# East Pye Solar

## Environmental Statement

## Volume 1: Chapter 15 – Soils and Agricultural Land

**Revision 1**

**March 2026**

**Planning Inspectorate Reference: EN0110014**

**Document Reference: APP/6.1.15**

**APFP Regulation 5(2)(a)**

## Contents



## Plates

## Tables

# 15 Soils and Agricultural Land

## 15.1 Introduction

15.1.1 This chapter of the Environmental Statement (ES) presents the findings of the Environmental Impact Assessment (EIA) of effects on Soils and Agricultural Land as a result of the Scheme.

15.1.2 This chapter identifies and proposes measures to address the potential impacts and likely significant effects on soils and agricultural land and agricultural activity, during the construction, operation and maintenance, and decommissioning Phases.

15.1.3 The information presented within this chapter has been informed by the Scheme information provided in **ES: Chapter 4 The Scheme [EN0110014/APP/6.1.4]**.

15.1.4 The following aspects will be considered within the Soils and Agricultural Land assessment process:

- An assessment of potential effects upon on agricultural land and agricultural land quality, as measured under the system of Agricultural Land Classification (ALC). The assessment considers potential effects from construction and decommissioning works as well as any effects from ongoing management and maintenance during the operation and maintenance phase. The assessment considers the potential effects on Best and Most Versatile agricultural land (BMV);

- An assessment of potential effects upon soils, which considers disturbance effects of construction and decommissioning works as well as the potential for disturbance during the operation and maintenance phase and the potential for beneficial effects to soils from being rested from continual arable use for the duration of the operation and maintenance phase;

- An assessment of the potential effects on local agricultural businesses, their economic and other benefits. The assessment considers the disturbance and disruption during the construction phase and decommissioning phase, and the long-term impacts of changes to farming operations through the operation and maintenance phase; and

- An assessment of potential wider effects on food production and the wider rural economy. The assessment reviews current farming practices and potential farming practices and assesses the effects from changes to farming activities throughout the whole life of the Scheme.

15.1.5 This Soils and Agricultural Land Chapter has been prepared by appropriately qualified experts. For further details, refer to the **ES: Appendix 1.2 Statement of Expertise [EN0110014/APP/6.3.1.2]**.

15.1.6 A glossary of abbreviations can be found in **ES: Chapter 0 Contents, Glossary and Abbreviations [EN0110014/APP/6.1.0].**

## 15.2 Consultation

15.2.1 The Scheme has been subject to consultation throughout the DCO preparation period. A request for an EIA Scoping Opinion was sought from the Secretary of State (SoS) through the Planning Inspectorate (PINS) in January 2025. **ES: Appendix 2.2 Scoping Opinion [EN0110014/APP/6.3.2.2]** was adopted by PINS in February 2025.

15.2.2 The issues raised in the Scoping Opinion relating to Soils and Agricultural Land are summarised and responded to within **Table 15.1** which demonstrates how the matters raised in the Scoping Opinion are addressed in this ES.

## Table 15.1: Relevant Scoping Opinion Comments from Statutory Bodies relating to Soils and Agricultural Land

| Consultee and Date | Comment and Scoping Opinion ID No. | How has the comment been addressed in the ES chapter | Location of response in ES Chapter |
|---|---|---|---|
| **The Planning Inspectorate, Scoping Opinion, February 2025** | The effects on farming businesses during construction and decommissioning should be included. | The effects on farm businesses have been assessed from the start of construction to the end of decommissioning. | These impacts and effects are considered in **Section 15.8**. |
| **The Planning Inspectorate, Scoping Opinion, February 2025** | The effects of panel and battery replacement during operation can be scoped out. | The effects are considered within the outline Soil and Resources Management Plan **(Outline SRMP [EN0110014/APP/7.9]**). | An **Outline SRMP** accompanies the application **[EN0110014/APP/7.9]** |
| **The Planning Inspectorate, Scoping Opinion, February 2025** | The ALC survey should cover all the site including the Cable Route Corridor (CRC) unless there is a substantial justification. | The Applicant has been in correspondence with Natural England. The ALC surveys have been undertaken across the Sites. The ALC of the CRC will be undertaken pre-construction, once the cable route has been refined to a specific alignment within the CRC. | The Study Area is defined in **Section 15.5 Assessment Methodology.**<br>The impacts and effects are considered in **Section 15.8**, and the survey methodology is set out in the **Outline SRMP [EN0110014/APP/7.9]** |
| **Natural England, 10 February 2025** | The ALC survey should be used to inform micro-siting items such as the BESS to avoid BMV land, and this should be explained. | The ALC results have been used in refinement of the design and layout. | The ALC results and micro-siting are described in **Section 15.8.** |
| **Natural England, 10 February 2025** | A commitment should be made to reinstate all BMV land back to its former ALC grade following decommissioning. | The commitment is made in the **Outline SRMP [EN0110014/APP/7.9]**, to cover all items where restoration is proposed. | This is provided in **Section 15.8** and in the **Outline SRMP [EN0110014/APP/7.9]**. |

## Statutory Consultation and Preliminary Environmental Information Report (PEIR)

15.2.3 Statutory consultation was held between 18th June 2025 and 6th August 2025. Relevant responses to the PEIR relating to Soils and Agricultural Land and how these have been addressed through the ES are set out within **Consultation Report Appendix 10 Section 47 Applicant Response Table [EN0110041.5.11]** and **Consultation Report Appendix 11 Section 42 Applicant Response Table [EN0110041.5.12].**

## Further Engagement

15.2.4 Further engagement has been undertaken as part of stakeholder engagement specific to Soils and Agricultural Land, as detailed within **Table 15.2 Summary of Further Engagement Undertaken.**

### Table 15.2: Summary of Further Engagement Undertaken

| Consultee and Date | Summary of Matter | Response |
|---|---|---|
| **Natural England, 5 November 2025** | The Applicant set out proposals to undertake ALC and soil surveys of the CRC post DCO submission but pre-construction. | Response received. Natural England advised that detailed ALC surveys are carried out across all areas, including the CRC.<br><br>The ALC surveys have been undertaken across the Sites. The ALC of the CRC will be undertaken pre-construction, once the cable route has been refined to a specific alignment within the CRC. Further detail on the Study Area is provided in **Section 15.5 Assessment Methodology**, and the assessment section 15.8.<br><br>The soil survey and working methodology are set out in outline in the **Outline SRMP [EN0110014/APP/7.9]**. |

## Targeted Consultation

15.2.5 A further round of targeted consultation was undertaken between 22 October 2025 and 26 November 2025 following changes to the Order Limits presented in the PEIR and during Stage Two Statutory Consultation. The changes are documented in full in the **Consultation Report [EN0110014/APP/5.1].** These changes did not give rise to any materially new or different likely significant environmental effects compared to those reported in the PEIR. How these have been addressed through the ES are

set out within **Consultation Report Appendix 10 Section 47 Applicant Response Table [EN0110014/APP/5.11]** and **Consultation Report Appendix 11 Section 42 Applicant Response Table [EN0110014/APP/5.12].**

## 15.3 Legislation, Planning Policy and Guidance

15.3.1 A summary of applicable legislation, planning policy and other guidance documents against which the Scheme will be considered relating to Soils and Agriculture is set out in **ES: Appendix 2.3 Legislation, Planning Policy and Guidance [EN0110014/APP/6.3.2.3]**.

15.3.2 An overview of the legislation, planning policy and guidance against which the Scheme will be considered for the Soils and Agriculture assessment is set out below.

### Planning Policy

#### National Planning Policy

15.3.3 The National Policy Statements (NPS) are a suite of documents issued by the Secretary of State for Energy Security and Net Zero, setting out the government's policy for delivery of major energy infrastructure and represent the primary policy tests against which this DCO Application for the Scheme will be considered under section 104 of the Planning Act 2008. Listed below are the details of the elements of the NPS considered relevant to the Soils and Agricultural Land assessment.

- Overarching National Policy Statement for Energy (NPS EN-1) (Ref 15-2). Notably, paragraphs 5.11.3, 5.11.12, 5.1.13, 5.11.12, 5.11.14, 5.11.23, and 5.11.34.
- The National Policy Statement for Renewable Energy Infrastructure (NPS EN-3) (Ref 15-3) Notably, Section 2.10 'Solar Photovoltaic Generation', paragraphs 2.10.21, 2.10.81, 2.10.73, 2.10.119 and 2.10.137,
- The National Policy Statement for Electricity Networks Infrastructure (NPS EN-5) (Ref 15-5). Notably, paragraph 2.9.26.

15.3.4 The National Planning Policy Framework (NPPF) (Ref 15-6) (revised December 2024) sets out national planning policies that reflect priorities of the government for the operation of the planning system and the economic, social, and environmental aspects of the development and use of land. The NPPF has a strong emphasis on sustainable development, with a presumption in favour of such development. The NPPF has the potential to be considered both important and relevant to the SoS's consideration of the Scheme. The National Planning Policy Framework sets out in paragraph 187(b) that the economic and other benefits of BMV agricultural land should be recognised in planning decisions and in the context of plan making advises that poorer quality land should be used in preference.

### National Planning Practice Guidance

15.3.5 National Planning Practice Guidance (NPPG) (Ref 15-7) (the Planning Practice Guidance suite from 2015, in the category on *'Renewable and Low-carbon energy'*) advises (at Reference ID: 5-013-20150327) that factors a local planning authority will need to consider will include whether the proposed use of agricultural land has been shown to be necessary and poorer quality land has been used in preference, and the proposed use allows for continued agricultural use. This guidance is now ten years old. As set out in page 56 of the Clean Power 2030 Action Plan (Ref 15-8), this guidance was due to be updated in 2025 to provide clarity and updates, but at the time of writing no update has been provided.

### Local Planning Policy

15.3.6 The Scheme is located within the administrative areas of Norfolk County Council (NCC) and South Norfolk Council (SNC). SNC is the host authority. Local planning plan policies which are relevant to Soils and Agricultural Land and have informed the assessment are detailed below.

- Greater Norwich Local Plan (GNLP) (2024) Policy 2 makes no specific reference to agricultural land resources, or the use of agricultural land. Policy 3 also makes no reference to agricultural land, either the resource or its use.

- South Norfolk Development Management Policies DPD policy DM4.4 a) sets out that natural environmental assets are identified and will be protected from any significant harmful impact arising from new development. Supporting text at paragraph 4.27 identifies that this includes BMV agricultural land.

### Other Guidance

15.3.7 The assessment has been carried out in accordance with the following other guidance documents.

- Defra (2009) Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (Ref 15-4);

- Natural England's Technical Information Note TIN049 'Protecting the best and most versatile agricultural land' (Ref 15-9);

- Defra 2025 'ALC of England and Wales: Guidelines for grading the quality of agricultural land' (Ref 15-10);

- Institute of Quarrying (2021) 'Good Practice Guide for Handling Soils' (Ref 15-11);

- Institute of Sustainability and Environmental Professionals (2022) 'A New Perspective on Land and Soil in Environmental Impact Assessment (Ref 15-12);

- British Society of Soil Science (2022) 'Benefitting from Soil Management in Development and Construction' (Ref 15-13).
- Institute of Sustainability and Environmental Professionals (2025) 'Solar PV on Agricultural Land' (Ref 15-28).

## 15.4 Assessment Assumptions and Limitations

15.4.1 The Soils and Agriculture assessment has considered the following assumptions:

- That land within the Order Limits included for the purposes of creating areas of new habitat to accommodate species such as skylark will continue to be farmed, and there will be no physical disturbance to the soils other than disturbance required for agricultural activities (and consequently no adverse impacts on land quality) in these areas;
- That areas within the Order Limits included for the purposes of the CRC and related construction will be restored to comparable ALC grade at the end of the construction process;
- That disruption to farming operations of land adjacent to the CRC during construction will be managed so that all land is accessible. No assessment of short-term construction disruption is therefore provided in this Chapter.

15.4.2 There are only minor, non-significant limitations to the Soils and Agricultural Land assessment. These are (at the date of drafting this text):

(i) Parts of the mitigation and enhancement areas in Sub-Site 1C and Sub Site 1D, totalling 17.7ha, have not been surveyed for ALC. Works No. 5 relates to works to reconfigure and install new overhead lines. These works involve up to four new pylons (of which three would be associated with the repositioning of existing pylons and up to 1 new pylon). In the non-surveyed area the land quality is assumed (worst case) to be Grade 2. The total disturbance has been rounded up to 0.1 ha. The restringing works will not significantly affect ALC grading in these areas, and are covered in the **Outline SRMP [EN0110014/APP/7.9]**;

(ii) Part of the proposed panel areas within Sub-Site 2B, approximately 4.2ha, has not been surveyed. The adjacent land has been graded as Grade 2, and a reasonably worst-case assumption has been made that the unsurveyed land is also Grade 2;

(iii) Sub-Site 1C and Sub-Site 1D have not been surveyed. These are areas within which pylons may be relocated. The adjacent land has been graded as Grade 2, and a reasonably worst-case assumption has been made that the unsurveyed land is also Grade 2.

(iv) The CRC has not been the subject of ALC survey. This area will be disturbed temporarily for the cable works. The **Outline SRMP** [**EN0110014/APP/7.9**] sets out a survey methodology for this work to be undertaken pre-construction so that the ALC grade can be determined and retained post-cable-installation. The CRC covers a total area of 158.9ha, of which 156.3ha are numbered CRCs 1-14 and 2.6ha are unnumbered corridors;

(v) The Highway Works within the Order Limits were not surveyed, however there are non-agricultural land;

(vi) Analysis of the amounts and proportions of land of different quality in the County and District, as assessed in Section 15.8, are estimated based on the limitations of available data.

15.4.3 Where ground data is not available, reasonable worst-case assumptions have been made.

## 15.5 Assessment Methodology

15.5.1 This section sets out the scope and methodology for the assessment of the impacts of the Scheme on Soils and Agriculture.

### Sources of Information

15.5.2 The following sources of information that have been consulted in the preparation of this chapter:

- Provisional ALC mapping data (MAFF, 1983) (Ref 15-14) and Likelihood of BMV mapping data (Ref 15-15) and available survey data from the Multi-Agency Geographic Information for the Countryside (MAGIC) mapping tool (available online);
- Detailed ALC field survey carried out by Amet Property Ltd in July and August 2024 , covering 1,094 ha of agricultural land within the Order Limits (of which 16.4 were classified as 'not surveyed') (**ES: Appendix 15.1 Agricultural Land Classification [EN0110014/APP/6.3.15.1]**); and
- Farm interviews and a walk-over survey carried out by Kernon Countryside Consultants Ltd mostly in November 2025, including relevant farm records provided at that time, previously or subsequently.

15.5.3 The ISEP publication 'Solar PV on Agricultural Land: Essential Components of Environmental Assessments and Reports', published in January 2026 (Ref 15-28), contains four boxes of checklists. This assessment has been checked against those lists.

## Study Area

15.5.4 The Study Area for most of this assessment is limited to the Order Limits, as there would be no impact on land use or soils beyond this extent.

15.5.5 The assessment of soil and agricultural land quality has been informed by data collected during detailed ALC surveys undertaken for the Sites. See **ES: Appendix 15.1: Agricultural Land Classification Survey [EN0110014/APP/6.3.15.1]**. A detailed ALC survey involves sampling the land on a regular 100m grid using a soil auger and spade, examining soils down to 1.2m where feasible.

15.5.6 An ALC survey has not been undertaken for the CRC. A targeted soil survey and ALC survey of the CRC will be completed prior to construction, to inform the detailed SRMP, and to ensure that the cable works do not result in any adverse effects on land quality. This approach was accepted by the ExA and the Secretary of State in the Cottam Solar NSIP (EN010133) where at paragraph 4.72 of the Secretary of State's letter he says:

*'The Secretary of State agrees with the ExA that the cable corridor route, which was not covered by the survey, would be adequately secured in the oSMP'.*

15.5.7 Farm information collected has covered wider areas farmed beyond the boundary of the Order Limits by the businesses farming the Order Limits to inform the assessment of farm business impacts. Wider impacts on food production and for the cumulative assessment includes regional and national considerations. The farm information collected has related to the Works Areas excluding the CRC. The CRC works are short-term and temporary, and farm disruption will be short-term and temporary as a consequence.

## Potential Impacts

15.5.8 Embedded mitigation measures being incorporated into the design and construction of the Scheme are set out in **Section 15.7** below. Prior to the implementation of any mitigation (embedded and/or additional), the Scheme has the potential to have an effect (beneficial or adverse) on Soils and Agriculture receptors, during the construction, operation and maintenance, and decommissioning phases in the following ways:

- Adverse impacts on agricultural land quality. Agricultural land is generally resilient to vehicle movements (trafficking), but when soils are wet there can be impacts on soil structure, which may affect land quality. Impacts from compaction have to be considerable before land quality is downgraded, but there is the potential to affect land quality adversely whenever soil is moved, e.g. to create trackways, without careful handling and storing of soils;

- Adverse and beneficial impacts on soils. Soils are an important resource with many functions in addition to biomass production. Soils can be

adversely affected in terms of soil structure through being moved and handled in unsuitable conditions, and can deteriorate if stored in unsuitable conditions. Conversely resting soils from intensive arable use has the potential for benefits to soil structure and health;

- Adverse and beneficial impacts on occupying farm businesses. Farm businesses are resilient to change, as they are frequently adapting to external influences (weather, disease, commodity prices, Government support) and internal influences (health, personal wishes). They can be affected by land loss, land use change, severance or other disruptions; and

- Adverse and beneficial effects on the wider agricultural and rural economy. This could include the production of food and other agricultural products (industrial, biofuel), and the effects on the related sector such as on feed merchants, grain merchants, seed suppliers, machinery dealers, veterinary services, farm contractors etc.

## Impact Assessment Methodology

15.5.9 The Soils and Agriculture assessment follows the approach to undertaking EIA as explained in **ES: Chapter 2 EIA Methodology [EN0110014/APP/6.1.2]**. The methodology for attributing sensitivity of receptors, magnitude of impacts and the significance of effects in relation to Soils and Agricultural Land is described further below in this chapter of the ES and is based on the ISEP Guide 'A New Perspective on Land and Soil in Environmental Impact Assessment' (Ref 15-16). The chapter also covers all the considerations identified in the ISEP report 'Solar PV on Agricultural Land: essential components of Environmental Assessments and Reports' (Ref 15-28).

## Sensitivity of Receptor

15.5.10 The assessment methodology identifies the sensitivity of the various receptors in terms of their importance (e.g. BMV land quality) and their susceptibility to damage when being trafficked (e.g. sensitive soil type), as described in **Table 15.3 Sensitivity Criteria of Identified Receptor.**

15.5.11 Agricultural land quality in England and Wales is measured under a system of ALC. This determines the quality of land based on the long-term physical limitations of agricultural land for agricultural use, particularly climate, site and soil characteristics. The best quality land is Grade 1, the poorest Grade 5, with Grade 3 split into two subgrades (Grades 3a and 3b). The ALC survey was mostly carried out under the ALC revised guidelines 1988 (Ref 15-10). These were revised in December 2025 (Ref 15-25), but the climate data and methodology has not changed and the survey remains valid in accordance with the updated guidelines.

15.5.12 NPS EN-3 (Ref 15-3) identifies that Grades 1, 2 and 3a are the *'best and most versatile'*. These Grades, Natural England estimate, account for about

42% of all farmland in England, with an estimated 21% in Grades 1 and 2 and 21% in subgrade 3a. The resource is considered to be of national importance. The ISEP Guide considers land of ALC Grades 1 and 2 to be of 'very high' sensitivity, subgrade 3a to be of 'high' sensitivity, and land of Subgrade 3b to be of 'medium' sensitivity. Land of Grades 4 and 5 is 'low' sensitivity. As set out in the Scoping Report, grades 1, 2 and 3a have all been placed in the highest sensitivity category.

15.5.13 Soils, as a resource, can be affected by construction activities and by land use, both negatively and positively. The potential for adverse effects on soils is highest when they are wet (in a plastic state), and soils with small particles (e.g. clays) are more susceptible to damage. The ISEP Guide places clay soils in wetter climate areas in a higher sensitivity to damage category, with sandy soils in drier regions least susceptible. Wetness of soils is measured by hand, but the ISEP Guide also references the Field Capacity Days (FCD) measure from the ALC methodology as a guide to when soils are saturated. As identified in the Agricultural Land Classification Report (**ES: Appendix 15.1: Agricultural Land Classification Survey [EN0110014/APP/6.3.15.1**), the FCD for the Sites is under 150 days per year, and as a result no soil types are within the High Sensitivity category in **Table 15.3**. All soil is sensitive to damage, and consequently no soils are placed in the negligible category.

15.5.14 Farm businesses are continually subject to change, as noted earlier, as a result of internal and external forces and changes. Consequently these businesses are resilient to changes. Some farms are, however, more susceptible to changes than others. Dairy farms reliant upon access to grazing land within walking distance of the farm buildings, for example, may be more sensitive to changes close to the farmyards than arable farms where whilst there may be cost and time implications, the particular land for fields may be less important. No farms are placed in the high sensitivity category as a result.

15.5.15 The wider rural economy is also resilient to change, including the production of food, production of non-food crops, biodiversity, and the wider rural economic implications. These factors are consequently of low sensitivity.

15.5.16 The sensitivity of likely impacted receptors, defined depending on the vulnerability, recoverability and value/importance of the receptor, to potential effects arising from the Scheme is assessed in line with the below, as detailed in **Table 15.3 Sensitivity Criteria of Identified Receptor**. These criteria draw from the ISEP Guide and professional judgement.

**Table 15.3: Sensitivity Criteria of Identified Receptor**

| Sensitivity | ALC Grade | Sensitivity of topsoil and subsoil | Agricultural businesses and related effects |
|---|---|---|---|
| **High** | Land of ALC Grades 1, 2 and subgrade 3a. | There are no soils of high sensitivity in this climatic area. | No farm businesses are considered to be of high sensitivity. |
| **Medium** | Land of ALC Subgrade 3b. | High clay soils where the FCD is <150, or medium textured soils where the FCD is <225. | Full-time businesses, and farm businesses where the location of land is particularly important such as dairy farms. |
| **Low** | Land of ALC Grades 4 and 5. | Soils with a high sand fraction where the FCD is <225. | Part-time farms or farms with low sensitivity to change, e.g. arable land held on short-term arrangements. Wider effects on production and the rural economy |
| **Negligible** | Land of ALC Grades 4 and 5 with only indirect links. | No soils are considered to be of negligible sensitivity. | Agricultural land that is not farmed or does not form part of a farm business. |
| *Field Capacity Days: days when the soil is replete with water | | | |

## Magnitude of Impact

15.5.17 The categorisation of the magnitude of impact takes into account the following factors:

- Extent
- Duration
- Frequency; and
- Reversibility

15.5.18 The magnitudes for impacts on Soils and Agriculture are based on the thresholds set out in the Scoping Report (**ES: Appendix 2.1 EIA Scoping Report [EN0110014/APP/6.3.2.1]**), as detailed in **Table 15.4**. A medium magnitude impact occurs when 20 hectares (ha) or more of land is lost, by permanent sealing or downgrading. This equates with the threshold for consultation with Natural England.

15.5.19 The ISEP Guide defines a '*temporary, reversible loss of soil-related features*' as a low magnitude impact and this has been adopted for this assessment. The ISEP Guide does not distinguish between short-term and long-term temporary or reversible loss. The footnote to **Table 15.4** notes that '*temporary developments can result in a permanent impact if disturbance of*

*land use change causes permanent damage to soils*'. Therefore, provided that the works are reversible, all temporary development forming part of the Scheme is categorised as 'low magnitude**'.**

15.5.20 The ISEP Guide does not provide magnitude definitions for farm businesses, although effects are described in paragraph 8.3.3 of the ISEP Guide. The criteria in **Table 15.4** are based on professional judgement. The methodology considers farm businesses to be more resilient to change. Farm businesses are continually adapting to change, caused by external factors (weather, disease, government policy), internal factors (management, finances, personal wishes) and economic factors (crop prices, input costs). Some businesses are less resilient to change because of their relationship with land (e.g. a dairy herd needing access for cows to walk to grassland), others are more resilient (e.g. arable farms and access to arable fields). Full-time businesses that would be terminated by the Scheme are identified as a high magnitude of impact, with farm businesses less affected being identified as medium or low magnitude impacts.

15.5.21 The magnitude of impact is the level of change caused by the Scheme and is defined in **Table 15.4**. For soils and agricultural land the same magnitude thresholds are used.

**Table 15.4: Criteria for Determining Magnitude of Impact**

| Magnitude of Impact | Definition | |
|---|---|---|
| | Effects on Soils and Agricultural Land | Effects on Agricultural Businesses |
| **High** | The Scheme would directly lead to the loss (including permanent sealing or land quality downgrading) of over 50ha of soil-related features; or potential for improvement in one or more soil functions over an area of more than 50ha. | The impact of the Scheme would render a full-time agricultural business non-viable. |
| **Medium** | The Scheme would directly lead to the loss (including permanent sealing or land quality downgrading) over an area of between 20 and 50ha of soil-related features; or potential for improvement in one or more soil functions over an area of between 20ha and 50ha. | The impact of the Scheme would require substantial changes in the day-to-day management of a full-time agricultural business, or closure of a part-time agricultural business. Loss of buildings or impacts on drainage or water supplies affecting the potential for at least 5ha of adjacent land to be farmed fully. |
| **Low** | The Scheme would directly lead to the loss (including permanent sealing or land quality downgrading) of less than 20ha of soil-related functions; or potential for improvement in one or more soil functions over an area of less than 20ha; or temporary, reversible loss of soil-related features. | Land take would require only minor changes in the day-to-day management / structure of a full-time agricultural business or land take would have a significant effect on a part-time business. Minor effects, direct or indirect, on surrounding land beyond the boundaries of the Site. |

| Magnitude of Impact | Definition | |
|---|---|---|
| | Effects on Soils and Agricultural Land | Effects on Agricultural Businesses |
| **Negligible** | No discernible loss or reduction or improvement of soil functions or volumes. | Land take would require only negligible changes in the day-to-day management of a full-time agricultural business or land take would require only minor changes to a part-time farm business. |

## Categorising Scale of Effect

15.5.22 The predicted significance of the effect is determined through a standard method of assessment and based on professional judgement, considering both the sensitivity of the receptor and the magnitude of the impact, as shown in **Table 15.5**.

15.5.23 There are four categories demonstrating the scale of effect:

- Negligible;
- Minor;
- Moderate; and
- Major.

### Table 15.5: Scale of Effect

| Magnitude of Impact | Sensitivity | | | |
|---|---|---|---|---|
| | High | Medium | Low | Negligible |
| **High** | Major | Moderate | Minor | Negligible |
| **Medium** | Moderate | Minor | Minor | Negligible |
| **Low** | Minor | Minor | Minor | Negligible |
| **Negligible** | Negligible | Negligible | Negligible | Negligible |

15.5.24 The nature of effects will be defined as either beneficial or adverse.

### Determining Significance of Effect

15.5.25 **Table 15.5** identifies that a high magnitude impact (the loss by permanent sealing or land quality downgrading of in excess of 50ha of land) on a high sensitivity Receptor (BMV agricultural land), results in a major scale of effect. A loss of 20 – 50 ha (medium magnitude of impact) of BMV (high sensitivity Receptor) results in a moderate scale of effect, as would the loss of >50 ha (high magnitude of impact) of Subgrade 3b land (medium sensitivity Receptor).

15.5.26 For the EIA, effects that are major or moderate are considered to be significant. Effects that are minor or negligible are considered to be not significant.

15.5.27 Effects are considered in terms of whether they are adverse or beneficial. Impacts are considered in terms of whether they are of national or local significance. Impacts on land of BMV quality are of national significance, whereas impacts on land of Subgrade 3b or lower, and impacts on farm businesses, are of local significance.

15.5.28 The assessment also considers whether the effects are temporary or permanent. This affects overall significance. The reversibility of an effect will influence the assessment of significance. Temporary short term impacts are less significant than temporary long-term impacts. Table 3 of the ISEP Guide places '*temporary, reversible loss of soil-related features*' in the low magnitude category, as described in 15.5.18. Accordingly temporary effects are no more than low magnitude.

15.5.29 All temporary effects are less significant than permanent impacts.

## 15.6 Baseline Conditions

### The Order Limits

15.6.1 The Scheme is located within the administrative areas of Norfolk County Council (NCC) and South Norfolk Council (SNC) who are the host authorities. A full description of the Order Limits is provided in **ES: Chapter 4 The Scheme [EN0110014/APP/6.1.4]**.

### Existing Baseline

15.6.2 The baseline conditions are assessed in this Section. This includes a review of published information and presenting the results of field surveys. The baseline conditions assessed are:

- Agricultural land quality;
- Soils and soil type; and

- Agricultural businesses and local agricultural circumstances.

### Agricultural Land Quality

15.6.3 Agricultural land is measured under a system of ALC. This grades land based on the long-term physical limitations of land for agricultural use, including climate (temperature, rainfall, aspect, exposure and frost risk), site (gradient, micro-relief and flood risk) and soil (texture, structure, depth and stoniness) criteria, and the interactions between these factors determining soil wetness, droughtiness and utility. The system is described in Natural England's Technical Information Note TIN049 (2012) (Ref 15-9). The ALC Guidelines were updated in December 2025 (Ref 15-10), after the ALC fieldwork was completed (**Appendix 15.1**) but this has not altered the methodology and the ALC survey remains valid and in full accordance with the 2025 updated ALC guidelines.

15.6.4 The Ministry of Agriculture, Fisheries and Food (MAFF) produced a series of '*provisional*' ALC maps in the 1970s (Ref 15-14). These were reprinted by Natural England in 2010. These maps were produced at a scale of 1:250,000 and are for strategic purposes only. They do not show the subgrades of Grade 3. As described in TIN049 (Ref 15-9) these maps are not suitable for use in site-specific circumstances, but they provide information for use in wider landscape planning.

15.6.5 The published 1:250,000 scale provisional map for the East of England shows the Order Limits to be mostly undifferentiated Grade 3 with a small area of Grade 4. **Plate 15.1** Provisional ALC Map below shows the provisional ALC map for the Order Limits and Surrounding Area, including the original CRC, based on the digitised version of the provisional ALC. The wider CRC is included as that shows that, as part of the cable route refinement, land quality was not identified as differing and therefore did not influence final routing.

15.6.6 Grade 3 is 'good to moderate' quality. The 1:250,000 provisional maps were produced before Grade 3 was subdivided into subgrades. Accordingly, the subdivisions of Grade 3, which are 3a 'good' and 3b 'moderate', are not shown on the map. Grade 4 is 'poor quality' agricultural land.

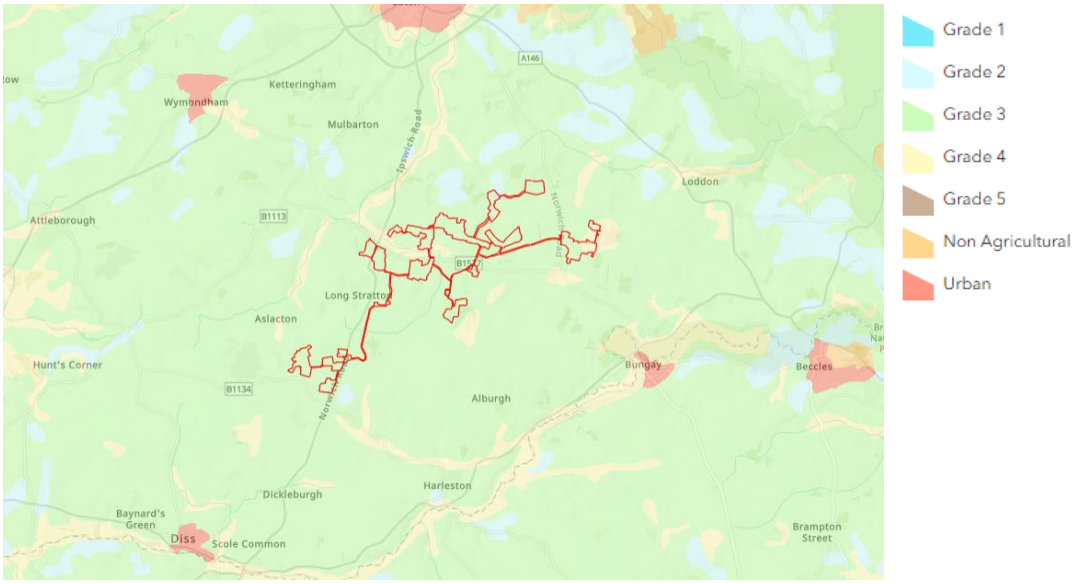


**Plate 15.1: Provisional ALC Map for the Order Limits and Surrounding Area**

15.6.7 In 2017, Natural England published a series of maps, also at 1:250,000 scale, showing the likelihood of BMV land[1]. These maps divide the likelihood of BMV land into three categories: low (<20% area BMV), moderate (20%-60% area BMV) and high (>60% area BMV). The majority of the Order Limits is shown in the 'moderate likelihood of BMV (20 – 60% area BMV)' category, which is also predominant across the wider area. Sub-Sites 4A and 4B are mostly in the 'high likelihood of BMV'. **Plate 15.2** shows the predictive BMV maps for the general area, with the Order Limits marked in black.

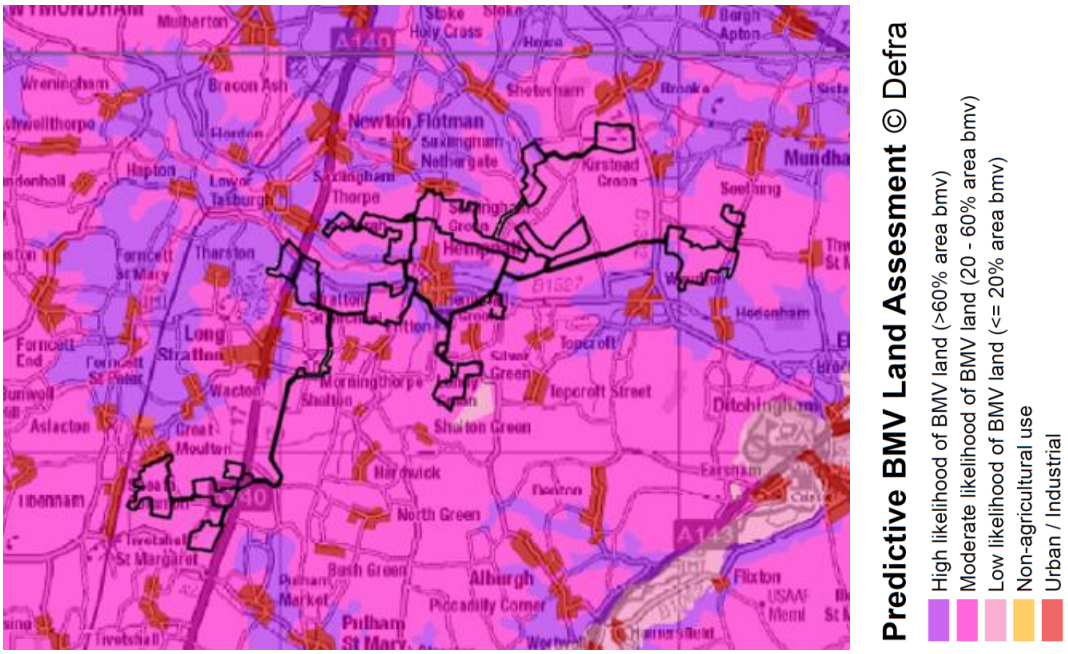


**Plate 15.2: Predictive Likelihood of BMV**

[1] Natural England 1:250,000 Likelihood of Best and Most Versatile (BMV) Agricultural Land 'East Region' (2017)

15.6.8 Across the wider geographic area beyond the Order Limits, as shown on **Plate 15.3**, the only land shown as falling into the low likelihood of BMV is bordering the River Witham and Yare, plus an area near Framlingham Earl. Only modest parts of the Order Limits are shown as of high likelihood of BMV.

15.6.9 The Order Limits therefore mostly falls within the lowest category for the likelihood of BMV land in the wider area.

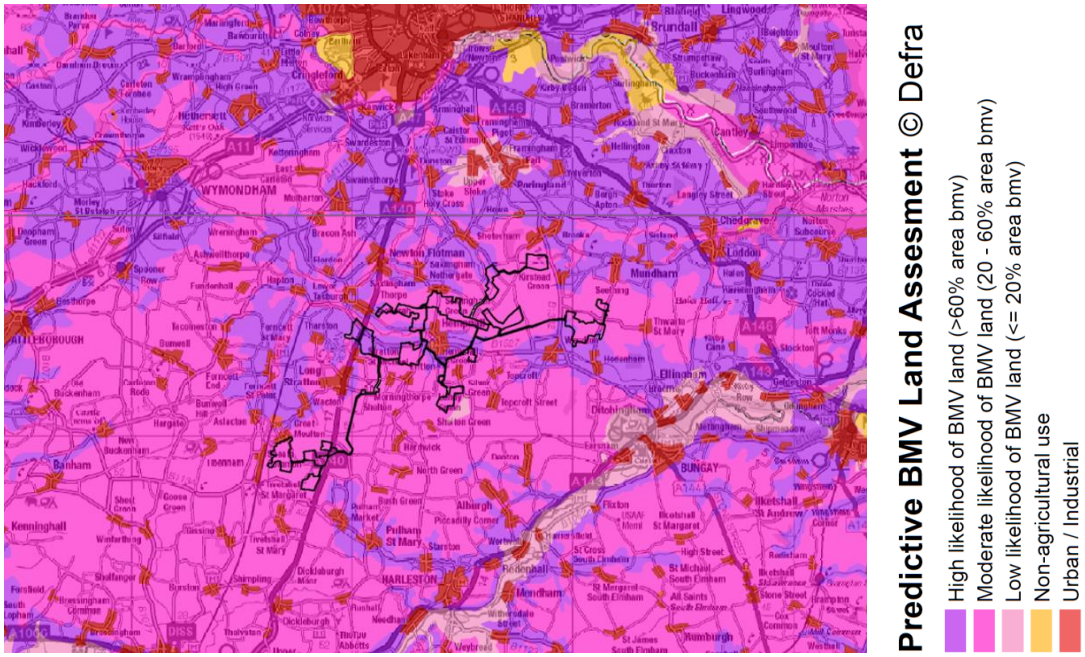


**Plate 15.3: Predictive Likelihood of BMV, Wider Area**

## Surveys

15.6.10 An ALC Survey (**ES: Appendix 15.1 Agricultural Land Classification [EN0110014/APP/6.3.15.1]**) has been carried out. The land quality has been assessed at a density of one auger sample per hectare, and in accordance with the ALC methodology (MAFF, 1988 (Ref 15-10) The ALC survey results are set out in **ES: Appendix 15.1 [EN0110014/APP/6.3.15.1]**.

15.6.11 The surveyed area extends to 1,078 hectares, this largely covers Sites 1-10 (as shown on **ES: Figure 15.1 ALC Results**). Areas of the Order Limits not surveyed are as described in **Section 15.5** and extend to 16.4ha.

15.6.12 The ALC results for the area surveyed, rounded to the nearest 0.1 hectare, is presented in **Table 15.6**.

### Table 15.6: ALC Survey Results Sites 1-10 and the BESS

| Grade | Description | Area (ha) | Proportion of O/L (%) | Proportion of 1-10 and BESS (%) |
|---|---|---|---|---|
| **1** | Excellent | 0 | 0 | 0 |
| **2** | Very good | 397.4 | 32.8 | 37.7 |
| **3a** | Good | 431.7 | 35.6 | 41.0 |
| **3b** | Moderate | 170.3 | 14.0 | 16.2 |
| **4** | Poor | 28.1 | 2.3 | 2.7 |
| **5** | Very poor | 0 | 0 | 0 |
| **N/S** | Not surveyed | 16.4 | 1.4 | 1.5 |
| **N/A** | Non-agricultural | 9.5 | 0.8 | 0.9 |
| **Total Sites 1-10 and BESS** | | **1,053.4** | **-** | **-** |
| **CRC (not surveyed)** | | **158.9** | **13.1** | **0** |
| **Highway Works (not surveyed)** | | **2.02** | **0.17** | |
| **Total Order Limits** | | **1,212.3** | **100.0** | **100.0** |

(All figures rounded to nearest whole hectare)

15.6.13 The land quality for the areas proposed for solar PV arrays (Works No. 1), is recorded in **Table 15.7**.

### Table 15.7: Survey Results for Works No. 1

| Grade | Description | Area (ha) | Proportion of Works Area 1 (%) |
|---|---|---|---|
| **1** | Excellent | 0 | 0 |
| **2** | Very good | 198 | 34.0 |
| **3a** | Good | 272 | 46.6 |
| **3b** | Moderate | 105 | 18.0 |
| **4** | Poor | 8 | 1.4 |
| **5** | Very poor | 0 | 0 |
| **NA** | Non-agricultural | 1 | 0 |
| **Total** | | 584 | 100.0 |

(All figures rounded to nearest whole hectares)

### ALC

15.6.14 The land quality within the Order Limits therefore includes BMV land which is of high sensitivity (68.4%) (**Table 15.3**), Subgrade 3b (14%) which is of medium sensitivity, and land of Grade 4 (2.3%) which is of low sensitivity.

### Soils and Soil Type

15.6.15 Soils have been mapped historically by the Soil Survey of England and Wales (SSEW) at a 1:250,000 scale. The SSEW mapping identifies that the

soils are mostly in the 711r Beccles 1 association, with areas in the 572n Burlingham 1 association, as shown on **Plate 15.4**, an extract from the SSEW map.

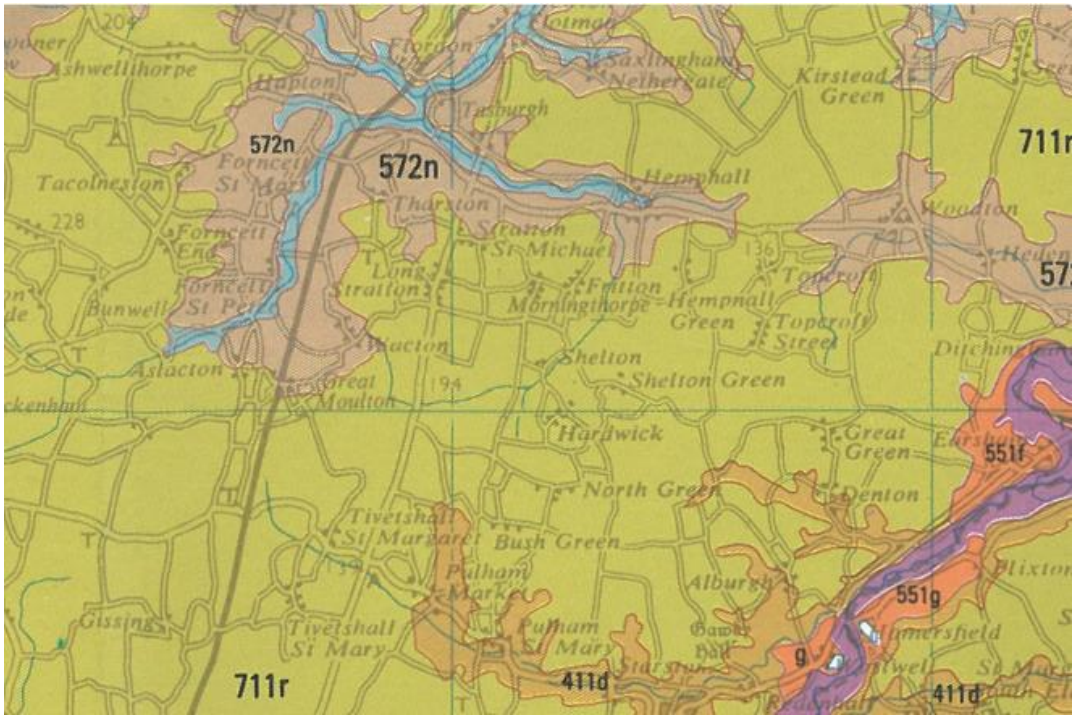


**Plate 15.4: Extract from the SSEW Map**

15.6.16 These soils are described as follows:

- Beccles 1 association: slowly permeable, seasonally waterlogged, fine loamy over clayey soils;
- Burlingham 1 association: deep coarse and fine loam soils with slowly permeable subsoils and slight seasonal waterlogging.

15.6.17 As described in the ALC (**ES: Appendix 15.1 Agricultural Land Classification [EN0110014/APP/6.3.15.1]** the soils found on the survey were broadly similar to those described on the published plans except that it was widely identified that the clayey soils were lighter than expected, and more than expected were calcareous. The lighter texture and the calcareous nature of the topsoil means that, for ALC, the land quality was generally higher than had been expected from the published information.

15.6.18 Photographs of soils from 49 sample points are set out in the ALC report (**Appendix 13.2**). The following are a small selection. They show the different horizons within the soil profile of topsoil (1), upper subsoil (2) and lower subsoil (3).


**Plates 15.5 and 15.6: Grade 2 Soils**


**Plates 15.7 and 15.8: Subgrade 3a Soils**

15.6.19 The following photographs show land of subgrade 3b quality:

**Plates 15.9 and 15.10: Subgrades 3b topsoil**

15.6.20 As identified in the ALC (**ES: Appendix 15.1 Agricultural Land Classification [EN0110014/APP/6.3.15.1]**), the climate of the area has a Field Capacity Days of 110 – 124 across the surveyed area. Only medium and high clay soils fall into the medium sensitivity in this climatic area (**Table 15.3** with a full list in the ISEP Guide). Overall, the soils are considered to be a mixture of medium and low sensitivity.

### Agricultural Business Circumstances

15.6.21 The majority of the land within the Order Limits is used for arable cropping. This includes combinable crops such as wheat, barley, oilseed rape and a wide range of arable break crops, as well as some sugar beet. Parts of the Order Limits are used for agri-environmental farming uses. Some of the Order Limits is used for biofuels (miscanthus) (Site 4A). Part of the Order Limits is grassland grazed by livestock (Site 7F).

15.6.22 A more detailed analysis of the land use and farming operations on each of the land parcels is presented in the Farm Reports (**ES: Appendix 15.2 Farm Reports [EN0110014/APP/6.3.15.2]**). The majority of land, as noted, is large-field arable farming. For the purposes of illustrating this Chapter of the ES, **plates 15.11 to 15.21** show views of parts of the Site, as identified. More extensive views are set out in the Farm Report's (**ES: Appendix 15.2 Farm Reports [EN0110014/APP/6.3.15.2]**).

15.6.23 Sites 1 and 2 and the BESS Site, on the western side of the Order Limits, are level, open fields. Plate 15-11 shows part of the BESS Site.

**Plate 15.11: Looking SE over the site for the BESS**

15.6.24 **Plate 15.12** shows a view looking north over part of Site 2.

**Plate 15.12: North over Site 2B**

15.6.25 Site 3 is generally level, arable land, illustrated in **plate 15.13**.

**Plate 15.13: Looking South over Site 3**

15.6.26 Site 4 lies either side of the A140. Part of this site is used for growing miscanthus. Part of the site is shown on **Plate 15.14**.

**Plate 15.14: Looking North West over Site 4B**

15.6.27 Site 5 has a gentle undulating. It is all under arable cropping, illustrated in the following photograph.

**Plate 15.15: Looking North over part of Site 5B**

15.6.28 Site 6 is not proposed for panels. It is shown in the photograph below.

Plate 15.16: Looking Nest over Site 6

15.6.29 Site 7 encompasses a number of smaller parcels from Tasburgh in the west, but the land form is generally similar. Additional photographs are provided in the **Commitments Register** [**EN0110014/APP/7.26**]

Plate 15.17: Looking North East over Site 7F

Plate 15.18: Looking North East over Site 7C

15.6.30 Site 8 is proposed for extensive areas of mitigation and enhancement. The Plate below looks South East over part of Site 8 proposed (in the foreground for enhancement uses.

Plate 15.19: Looking South East over Site 8

15.6.31 Site 9 is proposed for mitigation and enhancement, with panels at the eastern side, as shown on **Plate 15.20**.

Plate 15.20: Looking North over Site 9

15.6.32 Site 10 is a level area of arable land, illustrated on **Plate 15.21**.

Plate 15.21: Looking South over Site 10B.

15.6.33 Within Sites 1-10 there are no fixed agricultural facilities, with no buildings, no irrigation reservoirs, no concrete pads (e.g. for sugar beet) or other infrastructure.

15.6.34 There are seven farming businesses occupying Sites 1-10 plus the BESS Site. They are summarised in **Table 15.8**.

**Table 15.8: Summary of Farm Businesses**

| Farm Name | Area Farmed | Summary of Farming Enterprise |
|---|---|---|
| **Farm Business 1** | 220 ha | Mostly arable farm with a combinable rotation of crops (wheat barley beans) sold to grain merchants for human consumption. Has a small herd of suckler cattle. |
| **Farm Business 2** | 810 ha | Mostly arable enterprise with poultry enterprise. Growing a variety of crops (wheat, barley, oats, oilseed rape (OSR), beans, peas, triticale, linseed, miscanthus and maise). Crops sold for animal and human consumption, cover crops used for game cover. |
| **Farm Business 3** | 460 ha | Arable farm with a rotation of combinable crops (wheat, barley, OSR, oats) some land has been taken out of production for SFI. |
| **Farm Business 4** | 200 ha | Livestock farm with approximately 100 head suckler herd and up to 300 sheep. Cattle are sold off as stores |
| **Farm Business 5** | 231 ha | Arable farm growing combinables (wheat, barley and OSR). Some land set aside for countryside stewardship and SFI. Grain sold mostly to local mill for animal feed some sold to merchants |
| **Farm Business 6** | 400 ha | Arable farm growing a mix of combinables and sugar beet. Sugar beet is grown for use in AD plants, combinables sold to merchants. Rents out a small parcel of land for grazing. |
| **Farm Business 7** | 570 ha | Arable farm growing combinables (wheat, beans and OSR). Contractors carry out majority of farm work. Combinables sold to merchants. |
| **Farm Business 8** | 570 ha | Arable farm growing combineables, parsley, ley grass and sugar beet, plus agri-environmental crops sold for human, animal or energy use. |
| **Farm Business 9** | - | Land all farmed by contractors. |

15.6.35 The sensitivity of the agricultural businesses are assessed as follows:

- 8 of the farm businesses are full-time farm businesses, one is farmed by contractors but as part of a full-time contract with other land;
- All the land within the Order Limits (excluding the CRC) is arable, grassland or under biodiversity management, with none of the land used for location-sensitive land uses such as dairy farming;
- Consequently all of the farm businesses are classified as of low sensitivity in **Table 15.3**.

### Agriculture in the Area

15.6.36 The farms involved in the BESS site and Sites 1-10 operate mostly arable cropping of cereals with combinable break crops coupled with some sugar beet and agri-environmental land management. Some livestock grazing is undertaken.

15.6.37 **Table 15.9** sets out a summary of the agricultural enterprises operated on a county basis and, albeit the data is more limited, on a local authority basis. This is included to set baseline information. The County and local planning authority data (published periodically) is set out below. Some local authority data is amalgamated, and only limited data is available for South Norfolk in isolation.

### Table 15.9: Statistics for Norfolk

| Measurement | Norfolk County Area (ha) [1] | Breckland and South Norfolk (2024) | South Norfolk (2024) [2] |
|---|---|---|---|
| **Total no of holdings** | 3,239 | 1,528 | 735 |
| **To area of holdings (ha)** | 417,633 | 175,181 | 73,418 |
| **Arable crops and uncropped arable land (ha)** | 297,889 | 122,238 | - |
| **Uncropped arable land (ha)** | 45,138 | 20,353 | - |
| **Temporary grass (c 5 years old) (ha)** | 19,340 | 8,153 | - |
| **Permanent grass (ha)** | 54,135 | 25,954 | - |
| **Total cereals (ha)** | 163,421 | 68,251 | 33,055 |
| **Potatoes (ha)** | 11,032 | 2,388 | - |
| **Sugar beet (ha)** | 31,962 | 8,350 | - |
| **Total no of sheep** | 124,996 | 57,109 | 11,738 |

[1] **Totalling Norwich and East Norfolk, North and West Norfolk and Breckland and South Norfolk categories** (Ref 15-26).

[2] **Limited data available at this level** (Ref 15-27).

15.6.38 The data enables the following analysis for Norfolk and Breckland and South Norfolk.

(i) 71.3% of agricultural land in Norfolk is arable land (cropped and uncropped);

(ii) in 2024, 15% of arable land in Norfolk was uncropped;

(iii) 69.8% of Breckland and South Norfolk is arable land (cropped and uncropped);

(iv) in 2024 16.7% of arable land in Breckland and South Norfolk was uncropped;

(v) in both analyses approximately 55% of arable land is used for growing cereals.

### Future Baseline

15.6.39 The land within the Order Limits is currently farmed by a mixture of arable cropping, agri-environmental land management, and areas of outdoor livestock production. In the absence of the Scheme, this is likely to continue. There will likely be changes to the type and mix of farming, influenced by many factors, but continued agricultural use is assumed.

15.6.40 In the short to medium term, it is likely that greater areas within the Order Limits will be used for agri-environmental or environmental land management, as indicated in line with predictions in HM Government's Land Use Consultation, January 2025 (Ref 15-17),which included an analysis that 19% of England's agricultural land may need to change to uses for environmental and climate benefits, of which half would likely retain some food production in combination, but half would not involve food production.

## 15.7 Embedded Mitigation

15.7.1 Based on the published 'provisional' ALC maps, and the Likelihood of BMV maps, which represent all the available ALC information without field survey, the Order Limits was identified as likely to be some of the lowest quality land in the wider area. This was shown on Plates 15-1 and 15-2, with a wider area shown on Plate 15-3. It is evident that, in respect of initial site selection within a reasonable distance of the connection point, no land is identified as likely to be of a lower quality or overall proportionate lower mix of BMV quality.

15.7.2 Subsequent detailed ALC survey and soil survey has identified the soils and land quality of the Sites, which has identified a mix of mostly Grades 2 and 3a, with areas of Subgrade 3b, and small areas of Grade 4.

15.7.3 The areas identified for solar PV arrays has been reduced within the area surveyed for ALC. The micro-siting of elements within the design has in part been driven by the land quality, but that is only one of many considerations, especially as (as described in **Section 15.8**) the installation of solar panels does not adversely affect land quality. The Assessment of Likely Effects **Section 15.8** reviews, for each of the key components of the Scheme (and, in particular, the location of temporary and fixed equipment involving disturbance to soils), the design considerations including how the use of BMV land considered and minimised where possible, is described and

explained. Micro-siting to minimise the use of BMV particularly relates to fixed equipment and woodland planting.

15.7.4 In accordance with paragraph 5.11.12 of NPS EN-1, the likely or potential adverse effects have been minimised or avoided by good practice works embedded into the Scheme in the **Outline CEMP [EN0110014/APP/7.1]** and the **Outline SRMP [EN0110014/APP/7.9]**, upon which the detailed equivalent management plans (i.e. the CEMP and SMP) will be produced, secured by respective requirements of the **draft DCO [EN0110014/APP/3.1]**.

15.7.5 Likely environmental effects have been or will be avoided, minimised, mitigated or reduced through design measures and/or management of the Scheme, as outlined in this section. Proposed environmental enhancements are also described where relevant.

15.7.6 The following embedded mitigation measures have been incorporated into the Scheme's design.

## Embedded Construction Phase Mitigation

15.7.7 Construction effects may arise as a result of impacts on soils (and thereby on land quality), either from physical movement of the soils or physical movement across the soils by vehicles. As part of the Soils and Agriculture assessment, the **Outline SRMP [EN0110014/APP/7.9]** has been developed to help guide good practice and minimise potential effects on soils and agricultural land quality. This has been submitted with the DCO Application, and forms the basis for a detailed Soil Resource Management Plan which will be produced and approved pursuant to a requirement of the **draft DCO [EN0110014/APP/3.1]**.

15.7.8 Construction of the Scheme will involve vehicle trafficking over agricultural land. There is the potential for the soil to be adversely affected by vehicular movement if not managed properly. However, the **Outline SRMP [EN0110014/APP/7.9]** includes measures to mitigate adverse effects to soils (e.g. compaction monitoring).

15.7.9 A number of potential impacts are capable of mitigation by the careful use and handling of soils. These potential impacts are generally assumed to be mitigated during the Construction Phase in this assessment and are assumed to be capable of being controlled (for the purposes of mitigation and impact minimisation) through the detailed Soil Resource Management Plan.

15.7.10 The following embedded mitigation measures have been incorporated into the Scheme's design for the Construction Phase and are set out in the **Outline SRMP [EN0110014/APP/7.9]**:

- Minimising or avoiding vehicle movement over soils (trafficking) when soils are in a plastic, wet state;

- Only moving soils, which is only necessary for limited areas such as to build tracks, the BESS and substation areas, when soils are dry;
- For the mostly small volumes of soils that need to be stored for subsequent restoration, placing them into storage bunds when they are dry, and managing and maintaining the bunds;
- Minimising trench widths, replacing soils in the reverse order and preventing any adverse long-term effects on land quality; and
- Following the advice set out in the **Outline SRMP** [**EN0110014/APP/7.9**].

15.7.11 Embedded construction phase mitigation for the cable route corridor is provided in the **Outline Cable Route Construction Statement** [**EN0110014/APP/7.21**] and the **Outline SRMP** [**EN0110014/APP/7.9**].

### Embedded Operation and Maintenance Phase Mitigation

15.7.12 The following embedded mitigation measures have been incorporated into the Scheme's design for the operation and maintenance phase:

- Minimising travel over the land in vehicles when ground conditions are wet; and
- Implementation of the **Outline SRMP** [**EN0110014/APP/7.9]**.

### Embedded Decommissioning Phase Mitigation

15.7.13 The following embedded mitigation measures have been incorporated into the Scheme design for the Decommissioning Phase:

- Following the same timing principles as are to be applied at the Construction Phase; and
- Implementation of the **Outline SRMP** [**EN0110014/APP/7.9]**.

## 15.8 Assessment of Likely Effects

15.8.1 This section of the Soils and Agriculture chapter identifies and characterises potential impacts arising during the construction, operation and maintenance, and decommissioning phases of the Scheme.

15.8.2 Taking into account the embedded mitigation measures detailed in **Section 15.7**, the potential for the likely effects of the Scheme on Soils and Agriculture receptors has been assessed using the methodology detailed in **Section 15.5** of this chapter. In the sections below, effects during the construction, operation and maintenance, and decommissioning phases of

the Scheme are assessed for all the Soils and Agriculture receptors scoped into this ES assessment.

15.8.3 Any additional mitigation required to reduce these effects has been set out in **Section 15.9**. Thereafter, an assessment has been made of the significance of any residual effects after all mitigation measures have been accounted for.

## Construction Phase

15.8.4 The Construction Phase impacts on soils, agricultural land and farm businesses are scoped into the assessment. This Section considers these receptors in the following order:

- Agricultural land quality
- Soils; and
- Agricultural businesses.

### Effects on Agricultural Land Quality

15.8.5 This section of the assessment focuses on the effects on agricultural land, in particular on the agricultural land quality. Works affecting agricultural land will also affect soils, as they are the same physical resource. Accordingly, the description focuses on land quality, but as a consequence the soil analysis that follows is short, drawing from similar impact assessments.

15.8.6 The potential for adverse effects on agricultural land quality resulting from the construction of the following elements of the Scheme have been assessed:

- Temporary Construction Compounds;
- Access Tracks;
- Ground Mounted PV Modules and associated;
- Vehicle trafficking;
- Cabling;
- Customer Substation, National Grid Substation and Ancillary Buildings and BESS; and
- Green Infrastructure.

15.8.7 This Section provides an outline description of the works involved with the various components of the Scheme in the following sections, focussing on the potential effects on agricultural land quality arising from those works. For each work the likely impacts and effect are assessed, and then the collective

impacts and effects are drawn together at the end of the Section. The dimensions and areas are secured in the **Design Principles, Parameters and Commitments [EN0110014/APP/7.18]**.

Temporary Construction Compounds

15.8.8 The temporary construction compounds will require the removal of topsoil, which will be stored in low-level bunds on land adjacent to the compound. A matting will then be placed on the ground, and stone will be added. The matting will prevent any mixing of stone with the underlying subsoil. These areas will be restored by removing the stone and matting, loosening any compaction in the subsoil, and returning the topsoil to the area. An example compound is shown in **Plate 15.22**.

**Plate 15.22: Example Construction Compound (being built)**

15.8.9 Up to seven construction compounds up to 1.7ha in area are proposed. Their temporary impact is assessed as follows:

- **Sub-Site 1B**. Two construction compounds are proposed within Site 1B, both on Grade 2 agricultural land. Almost all of Site 1 is Grade 2 so this is unavoidable.

**Plate 15.23: Looking south at construction compound**

Plate 15.24: Looking northeast towards construction compound area

- **BESS Site.** The BESS Site lies on ALC Grade 2. The location has been chosen despite the Grade 2 land grade because all of the BESS Site is Grade 2 and it and it is located in close proximity to the BESS.

- **Sub-Site 2B.** A construction compound of up to 1.7ha is proposed in the BESS Site. This lies on ALC Grade 2. The location has been chosen despite the Grade 2 land grade because it has direct access from the A140. Consideration was given to locating on the subgrade 3a to the south, but the chosen location has preferable access and landscaping.

Plate 15.25: Looking towards construction compound in Site 2b

- **Site 4A.** The construction compound is proposed on subgrade 3b land accessible from the roundabout, and shown in **Plate 15.26**.

Plate 15.26: Looking south over Proposed Construction Compound

- **Sub-Site 5A** construction compound (1.7ha) is adjacent to the proposed substation. The location is on level ground of partly subgrade 3b, partly grade 2 (the substation is proposed on the subgrade 3b land). This is shown on the comparison below, with a photograph looking south at the proposed area.


**Plate 15.27: ALC, location of photograph, and photograph**

- **Sub-Site 10C** Construction compound (1.7ha) is proposed on land of subgrade 3a. Almost the whole of Site 10 is subgrade 3a, so this was the lowest quality available.

**Plate 15.28: Looking SE towards construction compound**

15.8.10 In total, therefore, up to 11.9ha of land is required for construction compounds, of which 9.5 ha is BMV. The works are temporary and short-term. They are fully reversible. Temporary, reversible impacts are defined as low magnitude (**Table 15.5**). The land quality is a mixture of BMV and Subgrade 3b and consequently of high and medium sensitivity (**Table 15.3**). This results in effects of **minor adverse** significance (**Table 15.5**), which is **not significant** in EIA terms.

Access Tracks

15.8.11 The Access Tracks, where possible, follow existing tracks or field edges. Currently there is a network of existing tracks for farm vehicles. Where new tracks are required, they will be constructed in a manner similar to the construction compounds, with topsoil scrapped off, matting added, and a

layer of hardcore or gravel placed over a levelling layer of substrate. If required, scrapes for drainage will be provided.

15.8.12 The topsoil across the Order Limits is generally similar, as described in **ES: Appendix 15.1 Agricultural Land Classification [EN0110014/APP/6.3.15.1]**. To enable topsoil to be replaced in a similar location to its original location, soil will be stored in a low mound adjacent to the track. This will minimise handling and maximise the success of the restoration works, ensuring that the restored land quality will be the same as that pre-construction.

15.8.13 The topsoil will be removed to a typical depth of 30cm, so over a 3.5m width this equates to less than 0.9 cubic metres of soil per metre run. The resultant low mound will be readily grazed or mown. A cross section of the track is at **Plate 15.29** below.

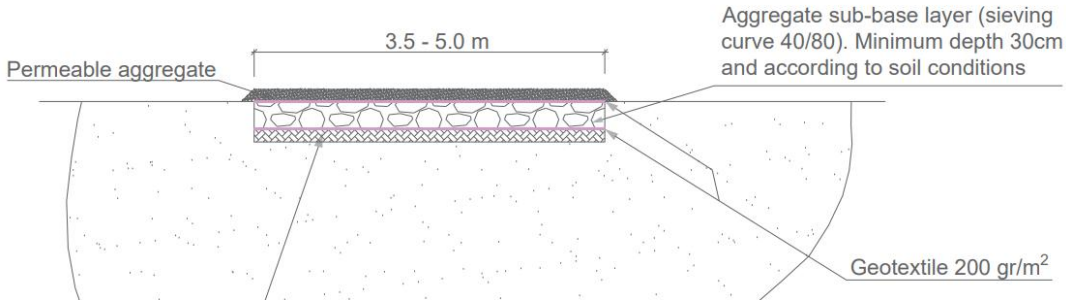


**Plate 15.29: Proposed Track**

15.8.14 The land areas by ALC grade affected temporarily by tracks is estimated as set out in **Table 15.10**. Based on the **Green Infrastructure Strategy** within the **Outline LEMP** [**EN0110014/APP7.4**], the areas potentially affected by ALC grade have been measured. Whilst the final areas may vary (subject to detailed design post-consent), the variation is unlikely to be significant. This measurement excludes the permanent access to the National Grid Substation.

**Table 15.10: Estimate of Access Tracks by ALC Grade (rounded to the nearest 0.1 ha)**

| ALC Grade | Area (ha) | Proportion (%) |
|---|---|---|
| **1 Excellent** | 0 | 0 |
| **2 Very good** | 4.8 | 39 |
| **3a Good** | 5.9 | 47 |
| **3b Moderate** | 1.6 | 13 |

| ALC Grade | Area (ha) | Proportion (%) |
|---|---|---|
| **4 Poor** | 0.1 | 1 |
| **Total** | **12.4** | **100** |

15.8.15 The impact is the removal of 10.7ha of BMV for the duration of the Scheme. The works are fully reversible, however, and the impact is therefore of low magnitude (**Table 15.4**), but on resources of high, medium or low sensitivity (**Table 15.3**). The effect for each sensitivity is minor adverse (**Table 15.5**), which is **not significant** in EIA terms. It is not practical to micro-site tracks to avoid land of BMV quality, given their function of accessing the panel areas.

15.8.16 A worst-case assessment is that, on decommissioning, some or all of these tracks may be left for agricultural use, if the landowners request them to be left. If all were left there would be a permanent loss of up to 10.7ha of BMV, which is a low magnitude impact (**Table 15.4**) on a resource of high sensitivity (**Table 15.3**), which is a **minor adverse** effect (**Table 15.5),** which is **not significant** in EIA terms.

Ground-mounted PV Modules

15.8.17 The start of the construction process involves marking out on the ground, which is done on foot. Teams then lay out the solar PV piles ready for insertion. This stage is non-intrusive. A tractor and trailer will typically be used to transport the solar PV piles to the fields, then each is lifted off by hand.

15.8.18 Construction workers then drive metal piles into the ground using small machinery. This is a swift process and has little impact on the soil because the piles are inserted into the soil with no removal of soil and the soil is simply pushed aside. An example of this construction activity is shown in **Plate 15.30**.

**Plate 15.30: Mounting Structure Piles being Installed**

15.8.19 The system of the ground-mounted PV modules varies, and both Fixed South Facing PV Arrays and / or Single Axis Trackers may be used in this Scheme, with the final decision to be made at the detailed design stage. Both options involve driving a pile into the ground (unless concrete footings are required instead as illustrated in **ES: Chapter 4 The Scheme [EN0110014/APP/6.1.4]**), so the installation process and effects on soils and agricultural land are similar. The limited impact of installing the piles on the underlying land is illustrated in **Plate 15.31**. The purpose of the photograph is to show that there is very little disturbance to the soils. The design above ground does not affect soils and therefore may vary from the example. The photograph shows the piles as they enter the ground demonstrating the absence of effects on soils and land from the construction method.

**Plate 15.31: Mounting Structure Piles being Installed (taken at Tiln Farm, Retford, in January 2023)**

15.8.20 There is minimal damage caused by the next stage of the construction process, which is the assembling of the solar PV piles and the bolting-on of PV panels to assemble the PV Tables. This stage requires the various framework and panel components to be transported to site. They are lifted off by hand and assembled by hand. Machinery travels down the lines between the ground-mounted PV modules being assembled. There is no ground disturbance, therefore the only risk comes from travelling over the land in typical agricultural-sized machinery.

**Plate 15.32: Part Installed Panels (Bentham Farm, Purton)**

15.8.21 As described in **ES: Chapter 4 The Scheme [EN0110014/APP/6.1.4]**, two options are proposed: Option A Single Axis Tracker Panels, and Option B: Fixed South Facing PV Arrays. Both have a very light impact on the agricultural land and soils, and neither panel nor installation results in any alteration to or downgrading of the land quality. Both options are illustrated in **Plates 15.33 and 15.34** below.

**Plate 15.33: Single Axis Trackers (From Chapter 5, image 4.1)**

**Plate 15.34: South Facing Fixed Panels**

15.8.22 The installation of the ground-mounted PV modules has a negligible adverse magnitude impact (**Table 15.4**) on agricultural land of high, medium and low sensitivity (**Table 15.3**). This results in a **negligible** effect (**Table 15.5**), which is **not significant** in EIA terms.

15.8.23 Conversion Units / 33kV Sub-distribution Switch Rooms will require the construction of bases. These items of equipment will be sited on a concrete slab, strips or footings, which will not require deep foundations. The physical works involved, and the potential effects on soils and land quality, will be limited.

15.8.24 It is estimated that each Integrated Conversion Unit will involve a hardstanding area of circa 100m$^2$ (design parameters 18m x 5m plus small buffer allowed). The number of Conversion Units by ALC grade, and the resultant area involved, is set out in **Table 15.11**.

**Table 15.11: Conversion Units by ALC Grade**

| ALC Grade | | No | Area (ha) |
|---|---|---|---|
| **1** | **Excellent** | 0 | 0 |
| **2** | **Very good** | 57 | 0.6 |
| **3a** | **Good** | 72 | 0.7 |
| **3b** | **Moderate** | 28 | 0.3 |
| **4** | **Poor** | 2 | 0 |
| **Total** | | **159** | **1.6** |

15.8.25 The impact of these items of fixed equipment is a low magnitude impact (**Table 15.4**) on resources of high and medium sensitivity (**Table 15.3**), resulting in a **minor adverse** effect (**Table 15.5**), which is **not significant** in EIA terms. Micro-siting to avoid BMV land is not practical and would not have any significant benefits.

Vehicle Trafficking

15.8.26 There is the potential for construction traffic to cause short-term temporary damage to soil structure if operations take place when soils are wet. It is unlikely that compaction of these soils will not be capable of being alleviated using typical agricultural machinery, even between the rows of panels, and therefore any adverse effects on land quality are considered to be short-term, temporary and reversible (low magnitude impact, **Table 15.4**). It is also very unlikely that compaction from the works will result in changes to drainage status at depth such that ALC grade might be affected.

15.8.27 The effect on soils is discussed later in this Chapter. The soils across the Order Limits are, as identified in **ES: Appendix 15.1 Agricultural Land Classification [EN0110014/APP/6.3.15.1]** mostly Beccles 1 Association, which are slowly permeable, seasonally waterlogged fine loamy over clayey soils, with some Burlingham 1 association soils which are slowly permeable seasonally waterlogged fine loamy over clayey soils.

15.8.28 These soils, due to their clayey nature, are prone to structural damage if trafficked or moved when wet. This is clearly evident from the following shallow topsoil pits (dug for the purposes of illustrating this Chapter) taken variously across the Site.

Plates 15.35, 36 and 37: Examples of Topsoil and Upper Subsoil

15.8.29 Ideally vehicles will not travel over the land when they cause indentations in excess of those shown below.

Plate 15.38: Example of Limit of Indentation

15.8.30 Guidance on handling soils is provided in the **Outline SRMP [EN0110014/ APP/7.9]**.

15.8.31 The magnitude of impact on soils and agricultural land quality resulting from the construction phase is subsequently negligible (**Table 15.4**), on land of high, medium and low sensitivity (**Table 15.3**), resulting in a **negligible** effect (**Table 15.5**) which is **not significant** in EIA terms.

Cabling

15.8.32 Cabling around the Solar PV Arrays is usually limited to the end of each row, connecting between the Solar PV panels and the Conversion Units/Switch Rooms, as described in **ES: Chapter 4 The Scheme [EN0110014/APP/6.1.4]**. This cabling normally involves a narrow trench with soils replaced in the same order as they were removed, shortly after the trench is dug. Subject to good practice, as controlled through measures

within the **Outline SRMP [EN0110014/APP/7.9]**, this operation is short term and fully reversible.

15.8.33 Cable depths and spacing will vary depending upon the cable. The majority of cables within the Sites involve a narrow trench and, as per the indicative plan below, will be buried 1,200mm deep under ploughable arable land.

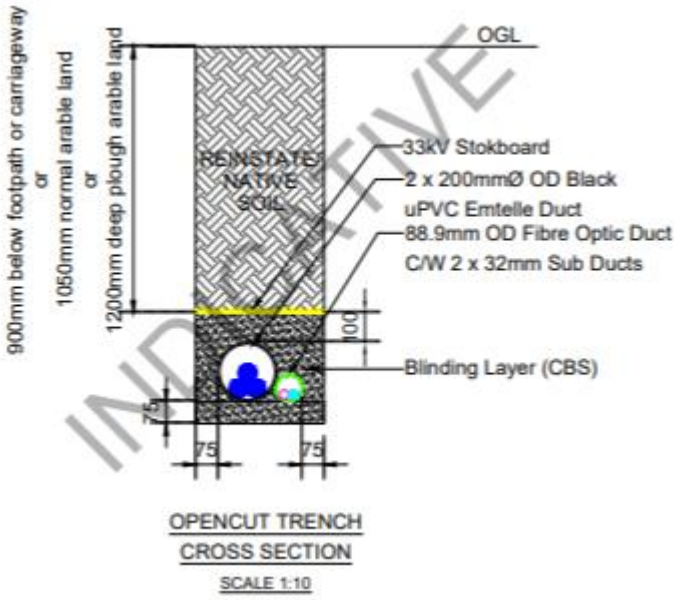


**Plate 15.39: Excerpt from Indicative Cable Trench Cross Section**

15.8.34 The works for the higher voltage cables are described in the **Outline Cable Route Construction Statement** [**EN0110014/APP/7.21**]. There will generally be a 25m working width, which may be widened in places to accommodate required operations such as trenchless crossing locations. Trenches may be up to 7m wide. There will also be periodic jointing bays, as described in the **Design Principles, Parameters and Commitments** [**EN0110014/APP/7.18**]. Any man hole covers will, so far as possible, be placed in field margins, or in other technically-suitable locations in consultation with the landowner.

15.8.35 The impact of cabling is temporary and reversible, and hence of low magnitude (**Table 15.4**). It will impact on agricultural land of high, medium and low sensitivity (**Table 15.3**). Accordingly, the effects will be **minor adverse** (**Table 15.5**), which is **not significant** in EIA terms.

National Grid (NG) Substation and Pylons

15.8.36 The NG Substation will involve a compound up to a maximum of 6 ha, as specified in the **Design Principles, Parameters and Commitments** [**EN0110014/APP/7.18**]. It will be located on an area of Grade 2 land in Site 1, where the existing OHL crosses the Order Limits. This is shown on **Plate 15.40** below.

Plate 15.40: Looking NW at the NG Substation Site

15.8.37 In addition, up to four new pylons (of which three would be associated with the repositioning of existing pylons and up to 1 new pylon). These have small base areas. Rounded up a disturbance allowance of 0.1 ha is assessed, assumed to be Grade 2 in the area not surveyed.

15.8.38 All of Site 1 north of Hundred Lane is ALC Grade 2, as shown on **Plate 15.41**.

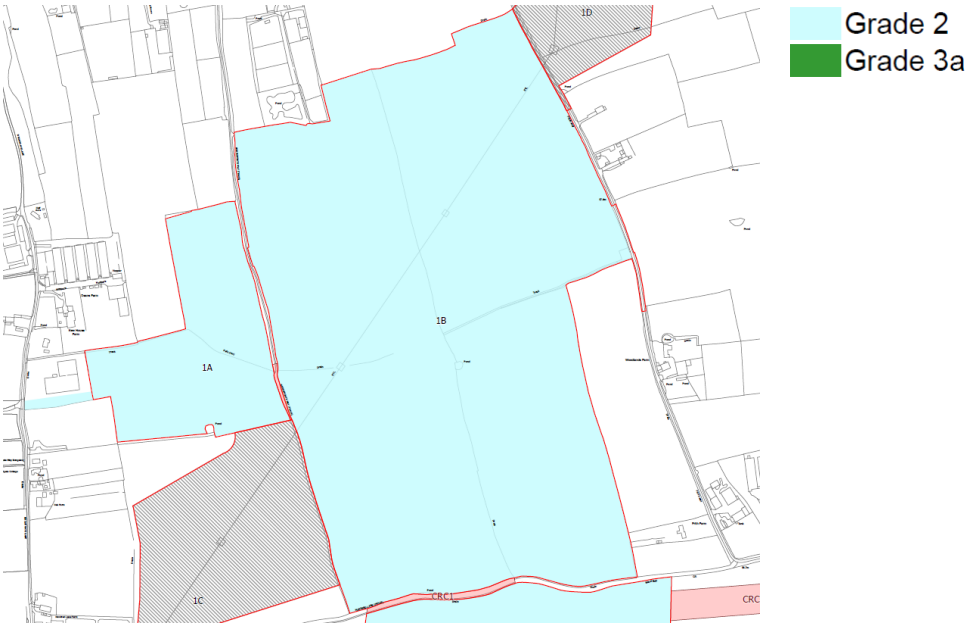


Plate 15.41: ALC of Site 1

15.8.39 Avoidance of land of BMV is not, therefore, possible. As specified in **ES: Chapter 4 The Scheme [EN0110014/APP/6.1.4]** the NG Substation will be a permanent development.

15.8.40 The soils in this area are clay loam, as shown below. Topsoil stripping will need to occur when soils are suitably dry, likely in the period late March to mid-November.

**Plates 15.42 and 43: Soil Profile, NG Substation area**

15.8.41 The NG Substation will result in the permanent loss of 6.1 ha of Grade 2. In isolation this loss is a low magnitude impact (**Table 15.5**) on a resource of high sensitivity (**Table 15.4**), resulting in a **minor** adverse and permanent effect, which in isolation is **not significant**.

Project Substations

15.8.42 The Scheme involves up to 3 Project Substations up to 400 kV, and up to 3 Project Substations up to 132 kV. (**ES: Chapter 4 The Scheme [EN0110014/APP/6.1.4]**). The **Design Principles Parameters and Commitments [EN0110014/APP/7.18]** for the 400 kV substations are:

- Project Substation in BESS Site: up to 3 ha;
- Project Substation in Sub-Site 5A: up to 3.5 ha; and
- Project Substation in Sub-Site 1B) up to 1.1 ha.

15.8.43 The Project Substation in BESS Site and the Project Substation in Sub-Site 1B are both proposed on Grade 2 land. As described for the new National Grid Substation, Site 1 is all of Grade 2 quality. For technical reasons the substations need to be located close to the National Grid Substation, and avoidance of land of BMV quality is therefore not possible. The location for Project Substation in Sub-Site 1B is shown below.

**Plate 15.44: Site for Project Substation in Sub-Site 1B**

15.8.44 Project Substation in Sub-Site 5A is located on subgrade 3b quality land, adjacent to the construction compound referenced earlier.

15.8.45 The 132 kV Substations are smaller.

- Project Substation in Sub-Site 4B: 0.5 ha;
- Project Substation in Sub-Site 7F: 0.75 ha; and
- Project Substation in Sub-Site 10C: 0.5 ha.

15.8.46 The three locations are shown in the following photographs. They involve ALC land quality as follows:

- 4B:Grade 2;
- 7F:Grade 2;
- 10C: Subgrade 3a and Grade 4.

15.8.47 Substations 1 (4B) and 2 (7F) both utilise the corners of fields. The site selection process has considered land quality, with the choice of location balancing land quality with other operational, landscape and access considerations. The two sites are shown below.

Plate 15.45: 132 kV Substation 1 (4B)

Plate 15.46: 132 kV Substation 2 (7F)

15.8.48 Collectively the substations involve the use of agricultural land as summarised in **Table 15.12**.

**Table 15.12: Use of land by ALC Grade, Substations (rounded to the nearest 0.1 ha)**

| ALC Grade | Area (ha) | Proportion (%) |
|---|---|---|
| **2 Very good** | 5.4 | 57 |
| **3a Good** | 0.2 | 2 |
| **3b Moderate** | 3.5 | 37 |
| **4 Poor** | 0.3 | 4 |
| **Total** | **9.4** | **100** |

15.8.49 The works are likely to be temporary and reversible, which would be a low magnitude impact (**Table 15.5**). It is considered likely that the works will be

long-term temporary and fully restorable, which would be low magnitude effect (**Table 15.5**) on resources of high, medium and low sensitivity (**Table 15.4**), resulting in an effect of **minor adverse** significance.

15.8.50 Tthe **Design Principles, Parameters and Commitments** document [**EN0110014/APP/7.18**] specifies that for the 400kV Project Substations, either a raft foundation or piles to a maximum depth of 12m below ground level with a 1m pile cap will be used. For the 132kV Project substations, depending on ground conditions, either a raft foundation or piles to a maximum depth of 10m below ground level with a 1m pile cap.. Taking a worst-case assessment, therefore, the impacts are treated as permanent. The permanent loss of 5.6 ha of BMV land would, in isolation, be an impact of low magnitude (**Table 15.5**) on resources of high, medium and low sensitivity (**Table 15.4**), resulting in an effect of **minor adverse** significance, (**Table 15.6**), which is **not significant**.

BESS

15.8.51 The BESS will be located on land of Grade 2.

15.8.52 Land of ALC Grade 2 in Site 1. As noted earlier, the BESS Site is essentially all Grade 2 quality and therefore avoidance of land of BMV is not possible within the area surveyed.

15.8.53 The **Design Principles, Parameters and Commitments** document **[EN0110014/APP/7.18]** provides for a compound area of up to 6.5 ha. The bases for the BESS will be either reinforced concrete to a maximum depth of 1m, or piling up to 12m deep. For most of the BESS, the works will include removing the topsoil, placing a matting onto the upper subsoil, and then creating the concrete pad bases and permeable areas around the BESS units. An example is shown in the photograph at **Plate 15.47**. Where deeper foundations are required, subsoil will be moved in addition.

**Plate 15.47: Example of a BESS Site**

15.8.54 The soils in the BESS area are similar to those of the NG Substation (Works Area 4), with a pit shown below.

**Plates 15.48 and 49: Soils in Works Area 4**

15.8.55 The BESS Site is shown on **Plate 15.50**.

**Plate 15.50: BESS Site**

15.8.56 The topsoil and (if necessary) subsoil from the BESS Site will need to be stored. Storage will need to follow the principles set out in the **Outline SRMP [EN0110014/APP/7.9].** Subject to good practice the BESS is expected to be capable of restoration back to comparable ALC Grade 2 on decommissioning. Consequently, the impact is likely to be a low magnitude impact (**Table 15.5**) on a high sensitivity resource (**Table 15.4**), resulting in an effect of **minor** adverse significance (**Table 15.6**), which is **not significant**.

15.8.57 If deep pile foundations are required, this is likely to disturb land to the extent that restoration back to comparable ALC grade is not likely to be achievable. A worst-case assessment is that there will be a loss or downgrading of 6.5ha of Grade 2, a low magnitude impact (**Table 15.5**) on a resource of high sensitivity (**Table 15.4**), resulting in an effect of **minor** adverse significance (**Table 15.6**) which is **not significant**.

### Green Infrastructure

15.8.58 Green infrastructure will not generally affect the land quality or soils. Some areas of new woodland are proposed, which will change land use from agriculture (but will not affect the soil resource). These are proposed on land of different ALC grade as shown in **Table 15.13**. The location of the woodland is shown on the **Green Infrastructure Strategy** within the **Outline LEMP [EN0110014/APP7.4].**

**Table 15.13: Tree Planting Areas (rounded to nearest 0.1ha)**

| Site Reference | Area by ALC Grade | | | |
|---|---|---|---|---|
| | 2 | 3a | 3b | Total |
| **BESS** | 0.8 | 0 | 0 | 0.8 |
| **1** | 0.5 | 0 | 0 | 0.5 |
| **2** | 0 | 1.2 | 0 | 1.2 |
| **3** | 0 | 0.2 | 0 | 0.2 |
| **4** | 0 | 1.3 | 0 | 1.3 |
| **5** | 0 | 0.3 | 0 | 0.3 |
| **7** | 1.5 | 2.1 | 1.1 | 4.7 |
| **8** | 0 | 0.8 | 2.2 | 3.0 |
| **9** | 0 | 0 | 0 | 0 |
| **10** | 0 | 0.3 | 0 | 0.3 |
| **Total** | 2.8 | 6.2 | 3.3 | 12.3 |

15.8.59 The overall impact is low magnitude (**Table 15.5**) on resources of high and medium sensitivity (**Table 15.4**), resulting in an at-worst effect of **minor** adverse significance (**Table 15.6**), which is **not significant**.

15.8.60 The effects on the components (taken in isolation) during the construction phase of the Scheme are summarised as follows:

- Temporary Construction Compounds: minor adverse, **not significant** in EIA terms;

- Access Tracks: minor adverse, **not significant** in EIA terms;
- Ground-mounted PV modules: negligible, **not significant** in EIA terms;
- Vehicle trafficking: negligible, **not significant** in EIA terms;
- Cabling: minor adverse, **not significant** in EIA terms;
- National Grid Substation: minor adverse, **not significant** in EIA terms;
- 132 kV and 400 kV substations: minor adverse, **not significant** in EIA terms;
- BESS: minor adverse, **not significant** in EIA terms; and
- Green Infrastructure: minor adverse, **not significant** in EIA terms.

15.8.61 Whilst individually these works are not significant in EIA terms, **Table 15.14** provides a summary of all the areas disturbed. Please note, given the maximum foundations for the BESS, this is treated as a permanent loss for a worst-case assessment.

### Table 15.14: Areas Disturbed by ALC Grade

| Component | ALC Grade | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3a | 3b | 4 | Total |
| **Short-term temporary** | | | | | | |
| **Construction compounds** | 0 | 7.8 | 1.7 | 2.4 | 0 | 11.9 |
| **Total (short-term temporary)** | 0 | 7.8 | 1.7 | 2.4 | 0 | 11.9 |
| **Long-term temporary** | | | | | | |
| **Access tracks** | 0 | 4.8 | 5.9 | 1.6 | 0.1 | 12.4 |
| **Integrated conversion units** | 0 | 0.6 | 0.7 | 0.3 | 0 | 1.6 |
| **Total (long-term temporary)** | 0 | 5.4 | 6.6 | 1.9 | 0.1 | 14.0 |
| **Permanent (worst case) (fixed equipment)** [(1)] | | | | | | |
| **NG Substation and pylons** | 0 | 6.1 | 0 | 0 | 0 | 6.1 |
| **BESS** | 0 | 6.5 | 0 | 0 | 0 | 6.5 |
| **Project Substations** | 0 | 5.4 | 0.2 | 3.5 | 0.3 | 9.4 |
| **Total (permanent fixed equipment)** | 0 | 18.0 | 0.2 | 3.5 | 0.3 | 22.0 |

| Component | ALC Grade | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3a | 3b | 4 | Total |
| **Permanent (green infrastructure)** | | | | | | |
| **Mitigation planting** | 0 | 3.0 | 6.0 | 3.3 | 0 | 12.3 |
| **Total (green infrastructure)** | 0 | 3.0 | 6.0 | 3.3 | 0 | 12.3 |

(1) As noted, it is likely that most or all of the BESS and Project Substation areas will be capable of full restoration.

15.8.62 The amount of BMV disturbed on a short and long-term temporary basis (construction compounds, tracks, ICUs) is 21.5 ha. Temporary impacts are of low magnitude (**Table 15.5**), and on resources of high sensitivity (**Table 15.3**), this would result in an effect of **minor adverse** significance (**Table 15.6**), which is **not significant** in EIA terms.

15.8.63 The BESS and Project Substations are likely to be restorable, and therefore would involve the long-term temporary disturbance of 12.1 ha of BMV, taking the total long-term temporary disturbance to 33.6 ha of BMV, a low magnitude impact (being temporary) (**Table 15.5**), resulting in a **minor adverse** significant effect (**Table 15.4)** which is **not significant** in EIA terms.

15.8.64 A worst-case assessment would mean that the BESS and Project Substations are not fully restorable. They include 12.1 ha of BMV. If these areas are added to the permanent land loss for the National Grid Substation and pylons (6.1 ha BMV), these works would add up to 18.2 ha, which would comprise a low magnitude impact (**Table 15.5**) on resources of high sensitivity (**Table 15.3**), resulting in a permanent effect of **minor adverse** significance (**Table 15.6**), which is **not significant**.

15.8.65 Access tracks around agricultural land can be very useful from a practical point of view and it may be that some of the tracks are not removed on decommissioning where landowners request them to be retained. A worst-case scenario, where all tracks are not restored, would add 10.7 ha to the worst case total. The BESS, Project Substations, NG Substations and tracks collectively involve 28.9 ha BMV, which would be a medium magnitude impact (**Table 15.5**) on resources of high sensitivity (**Table 15.3**), resulting in a permanent adverse effect of **moderate adverse** significance (**Table 15.6**), which is **significant**.

15.8.66 If the mitigation planting (9.0 ha of BMV) is considered as a permanent loss, this would increase the permanent land loss. The likely and worst-case assessment would therefore be:

(i) Likely: permanent loss of 6.1 ha for the NG Substation and 9.0 ha of BMV for the mitigation planting, total of 15.1 ha of BMV, a low magnitude impact (**Table 15-5**) on a high sensitivity resource (**Table 15-4**), resulting in a **minor adverse** significance effect (**Table 15-6**), which is **not significant**;

(ii) Worst-case: permanent loss of 6.1 ha for the NG Substation, 9.0 ha for the mitigation planting, 10.7 ha for the tracks and 12.1 ha of BMV for the BESS and Project Substation, a total of 37.9 ha of BMV. This would be a medium magnitude impact (**Table 15.5**) on a resource of high sensitivity (**Table 15.3**), resulting in a permanent adverse effect of **moderate adverse** significance (**Table 15-6**), which is **significant**.

### Effects on Soils

15.8.67 The potential effects on soils are broadly similar to the effects on agricultural land. The disturbance to soils is generally temporary and limited. The soils within the Order Limits are of medium and low sensitivity across the Order Limits, i.e. they are generally resilient to being handled and disturbed.

15.8.68 Soils are not generally disturbed during the construction phase. Disturbance to soils is mostly restricted to the physical moving of soils for the creation of tracks and bases, or cabling, as described in the preceding section reviewing the effects on land quality, or to any adverse effects from the movement of machinery causing surface damage or, potentially, compaction.

15.8.69 The machinery involved in the construction and installation of the PV arrays is generally small, as reviewed in the consideration of the effect on land quality, and generally smaller than most farm machinery. There will not be a requirement for multiple trafficking across the same areas other than delivering the equipment (Mounting structures, PV Tables, PV Panels) along the gaps between the Ground-mounted PV Modules, and any damage to the soil surface in those areas will generally be limited and can readily be remedied, as described in the **Outline SRMP [EN0110014/APP/7.9]**.

15.8.70 The machinery required to construct the tracks, bases for the BESS, bases for the Conversion Units, will be larger, and these works should be carried out when soils are sufficiently dry. This is secured in the **Outline SRMP [EN0110014/APP/7.9]**. The effect on soils will be temporary.

15.8.71 The effects on soils are assessed for each of the works for which land quality impacts were assessed:

- Temporary construction compounds: these will be temporary works on soils of medium or low sensitivity (**Table 15.3**), resulting in a low magnitude impact (**Table 15.5**) and a consequential **minor adverse** effect (**Table 15.6**), which is **not significant** in EIA terms.

- Access tracks: greater care will be needed in the areas identified as of medium sensitivity, but overall the access tracks will result in low magnitude impacts (**Table 15.5**) on some medium but mostly low sensitivity soils (**Table 15.3**), resulting in a **minor adverse** effect (**Table 15.6**), which is **not significant** in EIA terms.

- Ground-mounted PV modules: the works of the modules will have little and a temporary impact on soils, and consequently a low magnitude impact (**Table 15.5**) on a mostly low sensitivity resource (**Table 15.3**),

result in a **minor adverse** effect (**Table 15.6**), which is **not significant** in EIA terms.

- Vehicle trafficking: the greatest potential for damage to soils is from vehicle trafficking. The adverse impacts of trafficking when soils are unsuitable will be mitigated by good practice secured in the **Outline SRMP [EN0110014/APP/7.9]**. In the two areas of medium sensitivity, where soils have a higher clay content, these soils will be less resilient when wet. The impacts will, however, be temporary and any structural damage can be made good, resulting in a low magnitude impact (**Table 15.5**) on medium and low sensitivity resources (**Table 15.3**). This results in a **minor adverse** effect (**Table 15.6**), which is **not significant** in EIA terms.

- Cabling: cabling works will similarly need to follow the **Outline SRMP [EN0110014/APP/7.9]** principles, but should then result in temporary and reversible effects, which will be of low magnitude (**Table 15.5**) on medium and low sensitivity resources (**Table 15.3**), resulting in **minor adverse** effects (**Table 15.5**), which are **not significant** in EIA terms.

- Project Substations, National Grid Substation and the BESS: the areas involved with these works are all on low sensitivity soils. By good management, following principles in the **Outline SRMP [EN0110014/APP/7.9]** (for which a detailed SMP is secured by Requirement of the **draft DCO [EN0110014/APP/3.1]**) soils will not be permanently affected. Long-term storage of low sensitivity soils should not result in any long-term loss of soil functions. Overall, notwithstanding the quantum of soil involved, the impact will be temporary and so of low magnitude (**Table 15.5**) on a low sensitivity resources (**Table 15.3**), resulting in a **minor adverse** effect (**Table 15.6**), which is **not significant** in EIA terms.

- Green infrastructure will have no impact on soils and therefore the effect is negligible (**Table 15.5**), on low sensitivity soils, resulting in a **negligible** effect (**Table 15.6**), which is **not significant** in EIA terms.

15.8.72 Therefore, the effects on soils are temporary. A temporary, reversible impact on soil-related features (including biomass production) is a low magnitude impact. The soils in the Order limits are of medium or low sensitivity, therefore the effect will be **minor adverse**, which is **not significant** in EIA terms.

### Effects on Agricultural Businesses

15.8.73 Effects on the occupying farm businesses will commence and change during the construction phase. The effects on farm size and structure, and long-term operation, being the effects once the Scheme is constructed, are described under the operation and maitnenance phase section below.

15.8.74 Construction activity will be carefully controlled so that the use of the local highway network is not significantly affected, so travel between farmyards

and agricultural land in the area will continue unhindered. There are no internal tracks within the area of the Scheme that serve other farmland, so the Scheme will not significantly affect any existing access routes between fields not within the Scheme.

15.8.75 There are only low or negligible construction phase impacts on agricultural businesses, which are of low sensitivity. Accordingly, the construction phase effects are **negligible**, which is **not significant** in EIA terms.

### Summary of Construction Phase Effects

15.8.76 In respect of direct effects during the construction phase, it is concluded as follows:

15.8.77 **Agricultural land quality**. The majority of the Scheme will not affect agricultural land quality. Works that involve soil disturbance are limited in scale, temporary and mostly reversible, and therefore of low magnitude (**Table 15-5**).

15.8.78 Two scenarios, likely and worst-case, are provided:

(i) The likely scenario is that all but 6.1 ha of BMV for the BESS and substation, and 9.0 ha of BMV for woodland planting, will be restored. This would result in a long term temporary effect, and a permanent effect, both of low magnitude (**Table 15.5**) on resources of high sensitivity (**Table 15.3**), resulting in **minor adverse** effects (**Table 15.6**), which are **not significant**;

(ii) The worst-case scenario is that the National Grid Substation and pylons, BESS, tracks, Project Substations and mitigation planting are all considered as permanent losses. Under that scenario the permanent loss would increase to 37.9 ha of permanent BMV loss, which would be a medium magnitude impact (**Table 15.5**), on a resource of high sensitivity (**Table 15.3**), which will result in a **moderate adverse** effect (**Table 15.6**), which is **significant**.

15.8.79 **Soils**. The soils are mostly of low sensitivity, with two areas of medium sensitivity. The soils will generally not be disturbed, and disturbance for installation of the solar PV modules, trenching and cable laying will be temporary. Overall, the magnitude of impact is low, on resources of medium and low sensitivity, resulting in an adverse effect of **minor adverse** significance, which is **not significant** in EIA terms.

15.8.80 **Agricultural businesses**. Construction works are temporary and short-term, and there are only low or negligible adverse impacts on farms of medium or low sensitivity, resulting in **negligible** adverse effects, which is **not significant** in EIA terms.

## Operation and Maintenance Phase

15.8.81 The assessment of the Scheme's operation and maintenance phase effects is based on the Scheme as outlined in **ES: Chapter 4 The Scheme [EN0110014/APP/6.1.4]**.

15.8.82 The potential effects during the operation and maintenance phase of the Scheme are:

- Effects on agricultural land from long-term grassland uses and the effects from maintenance activities;
- Effects on soils from long-term grassland use, the ground-mounted PV modules and maintenance activities;
- Effects on the operation of the farm businesses and local agricultural labour needs; and
- Food production and wider economic implications. This is generally an economic/ land use consideration.

### Agricultural Land

15.8.83 There will be no further disturbance to soils during the operation and maintenance phase of the Scheme; therefore, the agricultural land quality within the Order Limits will not be physically affected during this phase of the Scheme.

15.8.84 There will be no requirement for heavy machinery to traffic soils during the operation and maintenance phase. Accordingly, there will be no significant disturbance of soils affecting land quality. The combination of increasing organic matter levels (see below) and lack of machinery activity will allow a natural enhancement of the soil. This will not, however, alter the ALC grade of land within the Order Limits.

15.8.85 Maintenance and cleaning machinery will be transported via a van or small tractor, which is generally lighter than most farm machinery. A typical cleaning machine is shown in **Plate 15.51**. If the soils are wet when access is taken, there is the potential for slight indentations to be made (such as shown in **Plate 15.52** for a development similar in nature to the Scheme), but such effects on soils are not significant and will not alter the ALC grade. Typically, the machinery such as illustrated in **Plate 15.51** is used, which is no heavier than a small tractor. Cleaning typically takes place in late spring, to clean the panels before the main solar generation period, when soils are normally dry and therefore not susceptible to damage in any event, but cleaning may be possible at any time of the year when ground conditions allow.

Plate 15.51: Cleaning of Solar Modules

15.8.86 There may occasionally be small rutting caused by agricultural vehicles (for example quads) or vans used by engineers. Typical light impacts are illustrated in **Plate 15.52**. These indents will normally be levelled by the feet of grazing sheep or will level naturally over time, but if there are deeper ruts they could be repaired by a lightweight roller in the spring.

Plate 15.52: Example of Minor Ruts Caused by Vehicles

15.8.87 There may be occasional need for works of repair which might disturb soils. These will be infrequent. This may be a need for panel replacement, but this will be a pre-planned activity that can take place when the land is suitably dry. The works could include PV Panel repair or replacement, but vehicles would access the area via the internal tracks. If possible, any works requiring soils to be driven over or moved should be timed for the summer period, following the guidance outlined in the **Outline SRMP [EN0110014/APP/7.9]**. Any trenching, whether carried out in ideal conditions or not, rapidly recovers

and is indistinguishable once grass cover has returned. These effects will be of negligible magnitude.

15.8.88 Any planned replacement of panels will be programmed to take place when ground conditions are suitable. These works will result in negligible effects.

15.8.89 Therefore, there are no physical works required during the operation and maintenance phase which will adversely affect agricultural land quality. The land quality will be unchanged. The impacts are therefore of negligible magnitude, on resources of medium or high sensitivity, resulting in an effect of **negligible** significance, which is **not significant** in EIA terms.

15.8.90 In terms of land use, there will be a change over most of the Order Limits from arable (cereals and break crops mostly) to grassland. Once the elements of the Scheme have been installed, the land may be used by sheep for grazing (or otherwise managed grassland). Both land uses fall within the definition of agriculture. The change of agricultural land management from mostly arable farming with some outdoor livestock and sheep, to grazing and biodiversity management (as described in **ES: Chapter 4 The Scheme [EN0110014/APP/6.1.4]**) is a land management consideration. Land use changes of this nature do not result in an adverse effect on agricultural land quality. As set out in Natural England's Technical Information Note TIN049 (Ref 15-9) '*the current agricultural use, or intensity of use, does not affect the ALC grade*'.

15.8.91 The ISEP 'Solar PV on Agricultural Land' (Ref 15-28) noted the potential for impacts due to panel damage from exceptional storm events. The potential for such damage is extremely low, and localised, but any damage from broken glass would be rectified by light surface removal, akin to turf stripping, to remove contaminants.

15.8.92 The effect on agricultural land quality during the operation and maintenance phase is therefore **negligible** (**Table 15.5**) on resources of high, medium and low sensitivity (**Table 15.3**), resulting in a **negligible** effect, which is **not significant** in EIA terms.

### Effect on Soils

15.8.93 There will be potential for beneficial effects on soil health and quality.

15.8.94 The majority of land within the Order Limits is currently arable land fertilised with inorganic fertiliser, as well as spread with farmyard manure and liquid slurry.

15.8.95 The land will be sown to grassland and managed, including potentially by being grazed with sheep, for the duration of the operation and maintenance phase. This is expected to have a positive benefit for the soils.

15.8.96 Soil is an important resource. It is estimated by the Environment Agency that the UK's soils store about 10 billion tonnes of carbon, equal to about 80 years of greenhouse gas emissions, but that an estimated 4 million hectares

are at risk of compaction and 2 million ha are at risk of erosion. Intensive agriculture has caused arable soils to lose 40 – 60% of their organic carbon (Ref 15-24).

15.8.97 The EA's report (Ref 15-24) notes that significant decreases in erosion risk occur when fields change from winter cereal use to permanent grassland. Organic matter in soils acts like a sponge and can hold 20 times its weight in water. In the British Society of Soil Science (Ref 15-13) note they identify that '*significant long-term land use change (eg. conversion of arable land to grassland or woodland) has by far the biggest impact on soil organic carbon (SOC)*', and that soils with a higher rate of SOC are less prone to runoff and erosion, have greater water infiltration and retention, increased biological activity and improved nutrient supply.

15.8.98 The ISEP 'Solar PV on Agricultural Land' document (Ref 15-28) notes that obtaining baseline information on soil organic matter for example, can help determine benefits. Farmers across the Site have recorded Organic Matter levels varying in their fields between 1.8% and 5.0%, but mostly in the 1.8 – 2.5% category. These soils will benefit from long-term grassland cover.

15.8.99 Overall, therefore, for the majority of land within the Order Limits, where arable soils will go into long-term grassland land coverage, there will be a significant benefit for soils. This will be a temporary benefit, however, in that the benefits would potentially be reduced or lost if arable farming activities recommence following decommissioning. Overall, therefore, the benefit is a temporary impact and of low magnitude (**Table 15.5**), on a resource of medium and low sensitivity (**Table 15.3**), resulting in a **minor beneficial** effect (**Table 15.6**), which is **not significant** in EIA terms.

15.8.100 In respect of adverse effects, there will be no requirement for heavy machinery to traffic soils during the operation and maintenance phase except during periods of ad hoc replacement of infrastructure. Accordingly, there will be no compacting of soils and the combination of increasing organic matter levels and lack of machinery activity will allow a natural enhancement of the soil. There will be no adverse impacts, therefore.

15.8.101 Water run-off from PV panels will reach the ground under the Solar PV Arrays. PV panels come in sections and water drains down between these sections, not only at the lower edge, as shown below. Soils will not be harmed during the operation and maintenance phase due to lack of moisture. This can be seen in **Plate 15.53** and **Plate 15.54**, where gaps between PV panels can be seen and grass growth below the panels is good.


Plate 15.53: Solar PV Arrays Showing Gaps Between PV panels

Plate 15.54: Grass Growth Below and Between Solar PV Arrays

15.8.102 There is therefore the potential for improvements in one or more soil functions. These are beneficial impacts. They are, however, temporary and could be reversed once soils are returned to arable cropping following decommissioning. Any adverse effects on soils during the operation and maintenance phase will be negligible. The effects are therefore assessed as being of low or negligible magnitude (**Table 15.5**), on resources of medium or low sensitivity (**Table 15.3**), resulting in **minor** or **negligible** (**Table 15.6**) **beneficial** and **adverse** effects, which are **not significant** in EIA terms.

### Agricultural Businesses

15.8.103 There are nine farm businesses and enterprises operating in the Order Limits. All are full-time businesses. The enterprises all relate to land within the Order Limits, although all could and do also operate on other land. There are no effects of severance, as access to all land farmed but not within Sites 1-10 and the BESS Site will be available for the duration of the operation and maintenance phase.

15.8.104 Consequently, all the impacts are primarily related to a reduction in land available for the operation of the farming enterprises. Whilst these are adverse effects, the farms involved will benefit from the guaranteed income form the diversification of the enterprise base.

15.8.105 **Table 15.15** provides a summary of the proportional impacts of the inclusion of land within the Scheme, including (on a worst-case basis) land that will remain in agricultural use in the enhancement areas.

**Table 15.15: Summary of Farm Effects**

| Reference | Farm size (ha) | Proportion of Site | Description of the Impact |
|---|---|---|---|
| 1 | 220 | 21.8 ha (9% of total farm) | The holding will lose a small proportion of their arable land. The impact will be low magnitude |
| 2 | 810 | 202.3 ha (25% of total farm) | The holding will lose a modest proportion of arable land; the holding will benefit from a secure income. The impact will be a medium magnitude. |
| 3 | 460 | 163 ha (35% of total farm) | The holding will lose a modest proportion of arable land; the holding will benefit from a secure income. The impact will be a medium magnitude. |
| 4 | 200 | 52.6 ha (26% of total farm) | The holding will lose a modest proportion of grass land; they will benefit from a secure income and possible grazing of their sheep under panels. The impact will be a medium magnitude |
| 5 | 570 | 101.2 ha (18% of total farm) | The holding will lose land that makes up a small proportion of their arable land the farm will retain a significant amount of land as such a full-time business will remain; the impact will be a medium magnitude. |
| 6 | 400 | 117 ha (29% of total farm) | The holding will lose a modest proportion of arable land; the holding will benefit from a secure income. The impact will be a medium magnitude. |
| 7 | 231 | 35 ha (15% of total farm) | The land is farmed by contractors and forms a small part of the overall holding. There will be a low magnitude impact. |
| 8 | 570 | 150 ha (26% of total farm) | The holding will lose a modest proportion of arable land; the holding will benefit from a secure income. The impact will be a medium magnitude. |
| 9 | Contract farmed | Not relevant | The land is farmed by contractors. There will be a low magnitude impact. |

15.8.106 It is concluded that none of the farms will experience a significant effect. All are arable farms of low sensitivity (**Table 15.3**), and the impacts are of

medium or low magnitude (**Table 15.5**), resulting in long temporary adverse effects of **minor** adverse significance, which is **not significant**.

15.8.107 In respect of effects on farm businesses, the effects are all temporary and **minor** adverse (**Table 15.6**), which is **not significant**.

### Wider Food and Economic Effects

15.8.108 As set out in **Section 15.5.6**, the wider effects on food production and the rural economy are considered. The context for a wider assessment is that food production and agricultural land-use matters are primarily matters of national policy and significance, not a local or regional significance. The policy requiring that the quality of agricultural land be recognised is a national policy, not a local policy. Whether a particular area has a high or low proportion of land of BMV, or is an arable or livestock area, is dictated by the available land, not by any local policy decision.

15.8.109 In that context, both Norfolk County and the combined local planning authorities of South Norfolk and Breckland are mostly arable areas, with around 70% of agricultural land being arable land capable of being cropped in 2024, (**Table 15.9**). Cereals make up a significant proportion of crops. Within Breckland and South Norfolk, potatoes represent a small proportion of arable crops (2,388 ha or 2%), and uncropped arable land accounts for 16.7% of all arable land (over 20,000 ha).

15.8.110 Norfolk as a County has an estimated area (from the provisional ALC maps from the 1970s) of the order of 479,000ha of agricultural land. Over 433,000ha of this is Grades 1, 2 and 3a. The ALC grade for Norfolk is broken down in **Table 15.16**, along with the figures for South Norfolk District.

**Table 15.16: Provisional ALC Breakdown (Ref 15-26, 15-27)**

| ALC Grade | Norfolk County | | South Norfolk District | |
|---|---|---|---|---|
| | Area (ha) | Proportion (%) | Area (ha) | Proportion (%) |
| 1 excellent | 45,529 | 8.4 | 0 | 0 |
| 2 very good | 88,398 | 16.4 | 8,696 | 9.6 |
| 3 good to moderate | 299,449 | 55.4 | 73,297 | 80.6 |
| 4 poor | 45,662 | 8.5 | 7,042 | 7.7 |
| 5 very poor | 112 | 0.0 | 0 | 0 |
| NA non-agricultural | 49,294 | 9.1 | 1,129 | 12 |

| ALC Grade | Norfolk County | | South Norfolk District | |
|---|---|---|---|---|
| | Area (ha) | Proportion (%) | Area (ha) | Proportion (%) |
| U urban | 11,644 | 2.2 | 727 | 0.9 |
| **Total** | **540,088** | **100** | **90,891** | **100.0** |

15.8.111 Natural England estimate that 42% of agricultural land is BMV (see TIN049 Ref 13-10). Statistically about 40% of undifferentiated Grade 3 is therefore anticipated to be subgrade 3a. Using that crude estimate, the proportion of BMV land in Norfolk is therefore approximately 53%, which is higher than the national average. For South Norfolk, the proportion is 42%, equivalent to the national average.

15.8.112 The amount of land within the Order Limits is approximately 0.22% of the land within the County, and 1.2% of South Norfolk agricultural land. This is a negligible quantum on a regional basis. Therefore in terms of the use of BMV land, the regional impact is therefore considered to be negligible, which is **not significant.**

15.8.113 The UK Food Security Report (published 11 December 2024) (Ref 15-18) concludes that food production levels could be maintained or moderately increased alongside the land use change required to meet our Net Zero and Environment Act 2021 (Ref 15-19) targets and commitments. The UK is currently about 75% self-sufficient in indigenous foods (i.e. foods that we can grow). Overall, the UK production to supply ratio is about 62% for all food, up from 61% in 2023.

15.8.114 These proportions have been similar and stable for many years. Government sets no requirements or provides no incentives for land to be farmed for food. Agri-environmental incentives seek to take land out of arable cropping. At 1 June 2025, some 305,000ha of arable land was in agri-environmental (i.e. non-food producing) land uses (Ref 15-20), and this had increased to 444,000 by 1 June 2025 (Ref 15-20)

15.8.115 The Written Ministerial Statement 'Solar and Protecting our Food Security and Best and Most Versatile Land' (Ref 15-19) stated that *'even in the most ambitious scenarios (solar) would still occupy less than 1% of the UK's agricultural land*'. The Utilised Agricultural Area (UAA) of England is 8.7 million ha (Ref 15-20). Even if 1% of that was used for solar, some 87,000ha, it would represent less than 30% of the arable land currently being funded for non-food uses. If most of the solar was to be developed on arable land, it would still represent less than half of the area being funded for non-food land uses.

15.8.116 The OECD Outlook 2025 to 2034 (2025) (Ref 15-21) predicts that total global consumption of agricultural and fish commodities is expected to grow 13% by 2034, but to support growing demand agricultural and fish production is projected to expand by 14% over the same period. This will mostly be driven by productivity gains. 22% of calories consumed globally are expected to be traded across borders. In terms of cereals, by 2034 the OECD projection is that 40% of cereals will go to human consumption, 34% to animal consumption, and the remainder to biofuels and industrial use.

15.8.117 In the Solar Roadmap (June 2025) (Ref 15-22) it is noted in Part 2 (page 21) that '*the biggest risk to food security and the natural environment is the climate and nature crisis. That is why it is important that the UK takes a leadership role, working with partners around the world, in accelerating to net zero, including by rapidly expanding solar power generation*'. In the solar misconceptions section it states that '*the biggest threat to food security is crop failure due to climate change and solar farms are helping to tackle this directly*'.

15.8.118 In the consultation preceding the proposed Land Use Framework (Ref 15-17) page 15 sets out the approximate percentage of England's total agricultural land area that will need to change by 2050. This includes 5% changing mainly to environmental and climate benefit uses with limited food production, and 9% changing away from agricultural food production for environmental and climate change benefits.

15.8.119 In that context, the report comments on page 16 that '*the Government is committed to maintaining food production. Our assessment is that, based on historical trends of productivity improvement, and supported by new and emerging innovations, the impact of these land use changes on domestic food production will be offset by productivity improvements. We expect that recent trends of increased productivity from agricultural land will continue. Working in partnership, Government will put in place a policy environment to support those changes*'. It comments on page 27 that '*we need to build new homes and clean energy, water infrastructure and transport infrastructure at scale and at pace*'.

15.8.120 These statistics enable the following conclusions:

- Agricultural land quality in Norfolk is statistically better than the all-England average, and in South Norfolk the proportion is equivalent to the England average;
- The Government's analysis shows that food self-sufficiency is stable and slightly improving, and that there is no cause for concern;
- The world-wide predictions are that food supplies will improve over the next decade worldwide;
- The UK government's funding on agri-environmental land uses currently funds non-food land uses over an area of about three times the area they anticipate is needed to meet our solar objectives; and

- Government expects land use change to be necessary to meet biodiversity and climate change obligations, but it expects that to be achieved without an adverse effect on food production.

15.8.121 With respect to the wider rural economic effects, this is difficult to assess. Most purchases and sales are national rather than local. Where land is currently in cereals (a proportion of the Order Limits), direct expenditure on seed, fertiliser and sprays will reduce, sales of produce will reduce, and some fixed costs such as machinery running costs and some overhead costs, will reduce. Conversely the management of sheep involves more labour per hectare than arable cropping. It also involves purchases of feed, veterinary and medicines, involves merchants in the sale of livestock, hauliers to transport animals, and fixed costs are still associated with machinery running overheads.

15.8.122 Overall the impact on the wider rural economy is expected to be limited. It also needs to be considered in context. At the present time some 15-16.8% of the arable land in the county and local area is not being cropped. There will be economic effects for the wider rural service sector associated with those changes (which result from Government incentives) that far exceed the limited economic effects of the Scheme.

15.8.123 Overall, in respect of the wider rural economy implications, and in terms of food production and food security, the impacts are minor or negligible in the local, regional and national context. Minor or negligible adverse impacts (**Table 15.5**) on a low sensitivity resource (**Table 15.3**) results in a **minor or negligible** adverse effect (**Table 15.6**), which is **not significant**.

15.8.124 NPS EN-3 (Ref 15-3) and the NPPF (Ref 15-6) advise that the economic and other benefits of the use of BMV land should be considered. To assess the economic benefits of BMV land, one methodology is to compare the economics of BMV land to poorer quality land, assuming that such land is used for PV panels as an alternative.

15.8.125 The Order Limits is used for the growing of cereals, vining peas, sugar beet, maize for Anaerobic Digestion (AD), some vegetables, outdoor pig production, sheep grazing, free-range egg production and agri-environmental uses. Crops grown and their areas and end-users will vary over time.

15.8.126 Policy requires that the economic and other benefits of BMV land be recognised. The economic benefits of BMV to non-BMV land must be the incremental difference between the two, rather than the absolute production. Therefore, if BMV land yields a greater crop than non-BMV, the benefit of BMV is the difference between the two rather than the absolute production.

15.8.127 **Table 15.17** shows the economic and production difference between high and average budgeting figures in a recognised budget book (Ref 15-23).

**Table 15.17: Yield and Economic Differences**

| Item | Winter Wheat | | Winter Barley | |
|---|---|---|---|---|
| | Average | High | Average | High |
| Yield (t/ha) | 8.2t/ha | 9.4t/ha | 7.3t/ha | 8.4t/ha |
| Output (£) | £1,667/ha | £1,889/ha | £1,401/ha | £1,588/ha |
| Gross Margin (£) | £988/ha | £1,210/ha | £808/ha | £995/ha |
| Uplift (£) | - | £222/ha | - | £187/ha |

Nix Farm Management Pocketbook, September 2025

15.8.128 The economic benefit of the 868ha of BMV within the Scheme would therefore, using this crude estimate, be of the order of £190,000 per year (£162,000 - £193,000). This represents, crudely, the additional economic benefit from this being BMV land rather than non-BMV land.

15.8.129 In respect of production, taking a 3 wheats, 1 barley crop ratio, the food production benefits of 868ha of BMV to non-BMV land would be of the order of 1,020 tonnes/year (651ha wheat x 1.2t/ha, 114ha barley x 1.1t/ha). In 2025 the UK produced 12 million tonnes of wheat and 6.4 million tonnes of barley and 1 million tonnes of oats (total 19.4 million tonnes) (Ref 15-29), so the incremental benefits from the BMV are negligible in terms of UK production.

15.8.130 There are no magnitude and sensitivity criteria for wider economic effects in **Tables 15.3 and 15.4**. However, in respect of the economic and other benefits of BMV land within the Scheme:

- The economic benefits are about £190,000 per annum but this is negligible on a regional basis. A negligible impact results in a negligible effect (**Table 15.6**), which is **not significant** in EIA terms; and
- The food production benefits are estimated at around 1,000 tonnes per annum incremental production benefit, which is negligible on a regional and national basis. A negligible impact results in a negligible effect (**Table 15.6**), which is **not significant** in EIA terms.

## Decommissioning Phase

15.8.131 On decommissioning of the Scheme, most of the long-term temporary impacts will be removed. The adverse effects on food production will be removed. The beneficial impacts on soil health will cease. Only the National Grid Substation and the Grid Connection Infrastructure will remain in situ. The Green Infrastructure (tree planting, hedges etc) will remain. Other land management for biodiversity benefits may cease on decommissioning, as the land management will revert to the landowners.

### Effects on Agricultural Land Quality

15.8.132 The cabling connecting the ground-mounted PV Modules will be disconnected, the PV panels will be dismantled and removed and the framework unbolted. The piles will then be pulled out using machinery not dissimilar to that which installed the framework posts. This machinery will likely have tracks to dissipate ground pressure and will be operated in dry conditions.

15.8.133 Once the ground-mounted PV Modules have been removed the bases for the fixed infrastructure can be removed. This will involve removing the crushed stone bases and matting, loosening the soil to remove compaction, then returning topsoil to the areas. The topsoil will then be worked with normal agricultural machinery to create a tilth suitable for return to the landowner.

15.8.134 The approach to the removal of cables is set out in **ES: Chapter 4 The Scheme [EN0110014/APP/6.1.4]**. Where cables are to be removed this will be by digging a narrow trench, removing topsoil to one pile, subsoil to another, removing the cable then replacing the soils. This will result in an adverse impact on the soil structure, and hence land quality, but it will be temporary and fully reversible.

15.8.135 The soils across the Sites with solar array will then be returned to the farmers. These works will be set out in a detailed SRMP to be secured by a Requirement of the **draft DCO [EN0110014/APP/3.1].**

15.8.136 There will be no adverse effects on land quality from these decommissioning works.

15.8.137 The removal of the tracks will involve removing the base material and matting, loosening the subsoil to break any compaction, and replacing the original topsoil which has been stored adjacent to the track for the duration of the operation and maintenance phase.

15.8.138 Removal of the BESS will require all the material and bases to be removed. The stone can then be removed, and the matting taken away. The subsoil will then need mechanical ripping to alleviate any compaction, after which topsoil can be spread back over the area, and agricultural use can resume.

15.8.139 Similar restoration works are required for the Project Substations. Where any levelling has occurred, it will be important to restore the original contour using subsoil prior to replacing the topsoil. The restoration of these areas, which are of BMV quality, will necessitate careful soil management when conditions are suitable. A detailed Soil Management Plan would be prepared substantially in accordance with the measures outlined in the **Outline SRMP** [**EN0110014/APP/7.9**], secured by a requirement in the draft DCO and approved pre-commencement so as to ensure comparable land quality restoration is achieved.

15.8.140 As described in **ES: Chapter 4 The Scheme**, the National Grid Substation and Grid Connection Infrastructure will not be removed.

15.8.141 The impacts on land quality from the decommissioning works will all be temporary. Temporary and fully reversible impacts are of low magnitude (**Table 15.5**). The agricultural land quality resources are of high, medium and low sensitivity across the Site (**Table 15.3**). Low magnitude impacts on such resources result in minor adverse effects (**Table 15.6**), which is not significant in EIA terms.

### Soils

15.8.142 Decommissioning can be timed to be carried out when soil conditions are suitable, which is set out in the **Outline SRMP [EN0110014/APP/7.9].** Subject to suitable mitigation, decommissioning is therefore not anticipated to result in any effects greater than those during construction.

15.8.143 The impacts on soil are therefore of low magnitude (**Table 15.5**), on resources of medium and low sensitivity (**Table 15.3**), resulting in minor adverse effects (**Table 15.6**), which are **not significant in** EIA terms.

### Farm Businesses

15.8.144 There will be a period of 1-2 years during decommissioning when agricultural activity across the Order Limits will be disrupted. This will be a short-term temporary disruption. The agricultural enterprises that may be operating at the time of decommissioning will be based on sheep production. These will be of low sensitivity (**Table 15.5**), in that sheep grazing can be moved to different areas. Accordingly, whilst the impact will be medium magnitude (**Table 15.3**), the effect will be minor adverse (**Table 15.6**), which is **not significant** in EIA terms.

## 15.9 Additional Mitigation Measures

### Additional Construction Phase Mitigation Measures

15.9.1 No further mitigation measures have been incorporated into the Scheme's design for the construction phase.

### Additional Operation and Maintenance Phase Mitigation Measures

15.9.2 No further mitigation measures have been incorporated into the Scheme's design for the operation and maintenance phase.

### Additional Decommissioning Phase Mitigation Measures

15.9.3 No further mitigation measures have been incorporated into the Scheme design for the decommissioning phase.

## 15.10Residual Effects

15.10.1 The residual effects are summarised as follows:

(i) Construction Phase

- **Agricultural Land: Temporary**. Collectively the amount of land of BMV quality disturbed short-term temporarily for construction compounds is 9.5 ha. Long-term temporary disturbance, but reversible, will be 12.0 ha of BMV. Both these impacts are of low magnitude (**Table 15.5**) on a resource of high sensitivity (**Table 15.3**) resulting in an adverse effect of minor adverse significance (**Table 15.6**), which is not significant in EIA terms;

- **Agricultural Land: Permanent.** Taking a worst-case approach, the potential permanent loss or downgrading of agricultural land from the tracks, NG Substation, Project Substation and BESS areas, if not restored to comparable quality, could involve 28.9 ha of BMV, which would be a low magnitude impact (**Table 15.5**) on a resource of high sensitivity (**Table 15.3**), resulting in a moderate adverse effect (**Table 15.6**), which is significant in EIA terms;

- **Agricultural Land: Permanent and Tree Planting.** If the area of tree planting on BMV land is added to the total for the tracks, NG and Project Substations and BESS, the collective amount of BMV will be 37.9 ha BMV, which exceeds 20 ha and so is a moderate magnitude impact (**Table 15.5**) on a resource of high sensitivity (**Table 15.3**), resulting in a moderate adverse effect (**Table 15.6**), which is significant in EIA terms.

- **Soils**. The soils are a mixture of medium and low sensitivity due to their clay and high sand fraction. The effect of construction activities will be temporary and of low magnitude (**Table 15.5**) on resources of medium and low sensitivity (**Table 15.3**), resulting in effects that are minor adverse (**Table 15-.**), which is not significant in EIA terms.

(ii) Operation and Maintenance Phase

- **Agricultural land**. There will be no significant adverse effects on agricultural land during the operational phase. The impacts will be negligible (**Table 15.5**) on resources of high, medium and low sensitivity (**Table 15.3**), resulting in negligible effects (**Table 15.6**), which is not significant in EIA terms;

- **Soils**. There will be beneficial impacts on soils resulting from long-term resting from arable production. There are no adverse impacts. The benefits are however temporary and so of low magnitude (**Table 15.5**), on resources of medium and low sensitivity (**Table 15.3**), resulting in minor adverse effects (**Table 15.6**), which is not significant in EIA terms; and

- **Agricultural businesses**. There will be adverse impacts on a number of agricultural businesses, all of which are arable enterprises (low sensitivity, **Table 15.3**). Overall there will be medium and low magnitude impacts (**Table 15.5**) on resources of low sensitivity (**Table 15.4**), resulting in adverse effects that are minor adverse (**Table 15.6**), which is not significant in EIA terms.

(iii) Decommissioning Phase

- **Agricultural land**. The impacts will mostly be temporary and reversible, and consequently of low magnitude (**Table 15.5**) on land of high, medium and low sensitivity (**Table 15.3**). The permanent land-take associated with the National Grid substation and infrastructure will be 6ha of BMV and of low magnitude on high-sensitivity resources. The resultant effects are minor adverse (**Table 15.6**), which is not significant in EIA terms

- **Soils**. The impacts on soils are similarly temporary and reversible, and of low magnitude (**Table 15.5**). Most of the soils are of low sensitivity, but there are two areas of medium sensitivity (**Table 15.3**). The resultant effect is minor adverse (**Table 15.6**), which is not significant in EIA terms; and

- **Agricultural businesses**. The land will have sheep grazing enterprise(s), grazing parts of the Site. These enterprises are of low sensitivity (**Table 15.3**) and whilst the impact will be of medium magnitude (**Table 15.5**), the effect is minor adverse (**Table 15.6**), which is not significant in EIA terms.

## 15.11 Cumulative Effects Assessment

15.11.1 This section presents an assessment of cumulative effects between the Scheme and other existing and/or approved developments.

15.11.2 As set out in **ES: Chapter 2 EIA Methodology** [**EN0110014/APP/6.1.2**], a Cumulative Effects Assessment (CEA) has been undertaken as part of the EIA in accordance with PINS Advice on Cumulative Effects Assessment (September 2024) and has considered two types of cumulative effects:

15.11.3 **In combination effects**: the combined effect generated by individual effects on a particular receptor (presented within **ES: Chapter 19 In-Combination Effects** [**EN0110014/APP/6.1.19**]; and

15.11.4 **Cumulative effects**: effects generated by the Scheme and other planned or approved developments on the same receptor (presented in ES, **Chapters 6 – 18** [**EN0110014/APP/6.1.6 to 6.1.18**]).

### Cumulative Effects

15.11.5 Cumulative effects may arise as a result of effects associated with the Scheme combining with effects associated with other developments. The list

of developments has been narrowed down to focus on those developments which are most likely to give rise to cumulative effects. A long-list was generated which was then refined following consultation with relevant local planning authorities. This short-list forms the basis of this assessment.

### Relevant Developments

15.11.6 Those developments which have the potential to result in cumulative effects on Soil and Agriculture within the associated study area are described as follows:

(i) EN0110010 High Grove Solar Farm. The information is taken from the High Grove PEIR Chapter 5 (April 2025). There is 1,650ha of agricultural land within the proposal, a mix of loamy and sandy soils. The ALC survey results identified 354ha of Grade 2, 761ha of Subgrade 31 and 536ha of Subgrade 3b. The area expected to be permanently affected is less than 20ha; and

(ii) EN0110013 The Droves Solar Farm. The information is taken from the Droves Solar Farm ES Chapter 11. There is 799ha of agricultural land within that Scheme, and a mix of mostly sandy soils. About 57% of the site is BMV. The area permanently affected is 8.8ha, which is less than 20ha; and

(iv) EN0110019 EcoPower Suffolk Solar. This proposal is at an early stage and limited data is available. The site is approximately 624 ha, but no ALC breakdown is available. The provisional grade is 2 and undifferentiated Grade 3. It is anticipated that, as it is for solar development, the quantum of irreversible development will be limited.

### Construction Phase

15.11.7 No significant cumulative effects on agricultural land are anticipated, as the works are mostly temporary and therefore are of low magnitude (**Table 15.5**) on land of high and medium sensitivity (**Table 15.3**) resulting in a minor cumulative effect (**Table 15.6**).

### Operational Phase

15.11.8 No significant cumulative effects on the availability of agricultural land or on soils are anticipated. There will be additional impacts on agricultural land use for arable cropping from the High Grove Solar Farm, Droves Solar Farm and EcoPower (Suffolk) Solar, but the effects on food production regionally and nationally are expected to be negligible. The impacts of mostly temporary so of low magnitude (**Table 15.5**), on resources of high and medium sensitivity (**Table 15.3**), resulting in minor cumulative adverse effects (**Table 15.6**).

### Decommissioning Phase

15.11.9 Decommissioning works will mostly result in temporary and reversible impacts (low magnitude, **Table 15.5**), on resources of high and medium

sensitivity (**Table 15.3**). The overall effect will be minor adverse (**Table 15.6**), which is not significant in EIA terms.

15.11.10 All schemes are expected to involve small areas of permanent land take, for fixed infrastructure, or permanent mitigation areas. Consequently there is the potential for permanent land loss of BMV quality from all the developments to exceed 20ha, which would result in a cumulative impact of medium magnitude (**Table 15.5**) on resources of high sensitivity (**Table 15.3**), resulting in a moderate adverse effect (**Table 15.6**) which would be significant in EIA terms

## 15.12Conclusion

15.12.1 This chapter has set out and assessed the likely effects of the Scheme in relation to Soils and Agriculture. Likely effects have been assessed for the construction, operation and maintenance, and decommissioning Phases of the Scheme. Following the implementation of embedded mitigation, on the basis of a worst-case assessment whereby some areas will not be capable of full restoration to comparable ALC grade, a significant adverse effect on soils and agriculture has been identified.

15.12.2 **Table 15.18** sets out a summary of the Soils and Agricultural Land environmental effects.

### Table 15.18: Summary of Residual Effects for Soils and Agricultural Land

| Receptor | Sensitivity | Description of Impact | Magnitude of Impact | Scale and Nature of Effect | Significant/Not Significant |
|---|---|---|---|---|---|
| **Construction Phase** | | | | | |
| **BMV agricultural land** | High | Irreversible loss or downgrading (worst-case assessment) | Medium | Moderate adverse | Significant |
| **Non-BMV agricultural land** | Medium or low | Irreversible loss or downgrading | Low | Minor adverse | Not significant |
| **Soils** | Medium and low | Temporary damage to structure | Low | Minor adverse | Not significant |
| **Farm enterprises** | Low | Short-term disruption | Negligible | Negligible | Not significant |
| **Operation and Maintenance Phase** | | | | | |
| **Agricultural land** | High and medium | Damage or loss | Negligible | Negligible | Not significant |
| **Soils** | Medium or low | Structural damage | Minor or negligible | Minor or negligible | Not significant |
| **Farm businesses** | Low | Effects on viability | Medium or low | Minor adverse | Not significant |
| **Food and wider economy** | Not defined | Impacts on food security | Negligible | Negligible | Not significant |

| Receptor | Sensitivity | Description of Impact | Magnitude of Impact | Scale and Nature of Effect | Significant/Not Significant |
|---|---|---|---|---|---|
| **Decommissioning Phase** | | | | | |
| **Agricultural land** | High, medium and low | Loss or irreversible damage | Low | Minor adverse | Not significant |
| **Soils** | Medium and low | Loss or irreversible damage | Low | Minor adverse | Not significant |
| **Farm businesses** | Low | Effect on enterprises | Medium | Minor adverse | Not significant |

## 15.13 References

Ref 15-1 UK Government (2015) *Town and Country Planning (General Permitted Development) (England) Order 2015*.

Ref 15-2 Department for Energy Security and Net Zero (December 2025) *Overarching National Policy Statement for Energy (NPS EN-1*).

Ref 15-3 Department for Energy Security and Net Zero (December 2025) *National Policy Statement for Renewable Energy Infrastructure (NPS EN-3).*

Ref 15-4 Department for Environment, Food and Rural Affairs (2009) *Construction Code of Practice for the Sustainable use of Soils on Construction Sites.*

Ref 15-5 Department for Energy Security and Net Zero (December 2025) *National Policy Statement for Electricity Network Infrastructure (EN-5).*

Ref 15-6 Ministry of Housing, Communities and Local Government (2024) *National Planning Policy Framework (NPPF), revised December 2024*.

Ref 15-7 Ministry of Housing, Communities and Local Government (n.d.) *Planning Practice Guidance (National Planning Practice Guidelines).*

Ref 15-8 Department for Energy Security and Net Zero (2024) *Clean Power 2030 Action Plan: A new era of clean electricity.*

Ref 15-9 Natural England (2012) *Technical Information Note TIN049: Soil Management for Sustainable Agriculture.*

Ref 15-10 Department for Environment, Food and Rural Affairs ( updated 2025) *ALC of England and Wales: Guidelines for grading the quality of agricultural land.*

Ref 15-11 Institute of Quarrying (2021) *'Good Practice Guide for Handling Soils'.*

Ref 15-12 Institute of Sustainability and Environmental Professionals (ISEP) (2022) *'A New Perspective on Land and Soil in Environmental Impact Assessment'.*

Ref 15-13 British Society of Soil Science (2022) *'Benefitting from Soil Management in Development and Construction'.*

Ref 15-14 Ministry of Agriculture, Fisheries and Food (1983) *Provisional ALC mapping data*.

Ref 15-15 Natural England (2017) *Likelihood of BMV Mapping data.*

Ref 15-16 Institute of Sustainability and Environmental Professionals (ISEP) (2022) *A New Perspective on Land and Soil in Environmental Impact Assessment.*

Ref 15-17 UK Government (2025) Land Use Consultation.

Ref 15-18 Department for Environment, Food and Rural Affairs (2024) *United Kingdom Food Security Report 2024.*

Ref 15-19 UK Government (2021) *Environmental Act 2021.*

Ref 15-20 Department for Environment, Food and Rural Affairs (2024) *Agricultural Land Use in the United Kingdom at 1 June 2024.*

Ref 15-21 Organisation for Economic Co-operation and Development (OECD) and Food and Agriculture Organisation (FAO) of the United Nations (2025) *OECD-FAO Agricultural Outlook 2025-2034.*

Ref 15-22 Department for Energy Security and Net Zero (2025) *Solar Road Map.*

Ref 15-23 The Andersons Centre (2025) *Nix Farm Management Pocketbook 2026.*

Ref 15-24 Environment Agency (2023) Summary of the State of the Environment: Soils.

Ref 15-25 Department for Environment, Food and Rural Affairs (2025) *Agricultural Land Classification of England and Wales: Guidelines for grading the quality of agricultural land, updated 2025*.

Ref 15-26 Department for Environment, Food and Rural Affairs (2024), *Numbers of holdings and agricultural activity by English County/Unitary Authority at 1 June each year*.

Ref 15-27 Department for Environment, Food and Rural Affairs (2024), *Key land use, crop areas, livestock populations and agricultural workforce on commercial agricultural holdings in 2024 by Local Authority*.

Ref 15-28 The Institute of Sustainability and Environmental Professionals (2025), Solar PV on Agricultural Land – essential components for Environmental Assets and Reports.

Ref 15-29 Department of the Environment, Food and Rural Affairs (2026). Cereal and Oilseed production in the United Kingdom 2025.