at a sampling density of approximately one auger point per 100 m for linear sections of the English Onshore Scheme, and one auger point per hectare for wider areas such as the converter station. The soil profile will be examined at each sample location to a maximum depth of approximately 1.2 m by hand with the use of a 5 cm diameter Dutch (Edelman) soil auger. Soil pits will also be excavated by hand with a spade to examine certain soil properties, such as stone content and the structural condition of the subsoil, more closely.

11.11.5 Information on agricultural landholdings will be gathered via consultation with landowners to enable further assessment of the potential impacts on agricultural operations.

Assessment

11.11.6 The assessments undertaken for the PEIR will be reviewed following stakeholder consultation feedback and further design refinement. The following assessments will then either be updated or undertaken where they have not yet been undertaken for this assessment:

- Updated impact assessment on BMV land;
- Updated impact assessment on soil function and ecosystem services;
- Updated impact assessment on agricultural landholdings; and
- Cumulative effects assessment.

Further environmental measures

11.11.7 Consultation will be undertaken with relevant statutory consultees to define the scope and extents of the environmental measures set out in the assessment above. If, following stakeholder consultation feedback, further design refinement and further assessment, it is identified that additional measures are required, these will be detailed as part of the ES. Any further measures are likely to form part of the Outline CoCP and Outline SMP.

Bibliography

Ref 11.1 Defra (2009). Safeguarding our Soils. A strategy for England. Available online at: Safeguarding our soils: A strategy for England - GOV.UK [Accessed 16 December 2025].

Ref 11.2 Natural England (2021). Guide to Assessing Development Proposals on Agricultural Land. Available online at: Guide to assessing development proposals on agricultural land - GOV.UK [Accessed 16 December 2025].

Ref 11.3 Natural England (2012) Technical Information Note 049. ALC Protecting the Best and Most Versatile Agricultural Land. Available online at: Agricultural Land Classification: protecting the best and most versatile agricultural land - TIN049 [Accessed 16 December 2025].

Ref 11.4 The British Society of Soil Science (2022). Working with Soil Guidance Note on Benefitting from Soil Management in Development and Construction. Available online at: WWS3 - Benefitting from Soil - Management in Development and Construction - Jan 2022 [Accessed 16 December 2025].

Ref 11.5 British Standards Institute (2015). Specification for topsoil (BS3882:2015).

Ref 11.6 Defra & Welsh Government (2025) Agricultural Land Classification of England and Wales. Guidelines for grading the quality of agricultural land (JP069). Available online at: Agricultural Land Classification of England and Wales: Guidelines for grading the quality of agricultural land - JP069 [Accessed 16 December 2025].

Ref 11.7 Defra (2009). Construction Code of Practice for the Sustainable Use of Soils on Construction Sites. Available online at: Code of practice for the sustainable use of soils on construction sites - GOV.UK [Accessed 16 December 2025].

Ref 11.8 Institute of Quarrying (2021). Good Practice Guide for Handling Soils in Mineral Workings. Available online at: IQ Soil Guidance full document including all practitioner advice updated May 2022.pdf [Accessed 16 December 2025].

Ref 11.9 Institute of Environmental Management and Assessment (2022). A New Perspective on Land and Soil in Environmental Impact Assessment.

Ref 11.10 National Highways (2020) DMRB LA112 Population and Human Health.

Ref 11.11 Institute of Sustainability and Environmental Professionals (2025). Soil Health and Environmental Assessment. Available online at: New ISEP advice note: Soil health in environmental assessment [Accessed 16 December 2025].

Ref 11.12 Planning Inspectorate (2025) Scoping Opinion: Proposed Eastern Green Link 5. Available online at: EN0210010-000042-Scoping Opinion.pdf [Accessed 12 April 2026]

Ref 11.13 British Geological Survey (BGS) Geology Viewer. Available online at: https://geologyviewer.bgs.ac.uk/ [Accessed 16 December 2025].

Ref 11.14 National Soils Resources Institute at Cranfield University (NSRI) (2024). Soil data. Available online at: LandIS - Land Information System - Digital Soils Data Families [Accessed 16 December 2025].

Ref 11.15 Defra, Magic Map Application. Available online at: https://magic.defra.gov.uk/ [Accessed 16 December 2025].

Ref 11.16 Natural England (2024) Likelihood of BMV Agricultural Land map. Available online at: Natural England Access to Evidence - Likelihood of Best and Most Versatile Agricultural Land [Accessed 16 December 2025].

Ref 11.17 The Met Office (1989). Climatological Data for Agricultural Land Classification. Available online at: Climatalogical Data for Agricultural Land Classification - ALC010 [Accessed 16 December 2025].

Ref 11.18 Hodgson (2022). Soil Survey Field Handbook. Soil Survey Technical Monograph No.5, Cranfield.

Ref 11.19 ADAS (2020). A review to consider the practical implications of the UK Climate change Predictions 2018 (UKCP18). Available online at: 2018-19 Soil Policy Evidence Programme [Accessed 16 December 2025].

Ref 11.20 Department for Energy Security and Net Zero (2024). Overarching National Policy Statement for Electricity Networks Infrastructure (EN-5).

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

Registered in England and Wales
No. 4031152
nationalgrid.com