Tween Bridge Solar Farm

A Nationally Significant Infrastructure Project in the Energy Sector

Preliminary Environmental Information Report

Chapter 15 – Agricultural Circumstances

October 2023

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15. Agricultural Circumstances

15.1. Introduction

15.1.1. This chapter of the working draft PEIR assesses the likely significant effects of the Scheme on agricultural land, soils and agricultural businesses.

15.1.2. This assessment reports on the baseline and Scheme design information available at the time of writing this working draft PEIR. The PEIR will be updated as further assessments become available and any updates to the baseline will be reported in the next iteration of the PEIR which will be presented as part of the statutory pre-application consultation. The responses from the Scoping Opinion issued by the Planning Inspectorate on 13 March 2023 have been taken into account during the preparation of this chapter and this is discussed in detail below.

15.1.3. The assessment has been carried out by Tony Kernon BSc (Hons) MRICS, FBIAC of Kernon Countryside Consultants Ltd.

15.1.4. This chapter is supported by the following figures which are embedded within the chapter:-

- **Figure 15.1** - Provisional ALC of the Wider Area;
- **Figure 15.2** - Provisional ALC of the Site Area;
- **Figure 15.3** - Extract from Likelihood of BMV Agricultural Land Quality Maps;
- **Figure 15.4** - Extract from National Soil Map;
- **Figure 15.5** - Landownership Plan.

15.1.5. This chapter is supported by the following appendix:-

- **Appendix 15.1** - Assessment Methodology

15.2. Consultation

15.2.1. A summary of consultation responses received to date is provided in Table 15.1

Table 15.1 Summary of Consultation

CONSULTEE	SUMMARY OF CONSULTEE RESPONSE	HOW RESPONSE HAS BEEN ADDRESSED BY APPLICANT
Natural England 18th April 2023	**Natural England is unable to accommodate a DAS request for this scheme on soil issues at this time because of a lack of capacity to take on more cases.**	**In the absence of detailed engagement from Natural England at this stage, the applicant has continued with the baseline data collection (1 sample per 200m) as**

		proposed in its consultation letter to Natural England. The applicant considers this a reasonable and proportionate approach and is aware that Natural England has accepted a semi-detailed survey level supplemented by targeted detailed survey in a number of similar cases - for example a similar approach has been carried out following consultation at Heckington Fen NSIP and Mallard Pass NSIP, and has been accepted with non-NSIP applications. The applicant will continue to try and agree this approach with Natural England.

15.3. Assessment Approach

Methodology

15.3.1. The methodology follows the methodology presented in the applicant's EIA Scoping Report, January 2023, and modified as set out below following responses set out in the adopted Scoping Opinion (13th March 2023).

15.3.2. At the time of this draft, field surveys are underway.

15.3.3. The key receptors considered in respect of agriculture are:

- agricultural land classification (ALC) of the Draft Order Limits. This is being undertaken at a semi-detailed level, and has been completed in part. Survey work has been delayed by very dry ground conditions and the presence of oilseed rape crops. Field surveys are continuing. About 400 sample points will be surveyed initially;
    - soil structure. Soil has many different functions and can be affected positively or negatively by land use and management even if agricultural land quality is not affected; and
- local farm businesses - interviews with farmers affected, by telephone or in person, and a walk-over of the land affected. This has been completed in part.

15.3.4. The methodology is described in greater detail in **Appendix 15.1**.

Assessment of Significance

15.3.5. The methodology for assessing significance is described in **Appendix 15.1**. It follows the IEMA Guide[1] (2022) and established industry approaches, but has been amended as described to follow the approach described in section 13 of the Scoping Report.

15.3.6. In respect of **agricultural land quality**, under the IEMA Guide land of Grades 1 and 2, which Natural England[2] estimates represents about 21% of agricultural land in England and Wales, is categorised as of very high sensitivity. Land of subgrade 3a, which also accounts for about 21% of agricultural land in England, is classified as of high sensitivity. To accord with the Scoping Report, both are considered as of High sensitivity.

15.3.7. The magnitude of effects is based on the thresholds set out by IEMA. These are lower than have typically been used in Environmental Assessments (EA) for many years, and set a major magnitude effect at over 20 ha of land sealed or where the land quality is irreversibly affected. Minor magnitude effects involve losses of 5 ha or less.

15.3.8. **Soils** have been more specifically brought into the EA process by the IEMA Guide. Soils that are particularly susceptible to being damaged when handled, for example high clay fraction soils in wet climates, are considered more sensitive than those less susceptible to damage, such as sandy soils in drier climate areas.

15.3.9. **Farm businesses** can be affected. These are generally considered to be of no greater than medium sensitivity since farms can change significantly over short periods of time due to many other factors, such as change of ownership, world and local commodity prices, agri-environmental opportunities, the health of the farmer, weather, disease and disaster (e.g., fire).

15.3.10. The assessment tables are set out in **Appendix 15.1**.

Legislative and Policy Framework

Legislation

15.3.11. There is no legislation of direct relevance to the assessment.

National Planning Policy

15.3.12. The current Overarching National Policy Statement for Energy NPS **EN-1** advises at Paragraph 5.10.8 that applicants should seek to minimise impacts on best and most versatile ('BMV') agricultural land (comprising land in Grades 1, 2 and 3a of the agricultural land classification ('ALC') and preferably use land in areas of poorer agricultural quality (comprising land in Grades 3b, 4 and 5), except where this would be inconsistent with other sustainability considerations.

[1] IEMA "A New Perspective on Land and Soils in Environmental Impact Assessment" (February 2022).
[2] Natural England Technical Information Note "TIN049" (December 2012).

Applicants should seek to minimise impacts on soil quality, taking account of any mitigation measures proposed.

15.3.13. **The Draft: Overarching National Policy Statement for Energy (EN-1) (March 2023)** may be a material consideration. Paragraph 5.11.3 notes that undeveloped greenfield land may need to be used for many forms of energy infrastructure. Paragraph 5.11.12 advises that the use of BMV land should be minimised, with a preference for use of poorer quality land.

15.3.14. **The current National Policy Statement for Renewable Energy Infrastructure NPS** EN-3 (July 2011) does not provide any guidance for solar energy development.

15.3.15. **The Draft: National Policy Statement for Renewable Energy infrastructure NPS EN-3 (March 2023)** may be a material consideration**.** The Revised (Draft) NPS EN-3 section 3.10 "Solar Photovoltaic Generation" sets out at paragraph 3.10.14 that while land type should not be a predominating factor in determining the suitability of the site's location for renewable energy development, where the use of agricultural land has been shown to be necessary, poorer quality land should be preferred to higher quality land, avoiding BMV agricultural land where possible.

15.3.16. Paragraph 3.10.15 advises that the development of ground mounted solar arrays is not prohibited on land of ALC Grades 1, 2 or 3a, but the impacts must be considered.

15.3.17. Further advice is provided as follows:

- Soil stripping and handling (paragraph 3.10.72): noting that topsoil and subsoil should be stripped, stored and replaced separately to minimise soil damage and to provide optimal conditions for site restoration;
- Drainage and watercourses (paragraph 3.10.77): noting that given the temporary nature of solar PV farms, sites should be configured so as to minimise impacts on existing drainage systems;
- Biodiversity relative to intensive agricultural use (paragraph 3.10.80): noting that solar farms have the potential to increase the biodiversity value of a site, especially if the land was previously intensively managed; and
- Mitigation and soil preservation (paragraph 3.10.118): cross-referencing Defra's Construction Code of Practice for the Sustainable use of Soils (2009)[3] and advising on mitigation measures to minimise soil carbon loss and maximise soil biodiversity.

15.3.18. Paragraph 3.10.136 advises that the Secretary of State ('SoS') should take into account the economic and other benefits of BMV agricultural land. The SoS should ensure that the applicant

[3] Construction Code of Practice for the Sustainable Use of Soils on Construction Sites, Defra (September 2009). Available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/716510/pb13298-code-of-practice-090910.pdf Accessed xx 2023

has put forward appropriate mitigation measures to minimise the impacts on soils or soil resources.

15.3.19. **National Planning Policy Framework.** The National Planning Policy Framework ('NPPF') (July 2021) defines the "best and most versatile" agricultural land (BMV) at Annex 2. The National Planning Policy Framework, to the extent that it is relevant, sets out in paragraph 174(b) that the economic and other benefits of BMV agricultural land should be recognised in planning decisions.

The Development Plan

15.3.20. **Doncaster MBC.** The Doncaster Local Plan 2015-2035 (September 2021) Policy 58 on Low Carbon and Renewable Energy supports low-carbon energy generation. Criterion B) 6) requires reclamation to a suitable use such as agriculture or nature conservation.

15.3.21. Policy 60 protects soil resources. The significant loss of BMV will only be supported where there are no alternative sites available and where possible, reinstatement is possible. Soil resources must be conserved, and high environmental soils (e.g., peats) should not normally be disturbed.

15.3.22. **North Lincolnshire Council.** The Core Strategy (June 2011) does not contain any policy specific to agricultural land.

Scoping Criteria

15.3.23. The following comments relating to soil and agricultural land were provided in the Planning Inspectorate's Scoping Opinion dated 14 March 2023.

Table 15.2 Extract of aspect based scoping table from Scoping Opinion for Tween Bridge Solar Farm

ID	REF	MATTER	PLANNING INSPECTORATE COMMENTS	APPLICANT RESPONSE
3.14.2	**13.7 and 13.17**	**Impacts on BMV**	**The long term effects on BMV land should be considered, including the effects of the operational phase.**	**The extent and soil type of BMV and non-BMV land is being assessed. The long term effects will be considered, and a soil management plan (SMP) will be provided once surveys are complete, likely September 2023.**
3.14.3	**13.4**	**Methodology**	**The ES should explain the relevance of the Welsh Government predictive map.**	**Reference to the Welsh Predictive Map in the Scoping Report is assumed to have been in error.**
3.14.4	**n/a**	**Guidance**	**Reference should be made to Defra's Construction Code of**	**Both are referred to in this Chapter and both will be**

			Practice and the BSSS Guidance Note.	**referenced in the SMP, which will be provided once surveys are complete, likely September.**
3.14.1	**13.20**	**Cumulative Schemes**	**The cumulative assessment may need to include schemes under 20 ha. The list should be agreed with the host local planning authorities.**	**The response is noted and will be actioned.**

Limitations to the Assessment

15.3.24. There are no significant limitations to this assessment.

15.3.25. Detailed field survey has provided the data for a detailed ALC of the Draft Order Limits. In setting that in context, and in considering the policy framework, reference has been made to published "predictive" ALC maps and "likelihood of BMV" agricultural land maps. Those maps were not the result of extensive field survey and have limitations to their accuracy as a consequence, but they are used in this assessment in full recognition of these limitations. Guidance is provided in Natural England's TIN049[4].

15.4. Baseline Conditions

Site Description and Context

15.4.1. The Draft Order Limits is mostly level, agricultural land in arable farming use. This is illustrated in the following photographs.

[4] (ibid) This can be found via https://publications.naturalengland.org.uk/publication/35012

Photo 1: Some of the land in the southeast of the Site

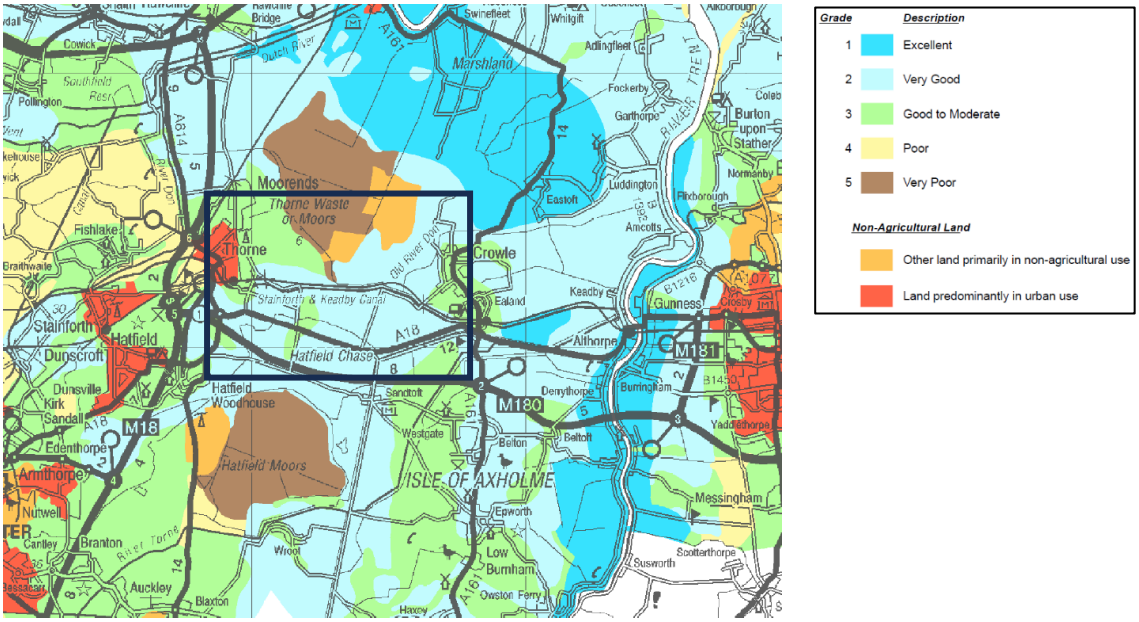
Photo 2: Some of the land in the central part of the Site

Photo 3: Some of the land in the northern part of the Site

Site Description in Context

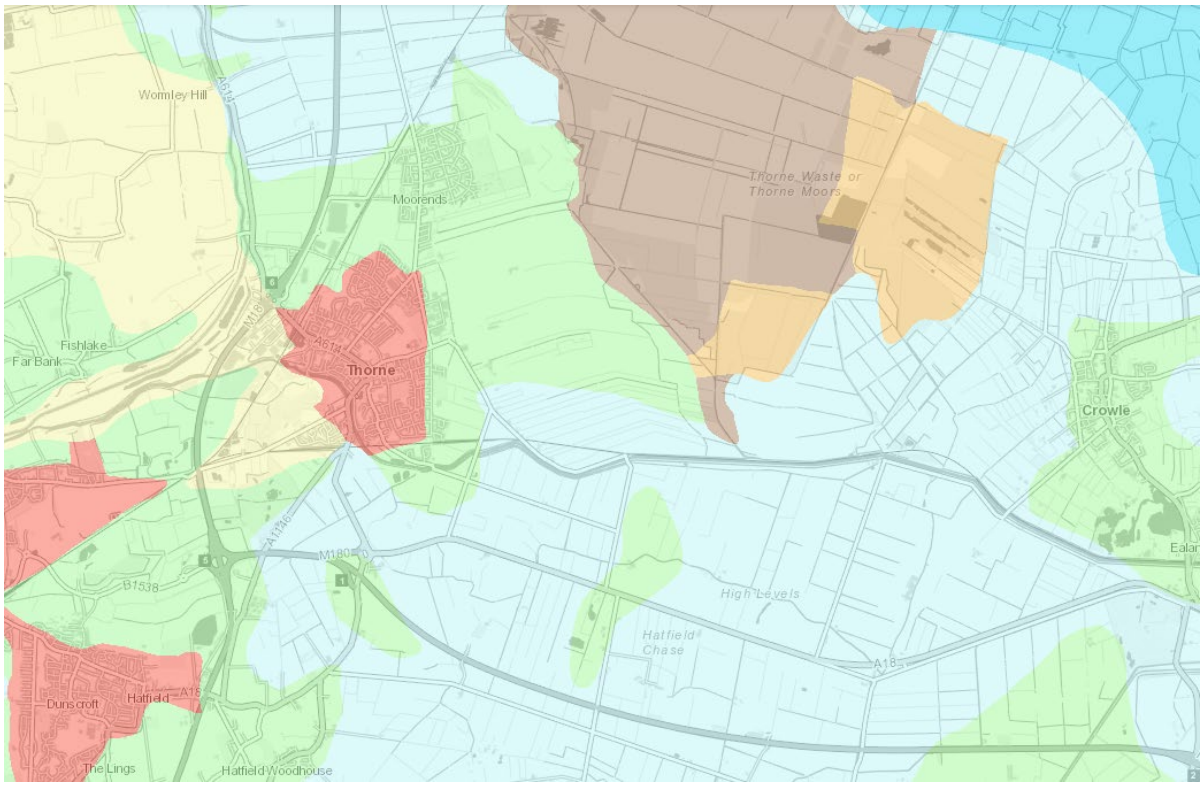
15.4.2. The Draft Order Limits is shown on the "provisional" ALC maps from the 1970s as being of Grade 2 "very good" agricultural land quality and undifferentiated Grade 3 "good to moderate" quality. As can be seen on Figure 15.1 Extract from Provisional ALC Map below, much of the wider area in the vicinity of the Draft Order Limits is similarly shown to be of Grade 2 agricultural land quality. The general area of the Draft Order Limits area is within the black-edged box.

Figure 15.1: Provisional ALC of the Wider Area



15.4.3. In 2020 Natural England digitised these maps. The detail for the Draft Order Limits is shown below. As described in Natural England's Technical Information Note 049[5], these maps are not suitable for use for site specific analysis, but are for strategic purposes only, having been produced at a 1:250,000 scale only.

Figure 15.2: Provisional ALC of Draft Order Limits Area



15.4.4. In 2017, Natural England published plans showing the likelihood of the proportion of BMV agricultural land. These maps divide the agricultural land across England into three categories of proportions:

- High (>60% area of BMV agricultural land);
- Moderate (20 - 60% area of BMV agricultural land); and
- Low (<20% area of BMV agricultural land).

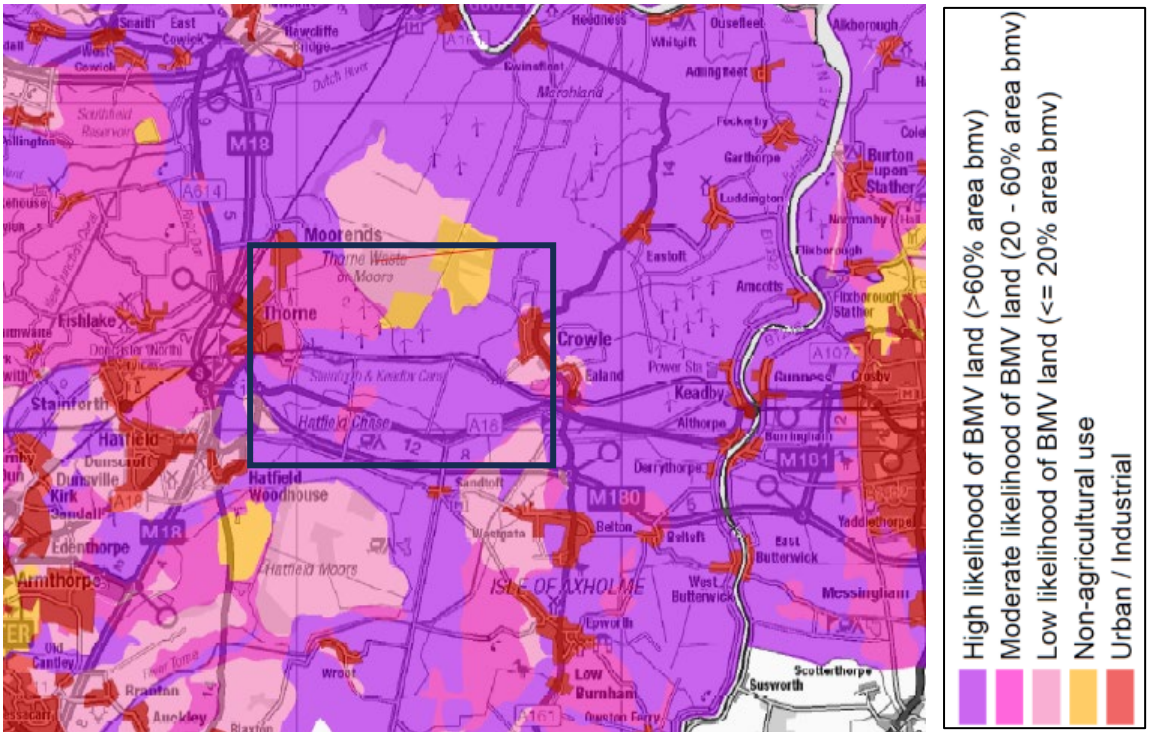
15.4.5. The Draft Order Limits is shown as being mostly in the high likelihood of comprising BMV agricultural land, as is much of the wider area in the vicinity, as shown on Figure 15.3[6]. Parts of

[5] Natural England Technical Information Note TIN049, December 2012.

[6] The map and the guidance note can be found at https://publications.naturalengland.org.uk/category/5208993007403008

the draft Order Limits, particularly the northern part, are shown as falling into the moderate likelihood of BMV. As set out in the key, the dark purple areas are >60% area BMV.

Figure 15.3: Extract from Likelihood of BMV Agricultural Land Quality Maps



Baseline Survey Information

15.4.6. **Agricultural Land Quality.** A semi-detailed ALC survey is currently underway. The work is expected to be complete by October.

15.4.7. The early indications are that the land will classify as a mixture of grades, but mostly grades 2, 3a and 3b. The surveys are ongoing and will be reported in the next iteration of the PEIR.

15.4.8. **Soils.** The soils across the draft Order Limits are shown on the 1:250,000 scale Soil Survey of England and Wales map as a mix of different soils, mostly in the following three Associations:

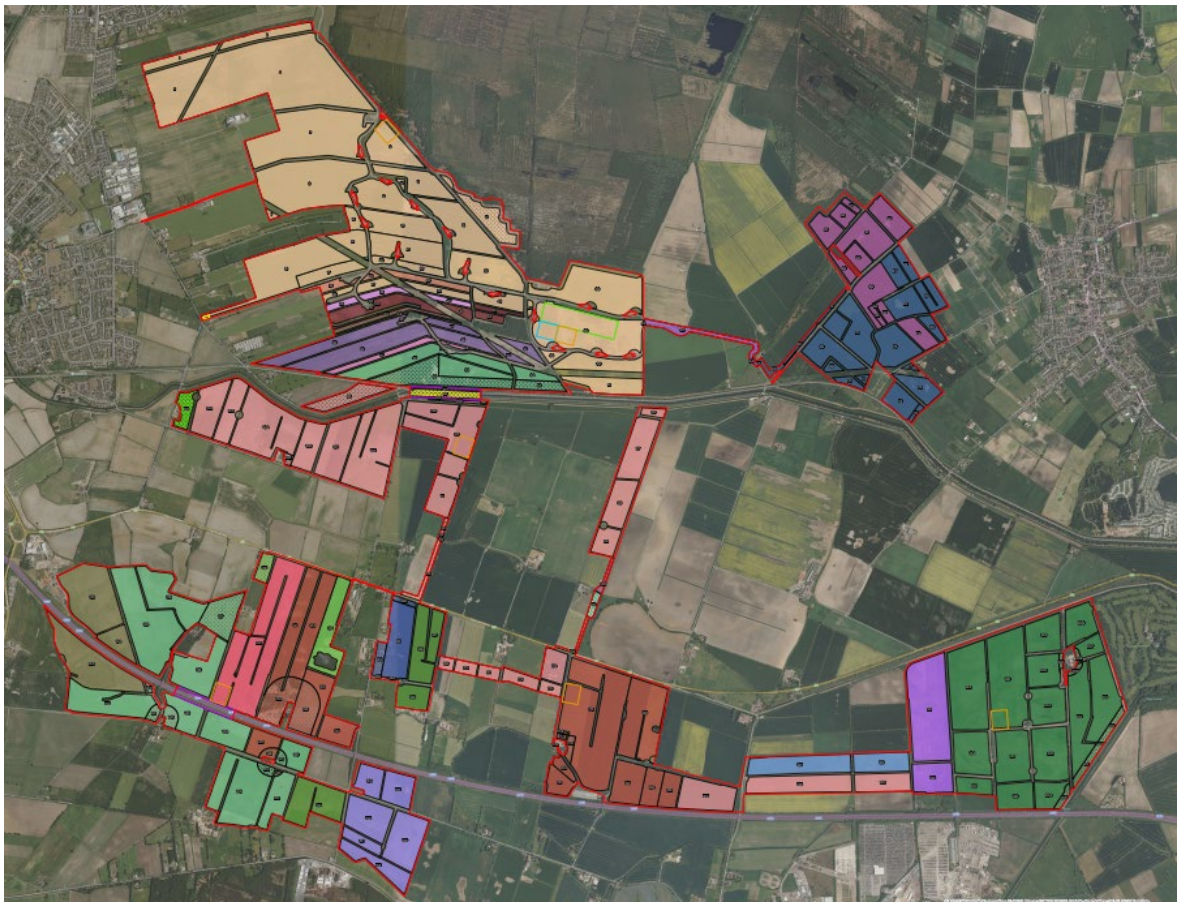
- 532b: Romney, deep stoneless permeable calcareous coarse and fine silty soils;
- 712i: Foggathorpe 2, slowly permeable seasonally waterlogged stoneless clayey and fine loamy over clayey soils;
- 821b: Blackwood, deep permeable sandy and course loamy soils.

15.4.9. The Site lies within the area edged black on the plan below. The distribution of soils across the site is being examined as part of the ALC and will be reported in the next iteration of the PEIR.

Figure 15.4: Extract from National Soil Map

15.4.10. **Farm Businesses.** There are a number of holdings farming land within the Draft Order Limits, as shown on the plan below.

Figure 15.5: Landownership Plan



15.4.11. There are a number of landowners with land within the Draft Order Limits. Almost all of the land is in arable farming use, by a mixture of tenures and management methods. The next iteration of the PEIR will discuss the position of each farming business located within the Draft Order Limits.

15.4.12. It is not proposed that any farm buildings will be demolished as part of the Scheme.

15.5. Construction

15.5.1. The Scheme's construction phase effects have been considered in terms of the solar PV arrays, tracks, fixed equipment, fencing, cabling, substation, battery storage, and landscaping.

15.5.2. The process of installing the solar PV arrays involves marking out the grid on the ground and laying out the steel stanchions. This stage is non-intrusive and should take place when soils are suitably dry. A tractor and trailer will be used to transport the framework posts to the fields, then each framework post is lifted off by hand.

15.5.3. Construction workers then knock the stanchions / framework posts into the ground. This is a swift process and has very little impact on the soil because the framework posts are inserted into the soil with no removal of soil and the soil is simply pushed aside by the post. An example

of this construction activity from another project is shown in photograph 15.4 below, which shows the installation of framework posts into a clay soil.

Photograph 15.4: Framework Posts being Installed

15.5.4. The design of the PV array varies between sites, but the framework posts are all similar. The limited impact of installing the framework posts on the underlying land is illustrated below. The purpose of the photographs is to show that there is little disturbance to the soils. The design above ground does not affect soils and the design may therefore vary from the following examples. The purpose of these photographs is to show the framework posts as they enter the ground and the effects of construction traffic.

Photograph 15.5: Framework Posts Installed (taken at Bentham Farm, Purton 2015)

Photo 15.6: Framework Posts being Installed (taken at Tiln Farm, Retford, in January 2023)

15.5.5. There is minimal damage caused by the next stage of the construction process, the bolting-on of panels, if carried out in dry conditions. This is evident in photograph 15.7 below of a development similar in nature to the Proposed Development, after the solar PV panels have been added to the mounting frames.

Photograph 15.7: After Solar PV Panels Bolted-on (Bentham Farm, Purton)

15.5.6. For the Scheme, it will be necessary to connect electrical cables between the solar PV modules and to run the cables to the on-site substation. This will involve trenches, dug with a machine. The trench width will depend upon the size of cable. In all cases the work involves removing the topsoil and placing it to one side of the trench. The subsoil is then removed and placed on the other side of the trench. This looks disruptive but the disturbance of the soil is limited to the width of the trench. Once the cable has been inserted the subsoil is then replaced, with the topsoil put back on the top.

15.5.7. This approach is used to ensure that soils are restored and settle within days, and return to grass growth rapidly, or are suitable for being sown. This is illustrated in Photograph 15.9, which was taken at a solar development site 14 days after the trench was first dug, for a development similar

in nature to the Scheme but with lower panel heights. The photograph is included to illustrate the effects on the soils.

Photographs 15.8 and 15.9: Cabling Channels during Cable Installation

Photograph 15.8

Photograph 15.9

15.5.8. Overall, the Scheme's solar PV module installation will result in very low magnitude effects on soils. The soils are expected to be of medium or low sensitivity (Table 1 in Appendix 15.1), and the effect is therefore expected to be of negligible significance.

15.5.9. Fixed equipment will include:

- access tracks. These will be laid around and across the Scheme, using existing tracks so far as possible. The topsoil will be removed and stored nearby for restoration, a membrane will be laid, and a surface material added. These areas are restorable;
- central inverters. These are containerised equipment that will sit on a foundation or stone base, with a membrane laid after the topsoil has been removed (in a similar manner to the tracks). These areas are restorable;
- substations. A main substation plus five subsidiary substation areas are proposed, each involving of the order of 2.0 - 2.5 ha. These may be restorable, but there could be a permanent effect on land quality;
- BESS. The BESS could include an area of up to 6 ha. This is likely to be restorable.

15.5.10. The land quality of these areas, and the areas involved, will be ascertained and quantified once surveys have been completed and will be reported in the next iteration of the PEIR. The effect is not yet quantified but the effect is expected to involve the temporary loss of in excess of 20ha of BMV, which would be **significant**.

15.5.11. The effects on the occupying farm businesses are still to be assessed. There are many different landowners and occupiers, and almost all of the land is off-lying from the principal farming bases. There is unlikely to be consequential closure of farm businesses, and most impacts are likely to be medium or low magnitude impacts (Table 2 in Appendix 15.1), which will lead to minor to

moderate adverse effects. This will be reported in the next iteration of the PEIR. The effect is expected to be **not significant**.

15.5.12. **Summary of Effects.** The land quality is not yet known in detail, but the land is expected to comprise a mix of Grade 2 and subgrades 3a and 3b. There will be six substations, each involving up to 3 ha, so there is potential for the fixed equipment areas (substations, BESS, tracks and central inverters) to exceed 20 ha of BMV land. There is therefore the potential for in excess of 20 ha of BMV to be affected, albeit capable of restoration which would be a **major adverse (significant)** effect.

15.5.13. The soils are mostly medium or low sensitivity (their resilience to structural damage), and the effect is expected to be a **moderate or minor adverse effect (not significant).**

15.5.14. The effects on farm businesses are expected to be no more than **minor to moderate adverse,** and **not significant.**

Operation

15.5.15. There will be no further disturbance to soils during the operational phase of the Scheme; therefore, the agricultural land quality within the Draft Order Limits will not be affected during this phase of the Scheme.

15.5.16. The operational effects considered are:

- effects during the operational phase, on agricultural land quality;
- effects on soils from long-term grassland uses and the effects from site maintenance activities;
- effects on the operation of the farm businesses;
- food production implications. This is generally an economic/ land use consideration.

15.5.17. The agricultural land quality at the Site will not be affected during the operational phase.

15.5.18. There will be no requirement for heavy machinery to traffic soils during the operational phase. Accordingly, there will be no 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 Draft Order Limits.

15.5.19. Maintenance and cleaning machinery is normally a van or small tractor, and generally lighter than most farm machinery. If the soils are wet when access is taken, there is the potential for slight indentations to be made, but such effects on soils are not significant.

15.5.20. The effect on agricultural land quality during the operational phase is therefore negligible, which even on some very high sensitivity land potentially is a negligible effect (**not significant**).

15.5.21. There will be potential for benefits to soil health and quality.

15.5.22. The land is currently arable land, fertilised with inorganic fertiliser, as well as spread with farmyard manure and liquid slurry. Grass is not generally grown in rotation currently and organic matter levels within the soil will be generally low.

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

15.5.24. Carbon is held in two principal ways: soil organic carbon ('SOC'), being organic matter levels in the soil, and soil inorganic carbon ('SIC') mostly held in weathering rocks within the soil. In most agricultural soils, the SOC is less than 5%.

15.5.25. The role of SOC in soils is complex, as described in the British Society of Soil Science Note "Soil Carbon" (2021)[7] (the 'BSSS Note'). As described under the heading "Soil Carbon Functions" on page 4:

'*In general therefore, a soil with a greater SOC content has a more stable structure, is less prone to runoff and erosion, has greater water infiltration and retention, increased biological activity and improved nutrient supply compared to the same soils with a smaller SOC content. Even small increases in SOC can markedly influence and improve these properties*'.

15.5.26. It is noted at the top of page 5 that '*Significant long-term land use change (e.g. conversion of arable land to grassland or woodland) has by far the biggest impact on SOC, but is unrealistic on a large scale because of the continued need to meet food security challenges'*.

15.5.27. It is widely recognised that a pasture use of land will increase the SOC within the soil, with multiple benefits. The SOC level can be increased in other ways, and regenerative farming and minimal tillage practices are being trialled around the country. There is a clear potential benefit for the soils from the conversion of arable land to grassland, however, which will result from the Scheme.

15.5.28. As set out in the BSSS Note, research shows that organic matter levels will increase once land is put into a grassland mix. This will result in benefits to the soils during the operational phase.

15.5.29. As noted above, there will be no requirement for heavy machinery to traffic soils during the operational phase. 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.

15.5.30. There is therefore the potential for improvements in one or more soil functions over an area of all the land within the Site Area in grassland use, and hence in excess of 20 ha. Based on the methodology in Appendix 15.1, 20 ha is the threshold for a high magnitude effect. This would therefore be a high magnitude effect, including on soils of mostly low sensitivity but including areas of sandy clay loam (medium sensitivity in IEMA Table 4). The effect will therefore be a moderate beneficial effect, which is **not significant**.

[7] Science Note: Soil Carbon, BSSS (November 2021)

15.5.31. Farm business impacts have yet to be assessed, but it is not expected that any significant effects will be identified, based on the survey analysis completed to date.

15.5.32. Food production is not a planning or environmental matter. There are no planning policies or other initiatives to seek to utilise agricultural land for food production, or at any particular level of intensity. In the regional and local context the effect, the above notwithstanding, is anticipated to be **minor or negligible**, which is **not significant**.

Decommissioning

15.5.33. As described below, the decommissioning phase will not have any significant effects on agricultural land or soils, or on farm businesses.

15.5.34. The cabling connecting the solar PV modules will be disconnected, the solar PV panels will be dismantled and removed and the framework unbolted. The framework posts 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.

15.5.35. Deeply-buried cables will be left in situ or removed, and shallow-buried cables which might be caught by subsoilers will be removed by digging a narrow trench, removing topsoil to one pile, subsoil to another, removing the cable then reinstalling the soils.

15.5.36. The soils across the solar PV module areas will then be loosened with normal agricultural machinery, and returned to the farmers for continued agricultural use.

15.5.37. Once the solar PV modules have been removed the bases for the 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.

15.5.38. Decommissioning can be timed to be carried out when soil conditions are suitable, which will be set out in an outline Soil Management Plan (oSMP), which can be prepared once field surveys are complete. Decommissioning will therefore not have any adverse agricultural effects. Thereafter, the land will be available for continued agricultural use. Therefore, the decommissioning effects are negligible, which is **not significant**.

15.6. Mitigation, Enhancement and Residual Effects

Mitigation by Design

15.6.1. A Soil Management Plan (SMP) will be provided to ensure that effects on soils and land quality are minimised. The SMP will identify the soil types across the Site, and any sensitivities to being worked in wet weather. The SMP will provide guidance on the handling of soils, and the trafficking across soils, for all parts of the construction and operational works, and provide guidance for decommissioning works. It is intended that the SMP will be secured through a requirement in the DCO.

Additional Mitigation.

15.6.2. No further mitigation is considered to be necessary.

Table 15.3: Mitigation

Ref	Measure to avoid, reduce or manage any adverse effects and/or to deliver beneficial effects	How measure would be secured		
		By Design	By S.106	By Requirements
1	Soil Management Plan	✓		✓

Enhancements.

15.6.3. There will be an enhancement of the soil from the Scheme. There are indications that soil health and, to a lesser degree, soil structure will be enhanced by a 40-year period, which is the operational lifespan of the scheme, of permanent grassland cover.

Residual Effects

15.6.4. The construction phase effects are anticipated as follows:

- A major adverse impact due to loss of >20 ha of Grade 2 and 3a agricultural land from substations, the BESS, tracks and fixed infrastructure, although following restoration this impact will revert to negligible;
- Minor adverse effect on soils from construction activities;
- A moderate to minor adverse effect from the need to change enterprises on the farms involved, but overall a beneficial effect on farm business.

Operational Phase

15.6.5. The operational phase effects remain as described in section 15.5, namely:

- No adverse effects on agricultural land;
- Benefits to soils from long-term grassland use;
- The environmental effects of changes from arable to grassland uses are negligible.

Decommissioning Phase

15.6.6. The decommissioning phase effects remain as described in section 14.5 above, namely:

- No significant effects on agricultural land. Areas used for fixed equipment will be restored;
- No adverse effects on soils.

15.7. Cumulative and In-Combination Effects

15.7.1. Not yet assessed.

15.8. Summary

Introduction

15.8.1. This chapter of the PEIR considers agricultural land, soils and agricultural businesses.

Baseline Conditions

15.8.2. Survey work is currently underway, but the expectation is that the Site will involve a mixture of lands of Grades 3, 3a and 3b. Soils are loamy or sandy. There are 43 farm businesses and/or landowners with land in the Proposed Development.

Likely Significant Effects

15.8.3. There will be a main substation plus five subsidiary substations and a Battery Storage area, and whilst these areas will be restored at the decommissioning phase, there is the potential for the operational phase for the loss of Grades 2 and 3a land to be adversely affected. There is the potential for in excess of 20 ha of such land to be involved, which would be a major adverse effect, albeit reduced to negligible on decommissioning.

15.8.4. There are no other significant agricultural effects anticipated.

Mitigation and Enhancement

15.8.5. A Soil Management Plan will be required to minimise damage to soils and ensure that any damage is ameliorated. The restoring of arable soils with grassland for the duration of the operation phase will produce benefits for the soil resource.

Conclusion

15.8.6. A major adverse effect from the loss of BMV soils for the duration, is expected, but that can be fully restored at decommissioning.

15.8.7. Table 15.4 provides a summary of effects, mitigation and residual effects.

Table 15.4: Summary of Effects, Mitigation and Residual Effects

Receptor / Receiving Environment	Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Geographical Importance	Significance of Effects	Mitigation / Enhancement Measures	Residual Effects
Construction								
Agricultural land	Loss or downgrading	Temporary	Potentially some very high	Potentially high	UK	Major	None	Major
Soils	Damage to soil structure	Temporary	Medium or low	Negligible	Local	Negligible	Soil Management Plan	Negligible
Farm businesses	Effect on viability	Permanent	Medium or low	Medium or low	Local	Moderate to minor	None	Moderate to minor
Operation								
Agricultural land	Effect on ALC grade	Permanent	Potentially some very high	Potentially high	UK	Negligible	SMP	Negligible

Agricultural economy and food	**Harm to farm viability**	**Permanent**	**Medium or low**	**Negligible**	**Local**	**Negligible**	**None**	**Negligible**
Cumulative and In-Combination								
Not yet undertaken								