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Meridian Solar Farm.

Soils, Agriculture and Land Use Impact

Report of Reading Agricultural Consultants

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CONTENTS

1. INTRODUCTION	1
2. BACKGROUND	1
Socio-economic issues	2
Agriculture and Soils	2
3. REVIEW OF DOCUMENTS	4

APPENDICES

Appendix 1: Extract from Boston and Spalding soil map

Introduction

1. This report has been prepared to inform Lincolnshire County Council's (LCC) comments on the Applicant's submissions at Deadline 1, relating to agriculture, soils and land use impacts. It draws on expert knowledge and opinion of soils and agriculture, and the evidence submitted by the Applicant.
2. This report assesses the revisions made to the relevant sections of the Environmental Statement (ES) in the context of published guidelines available to the Applicant, the local and national context of the proposed development, and the likely impacts of the Scheme in the light of its own direct and cumulative effects. It specifically addresses:
 - impacts on soil and wider agricultural resources; and
 - socio-economic and social issues.
3. Earlier comments raised by RAC and used to inform LCC's Relevant Representation are set out in RAC's '*Comments on 6.1 ES Chapter 5 and associated documents for Relevant Representation*' document, dated May 2026 and Appendix ii to Lincolnshire County Council's Local Impact Report of September 2026, submitted at Deadline 1.

Background

4. Lincolnshire county covers 592,100ha, of which about 545,000ha, that is about 92% is farmed. The county covers 4.5% of England's land area and accounts for 5.4% of its agricultural land. The proposed solar development area would occupy 1,064.1ha of agricultural land, plus 526.2ha of grid and inter-array connection corridors and 3.3ha of non-agricultural, that is a total of 1,593.6ha, in the region of 0.3% of Lincolnshire's farmland.
5. The wider county, as defined by the Greater Lincolnshire Local Enterprise Partnership (LEP), produced about 12% of English agricultural output, by value, in 2019, that is more than £2 billion¹. The county occupies a key position in food production that extends through food

¹ <https://www.greaterlincolnshirelep.co.uk/priorities-and-plans/sectors/agri-food-sector/> : Accessed 11/06/26

processing and distribution, in total the food chain provides 21% of Greater Lincolnshire's economic output and 24% of its jobs², compared with only 13% nationally.

6. Agriculture is critical to the well-being of the County and it is clear from these simple statistics that any impact on agricultural land in Lincolnshire is very likely to have an immediate impact on local employment and economic output, and a disproportionate impact on food production nationally, when compared with most of the rest of England.
7. The DESNZ's Renewable Energy Planning Database³ (REPD) shows that planning permissions granted for solar in Lincolnshire in the period Q3 2025 to Q1 2026 grew from 5,888ha to 7,036ha, 1.3% of the County's farmland – an increase in land take of 1,148ha over two quarters. This constitutes a 19.5% rise in area over two quarters compared to a national rise of 13%, with the County accounting for roughly 29% of all new nationally granted solar area over the two quarters, despite having only about 5% of England's agricultural land.

Socio-economic issues

8. It is noted that there is no updated version of the Socio-Economics and Land Use chapter of the ES [EN010169-000352-6.1 ES Chapter 14] at Deadline 1.
9. The assessment fails to address the effects associated with the long-term loss of production from and employment associated with the land occupied by the proposed development, notwithstanding its ALC Grade. Specifically, the assessment fails to avoid or otherwise minimise the loss of economic output from land that is up to 23% more productive than the County average, excluding value added locally within the supply chain.
10. This failure makes it impossible for the Secretary of State to take into account the economic and other benefits of that land, as required by the Overarching National Policy Statement for Energy (EN-1).

Agriculture and Soils

11. Paragraph-by-paragraph commentary on changes to and omissions from the tracked versions of the: Agriculture and Soils Chapter of the ES [EN010169-000594-6.1 ES Chapter 5 (Rev1)];
Agricultural Land Classification Report - parcels A & D [EN010169-000601-ES Appendix 5-2];

² Agriculture alone provides 4% of the region's workforce. h [REDACTED]
[REDACTED] : Accessed 11/06/26

³ <https://www.gov.uk/government/publications/renewable-energy-planning-database-quarterly-extract> : Accessed 11/06/26

Agricultural Land Classification Report - parcels B & C [EN010169-000604-ES Appendix 5-3]; and the Outline Soil Management Plan [EN010169-000639-7.14 OSMP (Rev1)], are set out in tale form in the following pages.

12. Whilst the availability of water for irrigation is no longer part of the ALC grading system, Irrigation enables the full versatility of land to be utilised, including the production of high value crops.
13. The development of solar arrays across the area will interrupt the use of any irrigation abstraction licences and is extremely likely to result in the revocation of that licence by the Environment Agency. Any such revocation will be permanent, and it is unlikely that a licence similar to the original would be granted when the land is returned to agriculture, so limiting the use of the land to crops not requiring irrigation.
14. Thus, any land benefitting from irrigation now will be less productive on decommissioning of the solar array than is currently the case. The revised ES fails to identify any agricultural land that benefits from irrigation and thus cannot accurately assess the temporary or likely permanent impacts of its loss from the farming economy.

Review of Documents

EN010169-000594 6.1 ES Chapter 5: Agriculture and Soils (Rev 1) (Tracked)	
Para	Comment
5.5.3	New text sets out a commentary on unsurveyed areas that amount to 11.4% of the Solar Development Area. The surveying of land before development to inform the site Soil Management Plan is accepted as good practice where access to land is not permitted. In the absence of detailed survey to inform ALC grading, it is suggested that the precautionary principle is applied and that all unsurveyed land be graded as Best and Most Versatile.
5.6.4	New text: <i>Additional explanation of the logs and further photographs have been included for Deadline 1 to reflect comments received from Lincolnshire County Council and Natural England within their relevant representations.</i> Comment: Text describes background to additional material included to address concerns expressed by Lincolnshire County Council and Natural England.
5.6.7	New text: <i>Existing field boundaries have been utilised as ALC grade boundaries where survey evidence indicates differing land quality between adjacent land parcels. This approach recognises the long-term practical management of the agricultural land and reflects the likelihood that field divisions have been established historically in response to differences in land capability, soil characteristics, or operational requirements.</i> Comment: The Boston and Spalding soil map [Appendix 1], published at 1:50,000, clearly shows that there is no relationship between soil type and field boundaries. The fields of the proposed development area are mostly rectangular or trapezoid, with drainage ditches maintained by farmers or the IDB forming the field boundaries. Boundaries in the area are dictated by drainage design and are ideal for spraying, harvesting and irrigation. Operational requirements are not a consideration in determining the ALC grade of a land parcel.

5.8.9 to 5.8.12 and 5.8.17 to 5.8.19	New Text: <i>...it was agreed with Natural England that the effects of hardstanding on BMV land will be assessed as if permanent.</i> Comment: Re-consideration of permanent effects under hard standing and tree planting is welcome, and it for NE to respond in detail. However, the assessment fails to take into account the likely loss of the benefit of irrigation from the development area. As has been pointed out above, any permanent loss of irrigation is likely to have a permanent impact on cropped land, thus the temporary restriction applied in Table 5-16 in the assessment is incorrect.
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EN010169-000604 6.3 ES Appendix 5-3: Agricultural Land Classification Report - Parcels B and C (Rev 1) (Tracked)	
Para	Comment
3.3.3	New Text: <i>Due to the ground conditions at the time of the survey following a period of drought the soil was largely impenetrable by spades: therefore, soil pits were excavated using the sides of Archaeology trenches to variable depths between 50cm and 120cm. Further excavation of these pits was not possible due to ground conditions and the need to avoid archaeological disturbance.</i> Comment: The use of undisturbed archaeological trenches for interpretation of soil profiles is not good practice. Only two synthesised soil profile descriptions are provided (i.e. not actual soil pit descriptions) to represent an area that, whilst mapped with only two soil associations, is mapped with four or more soil series on the map accompanying the Boston and Spalding Soil Memoir; a soil series is a homogenous, containing the same sequence, thickness, and arrangement of soil layers (horizons), along with similar colour, texture, and chemistry, whereas a soil association is a broad group of soil series' with recurring patterns formed on similar parent materials. Thus, it is unlikely that the two synthetic soil profiles are representative of the soils of the development area, compounding issues associated with the inadequate pit depth and lack of open pit faces from which soil characteristics are identified. The interpretation of the available evidence is questionable. All the soils in the development area are alluvial gley soils, yet descriptions of the visible soil profiles in both Pit Log 1 [p68 App5-3] and Pit Log 2 [p69 App5-3] refer to mottles, characteristic of gleyed soils, yet describe both profiles as 'ungleyed'
3.5.1	New Text: <i>During the analysis stage, the ALC grade has been calculated on a point-by-point basis, with features of wetness class (Slowly Permeable Layer and Gleying) analysed from each auger sample. To support the field</i>

	<i>assessment, laboratory analysis of selected topsoil samples has been undertaken. These provide confirmation of physical characteristics of the soils and have been used alongside field observations to inform the final ALC grading.</i> Comment: The analysis of topsoil samples alone cannot inform the physical characteristics of the underlying subsoil, which it is claimed is the basis for downgrading land, due to the assumed almost universal presence of slowly permeable subsoils in the Type 2 soil.
3.6.2	New Text: <i>Existing field boundaries have been utilised as ALC grade boundaries where survey evidence indicates differing land quality between adjacent land parcels. This approach recognises the long-term practical management of the agricultural land and reflects the likelihood that field divisions have been established historically in response to differences in land capability, soil characteristics, or operational requirements.</i> Comment: The Boston and Spalding soil map [Appendix 1] shows there is no relationship between soil type and field boundaries. The fields are mostly rectangular or trapezoidal and most boundaries are drainage ditches maintained by farmers or the IDB. The linear boundaries are ideal for spraying, harvesting and irrigation, but operational requirements are not an ALC consideration.
4.5 & 4.6 (previous reports)	The description of published sources of information about the soils of the area fails to identify the Boston and Spalding Soil Memoir and accompanying 1:50,000 scale mapping of soils series'. The review refers only to Soils and their use in Eastern England and the accompanying 1:250,000 scale mapping of soil associations. This scale of mapping can only be used to identify features hundreds of metres across and should only be used for national, or regional-scale environmental planning, rather than precise local or field-specific decisions.
4.6.4	New text: <i>Updated Predictive DEFRA mapping indicates that the site is a mix of ALC Grade 1, 2, 3a and 5.</i> Comment: The map does not show any Grade 5 land within the development boundary. It shows only Grades 1, 2 and 3a (all BMV) and a small area of non-agricultural land. This mapping is also at 1:250,000 and should only be used for strategic scale purposes.
5.1.2 and 5.1.3	Intrusive Soil Findings: The text describes clay subsoils as slowly permeable by reference to an LRA survey without independent supporting evidence and associated photographs. The text also refers to root channels found in the 1991 MAFF survey not being found during the survey. A biopore content of less than 0.5% is described, again without reference to a suitable image. It is not possible to reliably identify fine root channels or biopores from auger borings, which generally destroy fine soil features in the core extraction process. How was this determined, certainly not from auger samples? Observations from the undisturbed faces of mechanically-excavated archaeology trenches would be similarly limited by smearing and desiccation evident in the available images.

	The auger logs [Appendix II of ES Appendix 5-3] show only five horizons as positive for CaCO_3 in column 5; whilst the absence of an entry implies that no testing was done, it is understood from the sub-contractor that undertook the survey that no entry reflects a negative test. The lighter type 1 soils described are mapped as mainly Wisbech and Agnew series in the in the Boston and Spalding Soil Memoir and classified as calcareous alluvial gley soils because of their calcitic foraminifera content. This represents a significant difference with soils described in soil survey supporting the ES as '<i>largely non-calcareous</i>'. In marine alluvial soils, such as these, the results of any ALC survey should include evidence of testing each horizon of every auger bore for CaCO_3. This significant departure from authoritative mapping should be supported by rigorously evidenced observations. The results of the LRA survey were informed by a number of soil pits which support the Boston and Spalding Soil Memoir. The LRA survey found macropores in clay soils ranging from 0.5% to 2%, and subsoil structures that were typically moderately developed angular blocky of prismatic, not the massive or platy structures arising from cultivation damage.
5.2 and 5.3	Descriptions of Wetness Limitations in Soil Types 1 & 2: All the soils are mapped and classified as alluvial gley soils of varying subgroups and series', contradicting the recorded auger observations supporting the ES, which describe every soil as 'ungleyed' in the 'Gley' column. Calcareous clay soils of the Newchurch series are mapped as present in the area in the mapping accompanying the Boston and Spalding Soils Memoir. This series would be one ALC grade better than the non calc Wallasea, identified in the ES and also mapped in the area. The Site Survey Logs attached to the land classification report [App II of ES Appendix 5-3] include a column [5] for CaCO_3 showing all horizons bar five as blank, suggesting that there was a negative text for calcareousness. This is in conflict with evidence that informed the Boston and Spalding Soil Memoir, which clearly shows the calcareous Wisbech and Agnew series' in close association with the clayey Wallasea series in the area. The latter series is described in the Memoir as containing calcareous Newchurch soils, which appear to be absent from the Meridian survey.
5.3.1	The Wetness Class assigned to Soil Type 2 conflicts with the findings of work carried out by MAFF and the Soil Survey of England and Wales (SSEW), which puts the Wallasea series in Lincolnshire in WC II. This work was based on an intensive deployment of piezometers by the MAFF Field Drainage Experimental Unit and dip wells by the SSEW throughout the area. Drained Wallasea series were found to be in WC II and occasionally in WC I. It is extremely unlikely that an auger survey carried out in a very dry summer, when the soils are described as too dry for pit digging,

	could gather sufficient evidence to contradict this conclusion (see 3.3.3) and the conclusions drawn are therefore unreliable.
5.3.3	<i>Text: A total of 157.83ha has been identified with the combination the topsoil texture (Medium Silty Clay Loam), Wetness class (III) and the number of Field Capacity Days (93.00) which results in ALC Grade 3a for Type 2 Soils. However, it is noted that these sections of the site are not managed differently to the wider site area and where there are no visual difference between these areas and the lower graded adjacent land it is justifiable to group these areas of Grade 3a into the surrounding Grade 3b land. To avoid isolated mapping unit impurities.</i> This adjustment of the grading of land appears to be based on the management of the land, not the location of the site and the physical characteristics of its soils. Defra guidance on agricultural land classification does not include any provision for grading land according to land use or management. This downgrading of 157ha of BMV land to non-BMV affects some 26% of the total area of Parcels B&C and does not meet the requirements of established guidance on land classification.
6.2.1	This conclusion repeats the error described above, that land should be classified in line with its management, not the physical characteristics of its soils and its location. This conclusion is based on findings that have no basis in the classification of agricultural land.
Soil Pit Logs	The Soil Pit Logs appended to the report [pp68 & 69 of App3 to ES Appendix 5-3 EN010169-000604] pit contain nothing new. The limitations imposed by standards to which the Pits were excavated fail to meet the published guidance and no images have been provided to support the conclusions drawn. Several images of auger samples showing clear evidence of ochreous colours and mottling [9, 10, 12, 14 & 15] but there is no indication of the locations where the samples were taken or conclusion drawn regarding permeability. Photograph 15 is of a mottled clay subsoil that appears to be very well structured.

EN010169-000601 6.3 ES Appendix 5-2: Agricultural Land Classification Report - Parcels A and D (Rev 1) (Tracked)	
Para	Comment
3.3.4	Comment: Whilst additional samples have been collected from across areas unsurveyed at the time of the original surveys, no additional, adequate, soil pits have been dug in order to verify the findings of the soil survey and the observations made from the archaeological trenches.
3.5.1	Original Text: <i>During the analysis stage, the ALC grade has been calculated on a point-by-point basis, with features of wetness class (Slowly Permeable Layer and Gleying) analysed from each auger sample. To support the field assessment, laboratory analysis of selected topsoil samples has been undertaken. These provide confirmation of physical characteristics of the soils and have been used alongside field observations to inform the final ALC grading.</i> Selected topsoil samples cannot be used to inform the physical characteristics of underlying subsoil, which have been used as the basis for downgrading land. The evidence adduced does not confirm or repudiate the claimed almost universal presence of slowly permeable subsoils in the Type 2 soil.
3.6.2	New Text: <i>Existing field boundaries have been utilised as ALC grade boundaries where survey evidence indicates differing land quality between adjacent land parcels. This approach recognises the long-term practical management of the agricultural land and reflects the likelihood that field divisions have been established historically in response to differences in land capability, soil characteristics, or operational requirements.</i> The mapping accompanying the Boston and Spalding Soil Memoir shows there is no relationship between soil type and field boundaries. The fields of the area are mostly rectangular or trapezoidal and most boundaries are drainage ditches maintained by farmers or the IDB. The linear boundaries are ideal for spraying, harvesting and irrigation, but operational requirements are not an ALC consideration. The grading of land according to land management practice and cropping is not accepted practice. This is not in line with the prevailing MAFF Guidelines for the Classification of Agricultural Land.
4.6 (previous reports)	As with the report describing Areas B & C, this review does not acknowledge the existence of detailed guidance on the soils of the area set out in the Boston and Spalding Soil Memoir and accompanying mapping.
5.1.2 and 5.1.3	The description of clay subsoils as slowly permeable in the report relies on reference to the LRA survey. The report differs significantly from the LRA survey in that it failed to identify and root channels or biopores in the observed soil

	samples; biopores were observed at <0.5%. It is not clear whether this quantification refers to the existence of biopores at <0.5% or whether biopores were not present in the samples. It is very unlikely that biopores would have been identifiable in low dry matter samples taken off an auger that would have caused extensive displacement of soil microstructures when being extracted. Furthermore, there is no photographic evidence of these structures, specifically because the faces of the archaeology trenches had not been picked to examine structure and pores. By contrast, the LRA survey included a number of soil pits which found macropores in clay soils in the range from 0.5% to 2%, with typically moderately developed angular blocky or prismatic subsoil structures, not the massive or platy structures arising from cultivation damage observed during the survey that informs the ES.
5.2. and 5.3.	The soils of the area are described in the Soils Memoir for Boston and Spalding and associated mapping as alluvial gley soils of varying subgroups and series where the Site Survey Logs record every soil as ungleyed in the gley column. These observations conflict with the characteristic gley features seen in Photographs 7, 8, 9, 10 & 12 and Pit Logs 4, 5 and 6. The mapping accompanying the Soils Memoir for Boston and Spalding also identifies in the area calcareous clay soils of the Newchurch series. This soil type should be classified a grade better than the non-calcareous soils of the Wallasea series. A large number silty clay soil profiles, e.g. A16 to A59, are reported in Column 5 of the auger logs as having "positive effervescence" indicating CaCO_3, i.e. calcareous, but are classified as Grade 3b. Even if these soils are in Wetness Class III, which is unproven, CaCO_3 content would bring them into Grade 3a; these soils are wrongly classified as Grade 3b, that is non-BMV.
5.3.1	The attribution of Wetness Class III to Soil Type 1, Wallasea soils undermines all previous work which puts such soils Wallasea in Lincolnshire in WC II. This attribute is based on an intensive deployment of piezometers by the MAFF Field Drainage Experimental Unit and dip wells by the SSEW. Drained Wallasea series were in WC II and occasionally in WC I. An auger survey in a dry summer (when the soils are described as too dry for pit digging could not gather sufficient evidence to contradict this (see 3.3.3).
6.2.1	This conclusion repeats the error described in the commentary on Parcels B & C, that land should be classified in line with its management, not the physical characteristics of its soils and its location. This conclusion is based on findings that have no basis in the classification of agricultural land.

Pit logs	More images of archaeology trenches have been added, with two repeated images and one missing from the series (Pit Log 5). Pit Log 4 records a Slowly Permeable Layer at 35cm, a feature that is not evident from the image since the majority of the exposed face is smeared. Pit Log 6 records gleying to the base of the 0.79m deep pit and a Slowly Permeable Layer at 0.36m. Despite visible features characteristic of gleyed soils, the profile is described as not being gleyed. There is no visible evidence of a Slowly Permeable Layer. Images of hand-held samples (7-12) are not located either spatially or for depth and descriptions go beyond what is visible in the images, with no laboratory verification of soil texture. Photo 8 is of a <i>Clay subsoil clod recovered from trial pit</i>. It is not clear if this is from an archaeological trench or some other pit, or at what depth it was taken.
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EN010169-000639-7.14 Outline Soil Management Plan (Rev1)

This document has undergone negligible change and previous comments stand.

REP1-099. 8.29 Post ISH1 Note: Best and Most Versatile (BMV) Land Take

The application of the precautionary approach to the restoration of BMV land used for hard standing occupied by the On-Site Substation, and BASS Compounds, solar stations and CSEC compounds is welcome. This approach acknowledges that it may not be possible to achieve original land quality soon after the decommissioning phase. The assumption of a down grading of land on a permanent basis is reasonable but it is noted that this is not relied upon to propose no restoration of the land. Whilst the Applicant states that restoration is secured for all areas, it would be reasonable to require that best efforts during restoration to achieve the original BMV grade are made during restoration and that plans for restoration are open to consultation with the relevant prevailing Authorities.



Extract from 1:50,000 scale map accompanying Soil Survey Memoir No27, Soils of the Boston and Spalding District (Robson, 1990)
Showing distribution of soil series' and lack of relationship with field boundaries.

