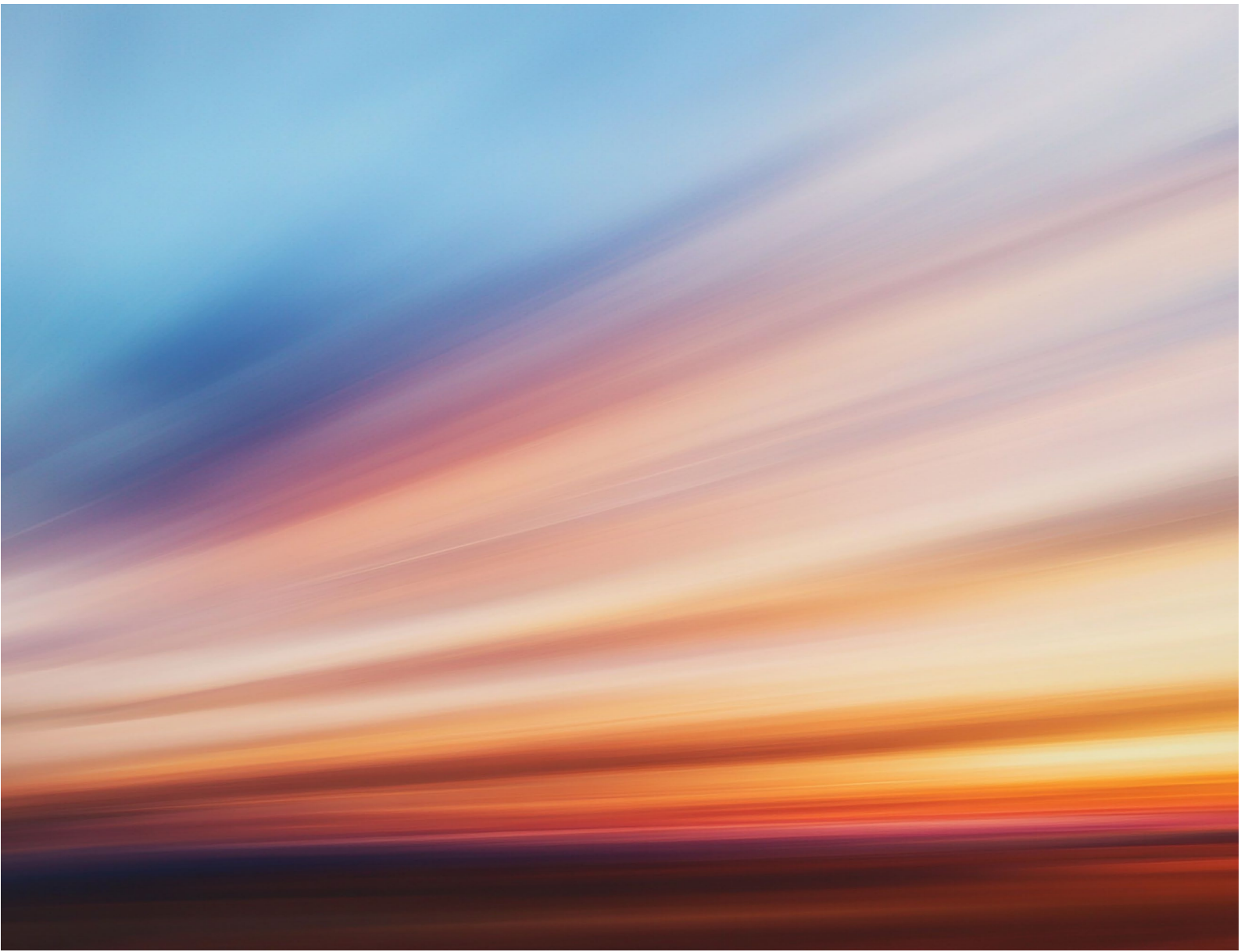
Mylen Leah Solar Farm

Preliminary Environmental Information Report (PEIR)

Volume 1

Chapter 17: Soil

April 2026



Contents

17. Soil

17.1 Introduction

17.1.1 This chapter presents a preliminary assessment of the likely significant effects arising on soil during the construction, operation and decommissioning phases of Mylen Leah Solar Farm.

17.1.2 This chapter should be read in conjunction with the following chapters in **Volume 1**, with the following figures in **Volume 2** and with the following appendices in **Volume 3**:

- **Chapter 7: Biodiversity**;
- **Chapter 10: Land and Groundwater**;
- **Chapter 13: Population**;
- **Chapter 19: Cumulative Effects**;
- **Figure 17i: Bedrock Geology**;
- **Figure 17.1ii: Superficial Geology**;
- **Figure 17.2: Soil Association Map**;
- **Figure 17.3: Provisional Agricultural Land Classification Map**;
- **Figure 17.4: Previously Accepted and Detailed Agricultural Land Classification Map**; and
- **Appendix 17.1 Detailed Agricultural Land Classification Report**.

17.1.3 This chapter assesses the preliminary environmental impacts on both agricultural land quality and soil structure. The temporary and permanent preliminary impacts during construction, operation and decommissioning have been assessed.

17.1.4 At the Environmental Impact Assessment (EIA) scoping stage, land, soil and groundwater were considered together. For the purposes of this Preliminary Environmental Information Report (PEIR), soil is now considered in a separate chapter to **Chapter 10: Land and Groundwater** in **Volume 1**, therefore allowing greater detail to be applied to the preliminary assessment by assessing soil structure as an individual receptor.

17.1.5 Furthermore, at the EIA scoping stage, the factor of 'soil' constituted a single receptor (agricultural land classification (ALC)). For the purposes of this PEIR, the factor of soil constitutes three separate receptors; agricultural land quality (assessed through ALC), soil structure (assessed through soil physical resilience) and soil health (assessed through soil health assessment). Splitting the receptors provides a more thorough understanding of the soil properties during the different phases of development.

17.1.6 It should be noted that soil health has been included as a specific receptor to comply with the requirements of 'Soil Health and Environmental Assessment'[1] (Institute of Sustainability and Environmental Professionals, 2026). As this document has only been recently published, the Applicant has not been able to consider this guidance for this PEIR and therefore soil

health has not actually been subject to preliminary assessment within this chapter. However, the Applicant will assess likely significant effects upon soil health within the ES (refer to **Section 17.14** below).

17.2 How have we engaged with others about soil so far?

17.2.1 **Table 17.1** provides a summary of the engagement undertaken to date to inform this preliminary assessment, outside of the EIA Scoping process.

Table 17.1: Summary of engagement undertaken to date in relation to soil

Consultee	Date of engagement	Summary of engagement
Natural England	01/08/2025	Initial email correspondence over the detailed ALC survey methodology. Discussions are ongoing related to the ALC methodology. Natural England will also be consulted on the receptors of soil structure and soil health and will be invited to review the mitigation measures proposed within the Outline Soil Management Plan (Outline SMP) before it is submitted in support of the DCO application.

17.3 What legislation, planning policy and guidance is relevant to soil?

17.3.1 The general legislation and planning policy context for Mylen Leah Solar Farm is provided in **Section 1.4** of **Chapter 1: Introducing Mylen Leah Solar Farm** in **Volume 1**. Legislation, planning policy and guidance relevant to this preliminary soil assessment is detailed below:

Legislation

- Environmental Protection Act 1990[2]; and
- The Agricultural Land (Removal of Surface Soil) Act 1953[3].

National planning policy

- Overarching National Policy Statement for Energy (EN-1) (December 2025, published January 2026)[4], specifically paragraphs 5.11.12 to 5.11.15, 5.11.23 and 5.11.34;
- National Policy Statement for Renewable Energy Infrastructure (EN-3) (December 2025, published January 2026)[5], specifically Section 2.10 paragraphs 2.10.119 and 2.10.137, which contains details relating to soil quality for solar development;
- National Policy Statement for Electricity Networks Infrastructure (EN-5) (December 2025, published January 2026)[6], specifically paragraph 2.9.26, which details issues relating to underground cables, in connection with soil, although predominantly dealing with overhead cables; and
- National Planning Policy Framework (NPPF) (2024)[7], specifically Section 15 ‘Conserving and enhancing the natural environment’.

Local planning policy

- East Riding Local Plan Update 2020-2039 (adopted April 2025)[8], specifically Policy EC5 'Supporting the renewable and low carbon energy sector'.

Guidance

- Agricultural Land Classification for England and Wales: Revised Guidelines and Criteria for Grading the Quality of Agricultural Land (Ministry of Agriculture, Fisheries and Food, 1988)[9];
- A Green Future: Our 25 Year Plan to Improve the Environment[10];
- Natural England (2012) Agricultural Land Classification: Protecting the Best and Most Versatile Agricultural Land (TIN049)[11];
- Natural England (2017) Likelihood of Best and Most Versatile Agricultural Land[12];
- Natural England (2021). Guide to Assessing Development Proposals on Agricultural Land[13];
- Institute of Quarrying (2021) Good Practice Guide for Handling Soils in Mineral Workings[14];
- Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (2009)[15];
- Soil Survey Field Handbook (2022)[16]; and
- Institute of Environmental Management and Assessment (IEMA) Guide: A New Perspective on Land and Soil in Environmental Impact Assessment (Stapleton, C., Reed, E., Gemmell, L., Adams, K. (eds), 2022)[17].

17.4 What study area has been used for soil?

17.4.1 The study area is confined to the draft Order Limits. Soil is highly localised and can dramatically change over a small area; therefore, it is not considered necessary or appropriate to extend the study area beyond the draft Order Limits. At the EIA Scoping stage, a study area comprising the Site plus a 250m buffer was proposed; this study area was relevant to land receptors, but not to soil receptors. Therefore, as the chapters are now split into two chapters (refer to **paragraph 17.1.4** above), the 250m buffer is no longer considered necessary to assess the likely significant effects on soil.

17.5 How have existing soil conditions been understood?

Data sources to inform the EIA baseline characterisation

17.5.1 The following data sources have been used to understand the existing soil baseline conditions:

- LandIS Soil Associations[18];
- Ordnance Survey (OS) mapping and aerial photography[19];
- British Geological Survey maps (bedrock and superficial geology)[20];

- Likelihood of Best and Most Versatile (BMV) agricultural land map;
- Previously accepted detailed ALC maps, available via Department of Environment Food and Rural Affairs (Defra) magic mapping application[21];
- Provisional ALC maps, available via Defra magic mapping application[21]; and
- Climate data sets for ALC assessment[22].

Site visits/surveys

17.5.2 A detailed ALC survey has been completed between October 2023 and February 2024 by Land Research Associates. The survey is within the north-east section of the Site comprising a total of 310.8ha, with a detailed ALC survey of the remainder of the Site (including the underground grid connection corridor) currently being undertaken. The results of this survey are shown within **Appendix 17.1: Detailed Agricultural Land Classification Report** in **Volume 3** and **Figure 17.4: Previously Accepted and Detailed Agricultural Land Classification Map** in **Volume 2**. In the absence of the detailed survey results for the remainder of the Site and the underground grid connection corridor, the existing baseline conditions have been informed by publicly available data sources (see **paragraph 17.5.1** above) where a detailed ALC survey is yet to be completed.

17.5.3 A complete set of detailed ALC survey results for the Site will be used to inform the assessment presented in the ES. The survey will be undertaken in accordance with industry standards and the survey methodology will be agreed with Natural England (refer to **Table 17.1** above). The aim of the survey is to characterise the soil profiles to determine an ALC grade and examine soil resilience across the Site.

17.6 What are the soil conditions within the study area?

Existing baseline

Soil structure

17.6.1 The National Soil Map, published at a 1:250,000 scale, records five soil associations within the Site, as demonstrated in **Figure 17.2: Soil Association Map** in **Volume 2**. The soil within the Site comprises the following:

- Foggathorpe 2: Slowly permeable seasonally waterlogged stoneless clayey and fine loamy over clayey soils with some coarse loamy over clay soils.
- Kexby: Deep stoneless fine sandy soils affected by groundwater. These soils are well drained and can affected by wind erosion.
- Everingham: Deep stoneless permeable fine sandy soils with some bleached subsurface horizons. These soils can be groundwater effected if not controlled by ditches and are at risk of wind erosion.
- Sessay: Fine and coarse loamy often stoneless, permeable soils affected by groundwater. These soils are often found on flat land are

associated with slowly permeable seasonally waterlogged fine loamy over clay soils.

- Fladbury 3: Stoneless clayey, fine silty and fine loamy soils affected by groundwater. These soils are located on flat land and are at risk of flooding.

Agricultural land quality

17.6.2 BMV land is agricultural land classified as Grades 1, 2 and 3a under the ALC system. BMV land is considered to be the most productive and flexible for agricultural use within the country, so is therefore afforded a higher level of protection in planning policy.

17.6.3 Currently detailed ALC survey results are available for the north-east section of the Site (west of Seaton Ross and south of Melbourne). Land Parcel D and part of Land Parcel C have been surveyed. This area comprises a total of 310.8ha and consists of:

- 14.3ha (5%) of Grade 1, excellent quality;
- 7.7ha (2%) of Grade 2, very good quality;
- 60.1ha (19%) of Grade 3a, good quality;
- 209.9ha (68%) of Grade 3b, moderate quality; and
- 18.8ha (6%) of other land consisting of metalled tracks and other hard standings, water bodies and wooded areas (non-agriculture).

17.6.4 The distribution of detailed ALC grades is shown on **Figure 17.4: Previously Accepted and Detailed Agricultural Land Classification Map** in **Volume 2**. The previously accepted ALC information has been derived from publicly available information from Defra[21]. The detailed ALC information has been derived from a detailed ALC survey completed in Land Parcel D and partially within Land Parcel C; the remaining areas of the Site are still to be surveyed (see **Section 17.14** below).

17.6.5 The provisional ALC map shows the remainder of the Site as either provisional Grade 3 or Grade 4, as shown in **Figure 17.3: Provisional Agricultural Land Classification Map** in **Volume 2**.The provisional ALC data has come from publicly available information from Defra[21].

17.6.6 There are no previously accepted external ALC surveys within the Site, as shown in **Figure 17.4: Previously Accepted and Detailed Agricultural Land Classification Map** in **Volume 2**.

17.6.7 The breakdown of ALC grades within the draft Order Limits is recorded below in **Table 17.2**. This breakdown constitutes an amalgam of the results of the detailed ALC survey completed to date within Land Parcel D and partially within Land Parcel C and provisional ALC mapping for the unsurveyed Land Parcels. Therefore, the breakdown should be treated as preliminary and will be confirmed in the ES following the completion of the detailed ALC survey for the remainder of the Site (including the underground grid connection corridor). That said, the Applicant does not expect to record any additional Grade 1 or 2 land (over and above that already recorded within the detailed ALC survey undertaken to date) within the currently unsurveyed area.

Table 17.2: Breakdown of ALC grades within the draft Order Limits

ALC Grade	Area (ha)	Percentage (%)
Land Parcels A-E		
Grade 1	14.3	1.4
Grade 2	7.7	0.8
Grade 3a	188.7	18.8
Grade 3b	209.9	21.0
Grade 4	561.7	56.0
Non Agricultural	18.8	1.9
Total	1001.1	100
Underground grid connection corridor		
Grade 3a	382.1	96
Grade 4	15.4	4
Total	397.5	100

Future baseline

17.6.8 The future baseline of agriculture and soil is not expected to change over the duration of Mylen Leah Solar Farm, as the operational lifetime of Mylen Leah Solar Farm (50 years) is relatively short compared to the timescales over which agricultural practices and soil conditions typically develop and change.

17.6.9 The baseline conditions for ALC Grades will remain unchanged from those described above. While there may be potential changes in relation to climate change, including greater rainfall intensity and frequency of droughts, that could affect soil conditions, land grade, and farming practices, it is likely that these would only become apparent over longer time frames.

17.6.10 There could potentially be future changes to land management practices and business approaches across the landowners/land managers irrespective of whether Mylen Leah Solar Farm goes ahead; these cannot be known or assessed currently as any future changes would be driven by a third party.

17.7 How have the likely effects been assessed for soil?

Approach to design flexibility

17.7.1 The design of Mylen Leah Solar Farm currently has flexibility over the On-Site Substation locations; however, the approach taken has assessed the reasonable worst-case scenario of all potential options.

Assessment assumptions

17.7.2 The provisional ALC mapping does not distinguish between Grades 3a and 3b. Therefore, where the grade is provisionally mapped as Grade 3, this has been assumed to be Grade 3a to represent a reasonable worst-case scenario. Realistically however, at least some of this land will be Grade 3b (which will be confirmed following completion of the detailed ALC survey).

17.7.3 The approach outlined for the construction works for Mylen Leah Solar Farm to classify the effects on soil as short term, reversible and local has been approved in principle for other recent large solar developments, including Little Crow Solar Development [EN010101][23], for which the following comments were provided by the Secretary of State:

The effect on soil would be:

short term, reversible, local in extent and of negligible significance during the construction and decommissioning phases;

and medium term, reversible, local in extent and of negligible significance during the operational phase, with a moderate beneficial effect for the quality of soils within the Order Limits, because intensive cropping would be replaced by the growing of grass.

17.7.4 This approach has been followed in subsequent solar farm DCO applications. It has therefore been assumed within this preliminary assessment that changes to the land used for the solar PV modules and other temporary facilities will be reversible, and the soil will be managed and reinstated to the pre-existing soil quality and ALC grade.

17.7.5 The hard infrastructure (up to two On-Site Substations, inverters, MV stations and access tracks) have been assumed to be temporary land take as it will be removed during decommissioning. This approach aligns with other solar projects as any soil disturbance is temporary and reversible.

Assessment methodology and criteria

17.7.6 The IEMA Guide: A New Perspective on Land and Soil in Environmental Impact Assessment[17] has been used to inform this preliminary assessment of the potential impact of Mylen Leah Solar Farm on agricultural land quality and soil structure.

Sensitivity of the receptor

17.7.7 Sensitivity criteria for agricultural land quality and soil structure, derived from the IEMA Guide: A New Perspective on Land and Soil in Environmental Impact Assessment[17], are presented in **Table 17.3** and **Table 17.4** respectively. The ALC grades have been used as the determining factor for receptor sensitivity for agricultural land quality.

17.7.8 During the ALC survey, anything that can become a potential limitation is flagged by the surveyor and used to gain a full description of the soil characteristics across the Site. Texture and colour are used as indicators of carbon storage within the soil survey. Likewise, soil ecological habitats are directly correlated to soil health, so by understanding the soil profile as a whole and the soil limitations, soil function can be understood.

17.7.9 The detailed ALC survey undertaken within the north-east section of the Site has provided information to describe the soil's physical characteristics within that area. Desk-based sources have been used to determine the baseline conditions within those areas of the Site where detailed ALC survey is yet to be completed. ALC is the industry standard classification to describe soil function within UK. Therefore, although there is no direct data for the other factors mentioned within the IEMA Guide: A New Perspective on Land and Soil in Environmental Impact Assessment, this preliminary assessment provides an accurate representation of soil function which is reflected through ALC grade as all soil factors are interlinked.

17.7.10 A more detailed approach has been taken to assessing the sensitivity of soil compared to the approach that was proposed at the EIA scoping stage. This

is because at the EIA scoping stage, land, soil and groundwater were considered together. For the purposes of this PEIR, soil is now considered in a separate chapter to **Chapter 10: Land and Groundwater** in **Volume 1**, therefore allowing greater detail to be applied to the preliminary assessment.

Table 17.3: Receptor sensitivity relating to agricultural land quality

Sensitivity (in-situ soil)	Soil resource and soil functions
Very High	**Biomass production**: ALC Grades 1 & 2. **Ecological habitat, soil biodiversity and platform for landscape:** Soil supporting protected features within a European site (e.g., Special Area of Conservation (SAC), Special Protection Area (SPA), Ramsar); Peat soil; Soil supporting a National Park, or Ancient Woodland. **Soil carbon**: Peat soil. Soil with potential for ecological/landscape restoration. **Soil hydrology**: Very important catchment pathway for water flows and flood risk management. **Archaeology, cultural heritage, community benefits and geodiversity:** Scheduled Monuments and adjacent areas; World Heritage and European designated sites; Soil with known archaeological interest; Soil supporting community/recreational/educational access to land covered by National Park designation. **Source of materials**: Important surface mineral reserves that would be sterilised (i.e. without future access).
High	**Biomass production:** ALC Grade 3a. **Ecological habitat, soil biodiversity and platform for landscape:** Soil supporting protected features within a UK designated site (e.g., United Nations Educational, Scientific and Cultural Organisation (UNESCO) Geoparks, Site of Special Scientific Interest (SSSI) or Protected Landscapes, Special Landscape Area, and Geological Conservation Review sites); Native Forest and woodland soil; Unaltered soil supporting semi-natural vegetation (including priority habitats). **Soil carbon**: Organo-mineral soil (e.g. peaty soil). **Soil hydrology**: Important catchment pathway for water flows and flood risk management. **Archaeology, cultural heritage, community benefits and geodiversity**: Soil with probable but as yet unproven (prior to being revealed by construction) archaeological interest; Historic parks and gardens; Regionally Important Geological and Geomorphological Sites (RIGS); Soil supporting community/recreational/educational access to RIGS and Protected Landscapes. **Source of materials**: Surface mineral reserves that would be sterilised (i.e. without future access).

Sensitivity (in-situ soil)	Soil resource and soil functions
Medium	**Biomass production:** ALC Grade 3b. **Ecological habitat, soil biodiversity and platform for landscape:** Soil supporting protected or valued features within non-statutory designated sites (e.g., Local Nature Reserves, Local Geological Sites, Sites of Nature Conservation Importance, Special Landscape Areas; Non-Native Forest and woodland soil. **Soil carbon**: Mineral soil. **Soil hydrology**: Important minor catchment pathway for water flows and flood risk management. **Archaeology, cultural heritage, community benefits and geodiversity**: Soil with possible but as yet unproven (prior to being revealed by construction) archaeological interest; Soil supporting community/recreational/educational access to land. **Source of materials**: Surface mineral reserves that would remain accessible for extraction
Low	**Biomass production**: ALC Grades 4 and 5 or Urban soil. **Ecological habitat, soil biodiversity and platform for landscape**: Soil supporting valued features within non designated notable or priority habitats/landscapes; Agricultural soil. **Soil carbon**: Mineral soil. Soil hydrology: Pathway for local water flows and flood risk management. **Archaeology, cultural heritage, community benefits and geodiversity**: Soil supporting no notable cultural heritage, geodiversity nor community benefits; Soil supporting limited community/recreational/educational access to land. **Source of materials**: Surface mineral reserves that would remain accessible for extraction.
Negligible	As for low sensitivity, but with only indirect, tenuous, and unproven links between sources of impact and soil functions.

Table 17.4: Receptor sensitivity relating to soil structure

Sensitivity of topsoil and subsoil	Soil texture, field capacity days[1] and wetness class
High (low resilience to	Soil with high clay and silt fractions (clays, silty clays, sandy clays, heavy silty clay loams and heavy clay

[1] Field capacity days is the climatic parameter measurement of how many days a year the soil is estimated to be at a soil moisture deficit of zero

Sensitivity of topsoil and subsoil	Soil texture, field capacity days[1] and wetness class
structural damage	loams) and organo-mineral and peaty soil where the field capacity days are 150 or greater; Medium-textured soil (silt loams, medium silty clay loams, medium clay loams and sandy clay loams) where the field capacity days are 225 or greater; and All soil in wetness class 5 and 6 (WCV and WCVI).
Medium (medium resilience to structural damage)	Clays, silty clays, sandy clays, heavy silty clay loams, heavy clay loams, silty loams and organo-mineral and peaty soil where the field capacity days are fewer than 150; Medium-textured soil (silt loams, medium silty clay loams, medium clay loams and sandy clay loams) where field capacity days are fewer than 225; and Sands, loamy sands, sandy loams and sandy silt loams where the field capacity days are 225 or greater or are in wetness classes 3 and 4 (WCIII and WCIV).
Low (high resilience to structural damage)	Soil with a high sand fraction (sands, loamy sands, sandy loams and sandy silt loams) where the field capacity days are fewer than 225 and are in wetness classes 1 and 2 (WCI and WCII).

Magnitude of impact (change)

17.7.11 Where an impact is likely to occur because of Mylen Leah Solar Farm being constructed, operated and/or decommissioned, the magnitude of impact is classified using the criteria presented in **Table 17.5**, which are derived from the IEMA Guide: A New Perspective on Land and Soil in Environmental Impact Assessment.

Table 17.5: Magnitude of impact criteria relating to agricultural land quality and soil structure

Magnitude of impact (change)	Description of impacts restricting proposed land use
Major	**Adverse**: Permanent, irreversible loss of one or more soil functions or soil volumes (including permanent sealing or land quality downgrading) over an area of more than 20ha; or loss of soil-related features, as advised by other factor specialists in the EIA team (including effects from 'temporary developments'*). **Beneficial**: Potential for permanent improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of more than 20ha; or gain in soil-related features, as advised by other factor specialists in the EIA team (including effects from 'temporary developments'*).

Magnitude of impact (change)	Description of impacts restricting proposed land use
Moderate	**Adverse**: Permanent, irreversible loss of one or more soil functions or soil volumes, over an area of between 5ha and 20ha; or loss of soil-related features, as advised by other factor specialists in the EIA team (including effects from 'temporary developments'*). **Beneficial**: Potential for improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of between 5ha and 20ha; or gain in soil related features, as advised by other factor specialists in EIA team.
Minor	**Adverse**: Permanent, irreversible loss over an area of less than 5ha or a temporary, reversible loss of one or more soil functions or soil volumes; or temporary, reversible loss of soil-related features, as advised by other factor specialists in EIA team. **Beneficial**: Potential for permanent improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of less than 5ha; or a temporary improvement in one or more soil functions due to remediation or restoration or offsite improvement; or temporary gain in soil-related features, as advised by other factor specialists in EIA team.
Negligible	No discernible loss or reduction or improvement of soil functions or soil volumes that restrict current or proposed land use.

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

Significance of effect

17.7.12 The significance of effect is based on the sensitivity of the receptor and the magnitude of impact, as outlined in the IEMA Guide: A New Perspective on Land and Soil in Environmental Impact Assessment. The significance of effect can be either adverse or beneficial.

17.7.13 The significance of an effect is reported as either 'significant' or 'not significant'. Any effects that have been determined as 'moderate' or above are considered significant. Any effects that have been determined as 'slight' or below are considered not significant. Where the significance matrix indicates a range for the effect significance (e.g. 'slight or moderate'), professional judgement can be applied to select one option (which would be justified by evidence, as appropriate) or an effect significance range can be applied. If a significance of effect is assigned as 'slight or moderate', this would be considered significant unless further information could be provided to downgrade the significance effect to 'slight'.

17.7.14 With reference to **Table 17.4** above and in accordance with professional interpretation of the IEMA Guide: A New Perspective on Land and Soil in

Environmental Impact Assessment, it should be noted that for soil structure, only the sensitivity categories of 'high', 'medium' and 'low' apply within **Table 17.6**. The sensitivity categories of 'very high' and 'negligible' do not apply.

Table 17.6: Significance of effect criteria relating to agricultural land quality and soil structure

Sensitivity	Magnitude of impact				
	No change	Negligible	Minor	Moderate	Major
Very high	Neutral	Slight	Moderate or Large	Large or Very Large	Very Large
High	Neutral	Slight	Slight or Moderate	Moderate or Large	Large or Very Large
Medium	Neutral	Neutral or Slight	Slight	Moderate	Moderate or Large
Low	Neutral	Neutral or Slight	Neutral or Slight	Slight	Slight or Moderate
Negligible	Neutral	Neutral or Slight*	Neutral or Slight	Neutral or Slight	Slight
** This cell is listed as 'Slight' in the IEMA Guide, but has been adjusted to 'Neutral or Slight' to be consistent with the ranking scheme (the significance of effect should be equal to or lower than the adjacent cell to the right, not higher)*					

17.8 How has soil informed the design so far?

17.8.1 The potential use of BMV land has been a key consideration in the development of the design and Site selection.

17.8.2 The area of land underneath the solar PV modules and within the field margins can be used for ecological mitigation and enhancements, which would include planting (including establishment of grassland and wildflowers); this can help to reduce soil degradation and erosion during the operation phase, which could lead to potential benefits. The nature of Mylen Leah Solar Farm is such that it provides potential for the land beneath and around the solar PV modules to continue in, albeit altered, agricultural use during the operational lifetime of Mylen Leah Solar Farm, with potential for agricultural grazing.

17.8.3 This preliminary assessment has been based on the principle that certain mitigation measures have been 'embedded' into the design of Mylen Leah Solar Farm to minimise likely significant effects as far as reasonably practicable at this stage of the design process, for example by the considered placement of infrastructure.

17.9 What are the likely effects of Mylen Leah Solar Farm on soil?

Construction

17.9.1 Construction activities, including trafficking of agricultural land by construction vehicles, formation of construction compounds, installation of the interconnecting underground cables and underground grid connection corridor and earthworks may lead to compaction and deterioration of soil and agricultural land.

17.9.2 Access tracks within the Site are likely to be most susceptible to deterioration through erosion. Some soils are more susceptible to damage when handled during construction. Handling and moving of soil is expected to be minimal, where reasonably practicable.

17.9.3 Some soils are, however, more susceptible to structural damage from the use of machinery and vehicular activity, depending upon soil type, climate and wetness class. It should also be noted that the soils are currently predominantly in agricultural use so are frequently driven over by heavy farm machinery.

17.9.4 During the construction phase, the land designated for development will be temporarily removed from agricultural use. As a result, there will be a direct loss of arable land, leading to a decline in overall agricultural productivity and crop yields. This disruption may reduce the availability of locally grown produce and potentially impact the broader agricultural supply chain in the region.

17.9.5 The construction process will involve soil stripping, excavation, and temporary storage of topsoil and subsoil. These activities can lead to significant soil disturbance, including the loss of soil structure, compaction and mixing of soil horizons. Improper handling and storage may degrade the quality of the soil, reducing its fertility and biological activity. Additionally, exposed soils are more vulnerable to erosion by wind and water, which can result in sediment runoff and potential contamination of nearby watercourses.

Operation

17.9.6 It is anticipated to be limited ground disturbance or trafficking over the soils, apart from periodic maintenance requirements, including replacement of damaged parts or cleaning and maintenance of the solar PV modules.

17.9.7 Mylen Leah Solar Farm would lead to temporary impacts to soil structure and agricultural land for the duration of the operation phase (assumed to be 50 years). In particular, the areas in which the On-Site Substations and operational internal access tracks would be located.

17.9.8 The operation phase would lead to a temporary change of land use of agricultural land for the duration of the operation phase (assumed 50 years), which would include a temporary loss of agricultural land (including BMV).

Decommissioning

17.9.9 The decommissioning phase would involve the dismantling and removal of infrastructure. Following decommissioning, it is intended that this land would be returned to the landowner(s). By following good practice, the agricultural land will be returned to its previous quality prior to the commencement of Mylen Leah Solar Farm.

17.9.10 The decommissioning phase would involve the removal of all the above ground infrastructure and any infrastructure up to a depth of 1m below ground level.

17.9.11 The locations of the On-Site Substations and internal access tracks will be restored using soil retained on-site, or with new topsoil that would be brought to the Site. The trafficking of soil when conditions are unsuitable (e.g., when

soils are wet) could damage soil structure, necessitating remedial activity to restore quality.

17.9.12 For the purposes of this assessment, it has been assumed that green infrastructure has the potential to be permanent. Green infrastructure, recreation and amenity works comprise: landscaping; habitat management; biodiversity enhancement; the creation of permissive footpaths. The permanent land take for green infrastructure affects an assumed area of between 5ha and 20ha. The total area of permanent green infrastructure is yet to be determined; further details of this assessment will be assessment will inform the ES.

17.10 What additional mitigation is proposed to avoid, prevent, reduce or offset likely effects on soil?

Construction

17.10.1 An Outline SMP will be submitted in support of the Development Consent Order (DCO) application and will outline measures to avoid and manage any potential impacts to the soil and agricultural land during the construction phase. The Outline SMP will identify those areas within the Site which may be more susceptible to damage and will advise on when soils are suitable for being handled or trafficked. The Outline SMP will detail measures for soil management and follows the principles of best practice to maintain the physical properties of the soil, with the aim of restoring the land to its pre-construction condition following the temporary construction use and at the end of the lifetime of Mylen Leah Solar Farm.

17.10.2 The Outline SMP will outline mitigation practices such as track matting, vehicle movement and access route requirements to mitigate the effects of construction and prevent soil compaction and degradation. Soil will be stored in bunds and managed to prevent erosion and the development of anaerobic conditions. Additionally, soil movement will be avoided during wet conditions to prevent soil smearing and structural damage.

Operation

17.10.3 An Outline SMP will be submitted in support of the DCO application and will set out the measures to manage any potential impacts to the soil and agricultural land during the operation phase. As detailed above for the construction phase, the Outline SMP will identify areas that may be more susceptible to damage and advises on when soils are suitable for being trafficked. The Outline SMP will also provide details for managing soil and maintaining the physical properties of the soil.

17.10.4 The timing of works will consider weather conditions and try to avoid working in wet conditions wherever possible; particularly avoiding heavy vehicle movement after heavy rainfall.

17.10.5 Grazing is a potential for grass management practice for the open spaces between the infrastructure and the land beneath the solar PV modules during the operation phase; therefore, some agricultural practices will be able to occur within the Site during the lifespan of Mylen Leah Solar Farm.

Decommissioning

17.10.6 An Outline SMP will be submitted in support of the DCO application and will set out the measures to manage any potential impacts to the soil and agricultural land during the decommissioning phase. Decommissioning measures will be similar to those reported for the construction phase and will be reviewed prior to the decommissioning phase commencing.

17.11 What likely effects would remain for soil following additional mitigation?

Construction

Agricultural land quality

17.11.1 Grade 1 and 2 land has **very high** sensitivity due to the land's biomass production potential. The magnitude of impact is assessed as **minor**, as any soil disturbance will be temporary and reversible. The significance of the residual effect on Grade 1 and 2 land is assessed as **moderate or large adverse**. The overall residual effect is considered to be **moderate adverse** and **significant** due to the temporary nature of the impact and the application of soil handling measures that will be documented within the Outline SMP.

17.11.2 Grade 3a land has a **high** sensitivity due to the land's biomass production potential. As the land take is only temporary and reversible, the magnitude of impact is assessed as **minor** and the significance of residual effect is **slight or moderate adverse**. The overall significance of residual effect is considered to be **slight adverse** and **not significant** due to the temporary nature of the impact and the application of soil handling measures that will be documented within the Outline SMP.

17.11.3 Grade 3b land is **medium** sensitivity and Grade 4 land is **low** sensitivity due to the land's biomass production potential. As the land take is only temporary and reversible, the magnitude of impact is assessed as **minor**. Therefore, the residual effect on Grade 3b land is considered to be **slight adverse** and **not significant** and the residual effect on Grade 4 land is considered to be **neutral or slight adverse** and **not significant**.

Soil structure

17.11.4 The field capacity days at the Site are all below 150 days; there is a variety of heavy, medium and light soils. The heavy and medium soils have medium resilience to soil damage and are of **medium** sensitivity and the light soils have high resilience to structural damage and are of **low** sensitivity. The magnitude of impact upon soil structure is assessed as **minor** as there is expected to be some potential reversible damage. The significance of the residual effect is **slight adverse** for heavy/medium soils and **neutral or slight adverse** for light textured soils. However, the significance of the residual effect for light soils is more likely to be **slight adverse** as they will still be suspectable to some damage. Therefore, the residual effect is **slight adverse** and **not significant** for all soil structures.

Operation

Agricultural land quality

17.11.5 Maintenance or repair works required which would result in minimal disturbance to soil during the operation of Mylen Leah Solar Farm would be undertaken in accordance with good practice soil handling methods outlined in the Outline SMP. It is unlikely any significant effects on agricultural land during operation, maintenance or repair activities will occur as the activities are likely to be limited in scale and temporary.

17.11.6 The magnitude of impact upon agricultural land quality remains consistent with that reported for the construction phase, as the impacts remain unchanged. The land has the potential for some agricultural activity through managed grazing but will still see a loss of agricultural production during operation. Therefore, the residual effect is **moderate adverse** and **significant** for Grades 1, 2 and 3a land, **slight adverse** and **not significant** for Grade 3b land and **neutral or slight adverse** and **not significant** for Grade 4 land.

17.11.7 The total area and locations of the green Infrastructure are yet to be determined; this will be examined further within the ES. However, it is expected to result in at least part permanent loss of agricultural land. Green infrastructure is not planned on Grade 1 or 2 land but is planned on Grade 3a (**high** sensitivity), Grade 3b (**medium** sensitivity) and Grade 4 (**low** sensitivity) land. The total area of permanent loss is estimated to be between 5ha and 20ha; therefore, the magnitude of impact is assessed as **moderate**. The residual effect is **moderate or large adverse** and **significant** for Grade 3a land, **moderate adverse** and **significant** for Grade 3b land and **slight adverse** and **not significant** for Grade 4 land. The overall residual effect on Grade 3a land is considered to be **moderate adverse** and **significant**, as the overall area of permanent infrastructure on Grade 3a land is expected to be low and near 5ha.

Soil structure

17.11.8 The sensitivity will remain at **medium** for heavy and medium textured soils and **low** for light textured soils. During operation, the soil will either be kept grassed or be available for low intensity grazing and remain out of intensive agricultural production. By converting land currently used for arable farming to grassland (specifically the solar PV development areas), there is reduced soil disturbance which will help increase soil organic matter. By increasing soil carbon, the soil will have improved soil structure and water infiltration which will therefore increase overall soil health. Due to the reduced disturbance from farming activities, increased soil organic carbon and potential nutrient input from grazing and managed grassland, there is a **minor** magnitude of impact as it is temporary and reversible. The significance of the residual effect is **slight beneficial** for heavy and medium textured soils and **neutral or slight beneficial** for light textured soils. The overall residual effect for all soil textures is **slight beneficial** during operation which is **not significant**, as all soils will have improved soil carbon storage and structure.

17.11.9 Within areas of green infrastructure, the soil will see improved biodiversity and biota due to being removed from agricultural pressures which will improve the overall soil health and structure. Soils within these areas can be either **medium** or **low** sensitivity depending on soil texture variability, but all soils will have a **moderate** magnitude of impact as it will be between 5ha and 20ha of permanent soil health improvement. Therefore, within areas of green infrastructure (permanent improvement) where there are heavy and medium textured soils (**medium** sensitivity), the residual effect is **moderate beneficial** and **significant** and within areas of green infrastructure (permanent improvement) where there are light textured soils (**low** sensitivity), the residual effect is **slight beneficial** and **not significant**.

Decommissioning

17.11.10 Changes to the land used for the solar PV modules and other temporary facilities will be reversible, and the soil will be managed and reinstated to retain the soil quality and existing ALC grade wherever possible. Decommissioning work to remove infrastructure will ensure that the agricultural land will be returned to its previous quality prior to the commencement of Mylen Leah Solar Farm, where plausible.

Agricultural land quality

17.11.11 The sensitivity of agricultural land quality is **very high** (Grade 1 and 2 land), **high** (Grade 3a land), **medium** (Grade 3b land) and **low** (Grade 4 land). The magnitude of impact upon agricultural land quality from decommissioning activities is assessed as **negligible**, as the agricultural land will be returned to agricultural production following decommissioning. The significance of the residual effect is **slight adverse** for Grade 1, 2 and 3a land and **neutral or slight adverse** for Grade 3b and 4 land. The overall residual effect for all grades during decommissioning is **slight adverse** and **not significant** as this is a realistic worst-case scenario (there will likely be some reversible damage, which is why slight adverse is more appropriate than neutral for Grade 3b and 4 land).

Soil structure

17.11.12 Likewise to the construction and operation phases, the sensitivity remains at **medium** for medium and heavy soils and **low** for light textured soils. Residual effects are expected to be similar to those described for construction and by following the Outline SMP, any potential damage to soil structure can be reversible preventing any medium to long term damage on soil structure. All infrastructure will be removed (except for a small area of green infrastructure and anything below 1m depth) and there will be no obstruction to cultivation after decommissioning. Therefore, the magnitude of impact on soil structure is assessed as **negligible** and the residual effect is **neutral or slight adverse**. The overall residual effect on soil structure is **slight adverse** and **not significant** as this is a realistic worst-case scenario (there will likely be some reversible damage, which is why slight adverse is more appropriate than neutral).

17.11.13 As the green infrastructure would be permanent, the same impacts will be carried through to decommissioning as recorded in operation. Therefore, within areas of green infrastructure (permanent improvement) where there

are heavy and medium textured soils (**medium** sensitivity), the residual effect is **moderate beneficial** and **significant** and within areas of green infrastructure (permanent improvement) where there are light textured soils (**low** sensitivity), the residual effect is **slight beneficial** and **not significant**.

17.12 What opportunities are there for environmental enhancement?

17.12.1 The cessation of agricultural activity on some parts of the Site during construction and operation could lead to the stabilisation of soil and may reduce soil-laden runoff into ditches and watercourses within and adjacent to the Site. Furthermore, a reduction in the application of herbicides, pesticides or fertilizers as a result of changes in land management from agricultural producer to solar farm will result in a reduction of surface water runoff from the Site and will provide an opportunity to increase soil organic matter, leading to improved water and nutrient retention as well as improved soil structure.

17.12.2 Within ecological mitigation and proposed planting areas, soil health and structure are expected to improve. This is due to no agricultural pressure and use of heavy pesticides and fertilisers. Underneath the solar PV modules, the soil will be protected from wind and water erosion and will have improved soil nutrient inputs (including carbon and nitrogen). The soil microbial community is also likely to improve. The soil health of ecological mitigation and proposed planting areas will be further assessed and explored within the ES.

17.13 What difficulties and uncertainties have been encountered in this preliminary soil assessment?

17.13.1 The detailed ALC survey has not yet been completed on the remainder of the Site. Therefore, for those areas within the Site which have yet to be surveyed, provisional ALC mapping has been used to initially determine the ALC grade of the soil. Those areas of the Site that have been recorded on the provisional ALC mapping as Grade 3 have been assumed to be Grade 3a (to adopt a worst-case preliminary assessment). However, in reality, the remaining detailed ALC survey is expected to confirm that areas of this land are in fact Grade 3b.

17.14 What further work is required to inform the full soil assessment in the DCO application?

17.14.1 The detailed ALC survey will be completed within the remainder of the Site for inclusion in the ES.

17.14.2 A soil health survey will be conducted to inform the assessment of the soil health receptor within the ES. The survey will be undertaken in accordance with industry standards and the survey methodology will be agreed with Natural England. The aim of the survey is to establish a baseline of soil chemical and biological properties as an indication of the overall soil health.

17.14.3 In January 2026, the Institute of Sustainability and Environmental Professionals published two new guidance documents, entitled ‘Soil Health and Environmental Assessment’ and ‘Solar PV on Agricultural Land: Essential Components of Environmental Assessments and Reports’[24] respectively. As these documents have only been recently published, the

Applicant has not been able to consider this guidance for this PEIR. However, the Applicant will consider this guidance for the ES.

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