LLŶR FLOATING OFFSHORE WIND PROJECT

Llŷr 1 Floating Offshore Wind Farm

Environmental Statement

Volume 2: Chapter 12 - Agriculture and Soils

August 2024

Prepared by: Llŷr Floating Wind Ltd

FLOVENTIS ENERGY

Document Status

Version	Authored by	Reviewed by	Approved by	Date
FINAL	Reading Agricultural Consultants	Reading Agricultural Consultants	AECOM	August 2024

Approval for Issue

Prepared by	AECOM
Prepared for	Llŷr Floating Wind Limited
Approved by	Jay Hilton-Miller

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Acronyms and abbreviations

Acronym or abbreviation	Definition	Acronym or abbreviation	Definition
ALC	Agricultural Land Classification	FCD	Field Capacity Days
BMV	Best and Most Versatile	ha	Hectare
CEMP	Construction Environment Management Plan	NPS EN5	Electricity Networks National Policy Statement
DMRB	Design Manual for Roads and Bridges	PPW	Planning Policy Wales
EMF	Electromagnetic Field	SMP	Soil Management Plan
ES	Environmental Statement	WC	Wetness Class

Glossary of project terms

Term	Definition
The Applicant	The developer of the Project, Llŷr Floating Wind Ltd.
Array	All wind turbine generators, inter array cables, mooring lines, floating sub-structures and supporting subsea infrastructure within the Array Area, as defined, when considered collectively, excluding the offshore export cable(s).
Array Area	The area within which the wind turbine generators, inter array cables, mooring lines, floating sub-structures and supporting subsea infrastructure will be located.
Floventis Energy	A joint venture company between Cierco Ltd and SBM Offshore Ltd of which Llŷr Floating Wind Limited is a wholly owned subsidiary.
Landfall	The location where the offshore export cable(s) from the Array Area, as defined, are brought onshore and connected to the onshore export cables (as defined) via the transition joint bays (TJB).
Llŷr 1	The proposed Project, for which the Applicant is applying for Section 36 and Marine Licence consents. Including all offshore and onshore infrastructure and activities, and all project phases.
Marine Licence	A licence required under the Marine and Coastal Access Act 2009 for marine works which is administered by Natural Resources Wales (NRW) Marine Licensing Team (MLT) on behalf of the Welsh Ministers.
Offshore Development Area	The footprint of the offshore infrastructure and associated temporary works, comprised of the Array Area and the Offshore Export Cable Corridor, as defined, that forms the offshore boundary for the S36 Consent and Marine Licence application.
Offshore Export Cable	The cable(s) that transmit electricity produced by the WTGs to landfall.
Offshore Export Cable Corridor (OfECC)	The area within which the offshore export cable circuit(s) will be located, from the Array Area to the Landfall.
Onshore Development Area	The footprint of the onshore infrastructure and associated temporary works, comprised of the Onshore Export Cable Corridor and the Onshore

Term	Definition
	Substation, as defined, and including new access routes and visibility splays, that forms the onshore boundary for the planning application.
Onshore Export Cable(s)	The cable(s) that transmit electricity from the landfall to the onshore substation.
Onshore Export Cable Corridor (OnECC)	The area within which the onshore export cable circuit(s) will be located.
Proposed Project	All aspects of the Llŷr 1 development (i.e. the onshore and offshore components).
Onshore Substation	Located within the Onshore Development Area, converts high voltage generated electricity into low voltage electricity that can be used for the grid and domestic consumption.
Section 36 consent	Consent to construct and operate an offshore generating station, under Section 36 (S.36) of the Electricity Act 1989. This includes deemed planning permission for onshore works.

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12. AGRICULTURE AND SOILS

12.1 Introduction

1. Llŷr Floating Wind Limited (hereafter the 'Applicant') is proposing to develop the Llŷr 1 Floating Offshore Wind Farm (hereafter referred to as the proposed Project), located approximately 35 km off the coast of Pembrokeshire in the Celtic Sea.
2. The proposed Project is a test and demonstration wind farm development, comprising up to 10 wind turbine generators (WTGs). The proposed Project will make landfall at Freshwater West before connecting into Pembroke Dock power station and the national grid network.
3. This chapter forms part of the Environmental Statement (ES) submitted as part of an application for Section 36 consent with deemed planning permission under the Electricity Act 1989 and an application for a Marine Licence under Part 4 of the Marine and Coastal Access Act 2009. This chapter describes the potential impacts and effects of the proposed Project on Agriculture and Soils during the construction, operation and maintenance and decommissioning phases, and includes mitigation and good practice measures to reduce the impacts of the proposed Project on Agriculture and Soils.
4. **Section 12.10** of this ES chapter provides a summary of the impact assessment undertaken and any residual significant effects on Agriculture and Soils following consideration of any mitigation measures.
5. Additional information to support the assessment includes that contained in **Volume 5: Figure 12.1 – Predictive Agricultural Land Classification Grades.**
6. The assessment has been undertaken by Reading Agricultural Consultants Limited (RAC). Further details of the proposed Project Team's competency are provided in **Appendix 1A: Statement of Competence**.

12.2 Legislation, Policy and Guidance

7. The following sections identify specific legislation, policy and guidance that is applicable to the assessment of Agriculture and Soils. Further detail on the wider legislation, policy and guidance relevant to this ES is provided in **Chapter 02: Legislation, Policy and Guidance**.

12.2.1. Legislation

8. The legislation that is applicable to the assessment of Agriculture and Soils is summarised below:

- The Well-being of Future Generations (Wales) Act 2015 (Welsh Government, 2015) sets out seven well-being goals, including 'A Globally Responsible Wales'. The National Well-being Indicators Framework lists 'Healthy Soils' as an indicator of how a project contributes to global well-being; and
- The Environment (Wales) Act 2016 introduces the Sustainable Management of Natural Resources (SNMR) and sets out a framework to achieve this as part of decision-making. The objective of the SMNR is to maintain and enhance the resilience of ecosystems and the benefits they provide.

12.2.2. Policy

National Planning Policy

9. Planning Policy Wales (PPW) Edition 12 indicates at paragraph 3.38 that the countryside must be conserved and where possible enhanced for the sake of its agricultural value and natural resources, amongst many other matters, but also that there is a need to balance the

conservation of these attributes against the economic, social and recreational needs of local communities and visitors.

10. Paragraph 3.58 of PPW 12 indicates that agricultural land of grades 1, 2 and 3a of the Agricultural Land Classification (ALC) system is the best and most versatile (BMV) and should be conserved as a finite resource for the future.

11. Paragraph 3.59 of PPW 12 indicates that considerable weight should be given to protecting BMV land from development because of its special importance. It outlines that such land should only be developed if there is an overriding need for the development, and either previously developed land or land in lower agricultural grades is unavailable, or available lower grade land has an environmental value recognised by a landscape, wildlife, historic or archaeological designation which outweighs the agricultural considerations. If BMV land does need to be developed, and there is a choice between sites of different grades, development should be directed to land of the lowest grade.

12. Future Wales – The National Plan 2040, notes that productive agricultural land is a vital resource that must continue to be valued and protected. Under Policy 1, Where Wales Will Grow, the explanatory text indicates that large scale growth will be concentrated on the urban areas to channel development pressures away from the countryside and productive agricultural land. Rural area will have important functions as providers of food, energy and mineral resources.

13. The relevant National Planning Policy is summarised in **Table 12-1.**

Table 12-1: A summary of national planning policy relevant to Agriculture and Soils

Summary of policy	How and where it is considered in the chapter
PPW 12 paragraph 3.38 identifies that there needs to be a balance of countryside enhancement, economic and social attributes.	This policy has influenced the approach to assessment as set out in **Section 12.4** and subsequently the assessment of effects in **Section 12.8.**
PPW 12 paragraph 3.58 indicates that high quality agricultural land should be conserved.	This policy has influenced the approach to assessment as set out in Section 12.4 and subsequently the assessment of effects in **Section 12.8** Embedded Mitigation in **Section 12.7** is also directed to conserving high quality agricultural land.
PPW 12 paragraph 3.59 indicates that considerable weight should be given to the protection of BMV land.	This policy has influenced the approach to assessment as set out in Section 12.4 and subsequently the assessment of effects in **Section 12.8** Embedded Mitigation in **Section 12.7** is also directed to conserving high quality agricultural land.

Local Planning Policy

14. The key local planning policy relevant to Agriculture and Soils is within the Pembrokeshire Coast National Park Local Development Plan 2 (Pembrokeshire Coast National Park Authority, 2020), which relies on national policy in PPW in respect of development involving agricultural land. Objective C of the Plan – Climate change, sustainable design, renewable energy, flooding – is 'to safeguard and enhance the soil […] of the National Park'.

12.2.3. Guidance

15. The Welsh Government has prepared guidance on the ALC system in its Agricultural Land Classification: Frequently Asked Questions (2021). This guidance explains the ALC system, describes the different grades of agricultural land and sets out approaches to survey and data assessment.

16. Paragraph 6.2.2 of Technical Advice Note 6: Planning for sustainable rural communities (Welsh Assembly Government, 2010) considers that once agricultural land is developed, its return to agriculture as BMV agricultural land is seldom practicable.

17. Guidance on assessing and reporting the effects of highway projects on agriculture and soils is set out in the Design Manual for Roads and Bridges (DMRB), LA 109 with an Annex setting out in the Welsh Government's specific requirements on consultation and assessment. Although the DMRB is directed at highway projects, it also provides useful guidance and criteria for assessing the impacts of linear developments generally on agriculture and soils. LA109 provides guidance on defining study areas, describing baseline scenarios, assessing the significance of effects, outlining mitigation measures and the assessment, reporting and monitoring processes.

18. The guidance is summarised in **Table 12-2**.

Table 12-2: A summary of guidance relevant to Agriculture and Soils

Summary of Guidance	How and where it is considered in the chapter
WG ALC system guidance note FAQs	The guidance on ALC has been considered in **Section 12.5** - Baseline and has also influenced the approach to assessment in **Section 12.4**.
WG TAN 6, paragraph 6.2.2	This guidance has influenced the approach to assessment as set out in **Section 12.4** and subsequently the assessment of effects in S**ection 12.812.8.**
DMRB, LA 109	This guidance has influenced the approach to assessment as set out in **Section 12.4** and subsequently the assessment of effects in S**ection 12.8.12.8**

12.3 Stakeholder Engagement and Consultation

19. Consultation with statutory and non-statutory organisations is a key element of the EIA process. Consultation with regards to Agriculture and Soils has been undertaken to inform the approach to, and scope of, the assessment.

20. Stakeholders for the proposed Project include statutory consultees, landowners, local communities and other sea users. In addition to the statutory consultation process, there has been ongoing engagement with statutory and non-statutory consultees to steer the development of the proposed Project, which has been outlined in **Chapter 06: Consultation and Stakeholder Engagement**.

21. No comments were received in respect of agriculture and soils during the scoping process.

12.4 Approach to Assessment

12.4.1. Assessment Methodology

22. **Chapter 05: EIA Approach and Methodology** provides a summary of the general impact assessment methodology applied in this ES. The following sections provide further detail on the specific methodology used to assess the potential impacts on Agriculture and Soils.

23. The approach to the assessment of cumulative impacts, transboundary impacts and interrelated effects is provided in **Sections 12.11, 12.12** and **12.13.**

24. The significance of potential effects has been evaluated using a systematic approach together with the expert judgement of the specialist consultant. The systematic approach is based upon the identification of the importance / value of receptors and their sensitivity to the proposed Project together with the predicted magnitude of the potential impact.

25. The terms used to define receptor sensitivity and magnitude of impact are based on professional judgement and long-standing accepted criteria.

12.4.2. Significance Criteria

Magnitude of Impact

26. The scale or magnitude of potential impacts (both beneficial and adverse) is determined by a combination of three criteria: scale of change, spatial extent of change and duration of change, as outlined in **Chapter 05: EIA Approach and Methodology, Section 5.4.9**.

27. The criteria for defining magnitude of impact for the purpose of the assessment on Agriculture and Soils are provided in **Table 12-3.**

Table 12-3: Criteria for magnitude of change

Magnitude	Agricultural Land	Soil Resources
Large	Development would directly lead to the loss of over 50 ha of agricultural land.	The soil displaced from development is unable to fulfil one or more of the primary soil functions.
Medium	Development would directly lead to the loss of between 20 ha and 50 ha of agricultural land.	The soil displaced from development mostly fulfils the primary soil functions off site or has a reduced capacity to fulfil the primary functions onsite.
Small	Development would directly lead to the loss of between 5 ha and 20 ha of agricultural land.	The soil displaced from development mostly fulfils the primary soil functions onsite.
Negligible	Development would directly lead to the loss of less than 5 ha of agricultural land.	The soil retains its existing functions onsite.

Sensitivity of Receptor

28. Receptor sensitivity is defined as the degree to which a receptor would be affected by an impact. The sensitivity of the receptor is characterised by three factors: vulnerability, recoverability and importance, as outlined in **Chapter 05: EIA Approach and Methodology**, **Section 5.4.10**.

29. The criteria for defining receptor sensitivity for the purpose of the assessment on Agriculture and Soils are provided in **Table 12-4.**

Table 12-4: Criteria for resource sensitivity

Sensitivity of Receptor	Agricultural Land	Soil Resources
Very High	ALC Grade 1, excellent quality land that can grow a very wide range of agricultural and horticultural crops.	Peat and peaty soils.

Sensitivity of Receptor	Agricultural Land	Soil Resources
High	ALC Grade 2, very good quality land that can grow a wide range of agricultural and horticultural crops.	Soils with high clay and silt fractions (clays, silty clays, sandy clays, heavy silty clay loams and heavy clay loams).
Medium	ALC Subgrade 3a, good quality land that can produce high yields of a narrow range of crops or moderate yields of a wide range of crops.	Silty loams, medium silty clay loams, medium clay loams and sandy clay loams.
Low	ALC Subgrade 3b, moderate quality land that can produce moderate yields of a narrow range of crops or lower yields of a wider range of crops or high yields of grass.	Soils with a high sand fraction (sands, loamy sands, sandy loams and sandy silt loams).
Negligible	ALC Grades 4 and 5, poor and very poor-quality land mainly suited to grass and rough grazing.	Not applicable.

Significance of Effect

30. As set out in **Chapter 05: EIA Approach and Methodology**, an Impact Assessment Matrix (IAM) is used to determine the significance of effect which is a function of the sensitivity of the receptor and the magnitude of the impact, as shown in **Table 12-5**.

31. The matrix provides a framework for the consistent and transparent assessment of predicted effects across all receptor topics, however, it is important to note that the IAM acts as a guide and that assessments also allow for the application of expert judgement which needs to be applied in each case where there is a range of level of effect.

Table 12-5: Significance matrix

		Value / Sensitivity				
		Very High	**High**	**Medium**	**Low**	**Negligible**
Magnitude	**Large**	Major	Major / Moderate	Major / Moderate / Minor	Moderate/ Minor	Minor / Negligible
	Medium	Major / Moderate	Major / Moderate	Moderate / Minor	Minor / Negligible	Negligible
	Small	Major / Moderate / Minor	Moderate / Minor	Moderate / Minor	Minor / Negligible	Negligible
	Negligible	Minor / Negligible	Minor / Negligible	Minor / Negligible	Negligible	Negligible

32. The IAM provides levels of effect significance ranging from major to negligible. Assignment of significance is carried out with consideration of embedded mitigation measures relevant to

Agriculture and Soils. Embedded mitigation measures (including project design measures and best practice) are presented within **Section 12.7**. Details on additional mitigation measures and associated definitions can be found in **Section 12.9**. For the purposes of this assessment, Moderate and Major levels of significance are defined as significant, with professional judgement used to determine whether an effect is significant where the IAM shows the effect to be Moderate (significant)/Minor (not significant), and where relevant additional mitigation measures may be required, whilst Negligible or Minor impacts are defined as not significant.

12.4.3. Study Area

33. The Study Area for the assessment of Agriculture and Soils has been defined by the Onshore Project Boundary and excludes areas considered to be marine or intertidal which do not have the potential to contain soils or agricultural land. No buffer was applied as the impacts to soils and agricultural land only occur on the land that is directly impacted by the onshore scheme.

34. The onshore aspects include the Onshore Export Cable Corridor, construction sites, haul roads, Onshore Substation and National Grid infrastructure. Further information can be found within **Chapter 04: Description of the Proposed Project.**

12.4.4. Data Sources

Desk Study

35. A comprehensive desk-based review was undertaken to inform the baseline for Agriculture and Soils. Detailed soil surveys have not been undertaken for the ES. Key data sources used to inform the assessment are set out in **Table 12-6**.

Table 12-6: Summary of key desktop sources

Title	Source	Year	Brief description
Predictive Agricultural Land Classification maps	Welsh Government	2019	Map of Provisional Agricultural Land Classification across Wales
Geology Viewer	British Geological Survey	2024	Map of bedrock and superficial geology
Soils of Wales	Soil Survey of England and Wales	1983	1:250,000 scale mapping of soil associations across Wales
Climatological Data for Agricultural Land Classification	Meteorological Office	1989	A list of the location, altitude and climatic data used for grading the land for ALC

12.5 Baseline

36. The following describes the baseline environmental conditions relating to Agriculture and Soils.

12.5.1. Existing Baseline

37. The land within the proposed Project site is primarily agricultural land in arable use. Other agricultural land is under grass. Non-agricultural land includes sand dunes at the western end of the Onshore Export Cable Corridor. The topography is undulating across the dunes in the west and across valley sides in the centre and east. There is a rounded hill feature at Green Hill in the east. Altitudes are mainly between around 50 m and 60 m above Ordnance Datum (AOD), other than south of a former treatment works at Angle Bay where the altitude falls to around 35 m AOD, and at the power station terminus in the east where the altitude drops steadily from 50 m AOD to around 6 m AOD.

38. The climate across the Study Area is warm and very wet. Soil moisture deficits are moderately small to moderate. The number of Field Capacity Days (the period when the soil moisture deficit is zero; i.e. the soil is full or over-full of water) is large at between 210 and 225 days per annum which is generally unfavourable for agricultural land working.

39. The bedrock geology across most of the Study Area belongs to the Milford Haven Subgroup of the Daugleddau Group, and includes hard, red calcareous marls with red and green sandstones. At the eastern end of the Study Area is grey and red sandstone, conglomerates, mudstones and siltstones of the Skrinkle Sandstone Formation of the Brecon Beacons Group, and various limestones belonging to the Avon Group and Pembroke Limestone Group. Superficial deposits of blown sand overlie the bedrock in the central part of the Study Area (BGS, 2024).

40. The mapped soil information shows three main soil associations within the Study Area. The predominant soils are in the Milford association and generally comprise well drained, silty clay loam textures throughout which become increasingly stony with depth. At the eastern end of the Study Area is the East Keswick 3 association, similarly comprising silty clay loam textures which are slightly to moderately stony but sometimes pass to limestone at moderate depth. Mapped in conjunction with the blown sand deposits is the Sandwich association which comprises stoneless, fine sand. These soils are rarely used for agriculture. A fourth association is just outside the boundary and includes silty clay loams of the Cegin association which are poorly drained (SSEW, 1983).

41. The Welsh Government's predictive ALC mapping identifies the land within the Study Area as comprising mostly Grade 2, Subgrade 3a and Subgrade 3b land, with small areas of Grades 4 and 5, and non-agricultural land. **Table 12-7** identifies the proportion per ALC grading within the Study Area.

Table 12-7: ALC grading within the Study Area

ALC Grade	Area within the Study Area (ha)	Percentage within the Study Area (%)
2	53.6	27
3a	15.7	8
3b	123.6	61
4	5.0	2
5	1.2	1
Non-agricultural	1.8	1
Total	200.9	100
Total agricultural	199.1	99
Total BMV	69.3	35

42. The agricultural land permanently lost and the disturbance and / or loss of soil resources throughout the proposed Project will be considerably less than the Study Area due to the temporary nature of the cable installation works and the areas of soil disturbance being largely restricted to a set working corridor within the Onshore Project Boundary. Details of the areas temporarily and permanently affected are set out in **Section 12.8**.

12.5.2. Future Baseline

43. If the proposed Project was not to commence, there would be no anticipated change to the baseline conditions in the short-term. The longer-term effects of climate change are anticipated to increase the area of BMV land in Wales, particularly areas of Subgrade 3a, due

to increasing temperatures but relatively stable annual average rainfall, such that soils will be less affected by soil wetness limitations than at present (WG, 2020). The classification of the Study Area in the 2050s could therefore include a higher proportion of Subgrade 3a land and a lower proportion of Subgrade 3b land.

12.6 Scope of the Assessment

44. An EIA Scoping Report for the proposed Project was submitted to NRW Marine Licensing Team (MLT) in April 2022. The Scoping Report was also shared with relevant consultees, inviting comment on the proposed approach adopted by the Applicant. A Scoping Opinion was provided to the Applicant by NRW MLT in July 2022.

45. As set out in **Section 12.4.1** and **Table 12-8**, this assessment considers the design parameters of the proposed Project which are predicted to result in the greatest environmental impact, known as the 'realistic worst-case scenario'. The realistic worst-case scenario represents, for any given receptor and potential impact on that receptor, various options in the Design Envelope that would result in the greatest potential for change to the receptor in question. Given that the realistic worst-case scenario is based on the design option (or combination of options) that represents the greatest potential for change, confidence can be held that the development of any alternative options within the design parameters will give rise to effects no greater or worse than those included in this impact assessment.

46. Accordingly, the design scenarios identified in **Table 12-8** have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group within the Agriculture and Soils Study Area. These scenarios have been selected from the details provided in **Chapter 04: Description of the Proposed Project.**

Table 12-8: Design scenario considered for the assessment

Potential impact	Design scenario	Justification
Construction		
Loss of agricultural land, including that of BMV quality. *Loss of or damage to soil resources.*	*Maximum cable installation lengths (7.1 km) and width (up to 35 m wide), which equates to 24.85 ha* *Maximum footprint of compound areas (0.5 ha), maximum Substation Compound area (up to 1.5 ha), maximum Substation building footprint (0.6 ha).*	*The worst-case design scenario for Agriculture and Soils would result from the long-term reduction of farmable area or a reduction in soil health or function, due to damage caused during cable installation and construction.*
Operation and maintenance		
There are no effects on Agriculture and Soils during the operation and maintenance phases.		
Decommissioning		
Potential for decommissioning of onshore substation and	*Complete decommissioning of the onshore substation, which*	*The reasonable worst case design scenario during decommissioning is*

Potential impact	Design scenario	Justification
removal of buried cables to affect agricultural land or soil quality.	*would be removed, and removal of buried cables, and the site reinstated to its original function or for alternative use.*	*the removal of the onshore substation and removal of buried cables as this presents the greatest disturbance and potential risk of contaminants being release into the soil.*

Impacts scoped out of assessment

47. It is generally accepted that there is little evidence that exposure of crops, farm animals or natural ecosystems to transmission line EMFs has any agriculturally significant consequences (e.g. NPS EN-5, paragraph 2.9.58).

Assessment Assumptions and Limitations

48. To date, the assessment has relied upon existing data. No additional surveys have been undertaken for the purpose of the ES.

12.7 Embedded Mitigation, Management Plans and Best Practice

49. As part of the project design process, several designed-in measures have been proposed to reduce the potential for impacts on Agriculture and Soils (see **Table 12-9**). The design of the proposed Project therefore includes embedded mitigation measures and reference to various management plans that will be produced as conditions of consent, and which will further mitigate potential impacts (see **Appendix 4A: Outline CEMP**). This approach has been employed to demonstrate commitment to mitigation measures by including them in the design of the proposed Project and as such these measures have been considered within the assessment presented in **Section 12.8 below**. Assessment of sensitivity, magnitude and therefore significance includes the implementation of these measures.

Table 12-9: Mitigation measures, management plans and best practice adopted as part of the proposed Project

Embedded Mitigation Measures, Management Plans and Best Practice	Justification
Design Embedded Measures	
Avoidance of development in arable land (including mixed use and silage fields) in preference of permanent pasture.	There is a higher likelihood of BMV quality land being in arable use than in pasture.
Informed and sensitive positioning of cable routing and access tracks to the edge of fields, in field boundaries, or through less productive areas of individual fields to ensure that the maximum area of productive land remains in agricultural use during the construction period (micro-siting).	To minimise disturbance of land unnecessarily, for example by traversing land with machinery that is not essential.
Avoidance of higher quality agricultural land (if land of varying grade is present within the chosen permanent facility sites).	To accord with national and local planning policy, and to ensure that the maximum productive farmable area remains operational.
Mitigation of indirect effects such as field severance and separation of livestock from water supplies through informed route design.	To avoid undue inconvenience to landowners/farmers.
Management Plans	

Embedded Mitigation Measures, Management Plans and Best Practice	Justification
Soil Management Plan (SMP).	To be followed by contractors to minimise impacts on the soil resources during construction and decommissioning. Included within the Construction Environmental Management Plan (CEMP).
Appropriate management of soil resources to prevent loss / lowering of ALC grade between pre- and post-construction.	To minimise the effects of the proposed Project on Agriculture and Soils. To avoid undue inconvenience to landowners/farmers.

12.7.1. Agricultural Land

50. Some permanent loss of agricultural land will occur because of the proposed Project (due to permanent built infrastructure – substation and any permanent accesses) and this cannot be mitigated. Details of the permanent onshore built infrastructure are set out in **Chapter 04: Description of the Proposed Project** and include:

- Up to two underground Transition Joint Bays (TJB) at the landfall site, connecting the offshore cable to the onshore cable, each will be up to a footprint of 72 m^2; once constructed, the only infrastructure remaining above ground will be the link pillar above each TJB for inspection and maintenance; and
- The substation with a footprint of up to 15,000 m^2 within a substation area of approximately 8.2 ha.

51. However, most land required for the proposed Project (temporary access tracks, compound sites, cable installation corridors etc.) will be temporary, with land excluded from agricultural use for the duration of construction only. Agricultural land used temporarily during construction will be reinstated to agricultural use. The temporary loss of agricultural land and the impact of this loss can be reduced through appropriate mitigation.

52. With mitigation measures such as those described above; the permanent loss of agricultural land during the construction phase should be restricted to areas of permanent development, with BMV land avoided as far as is practicable.

12.7.2. Soil Resources

53. Soil resources will be protected against damage and loss by the adoption of industry standard methods for the handling and storage of soils appropriate to the soil types identified that will be set out in Soil Management Plan (SMP) that forms part of the Outline CEMP (**Appendix 4A: Outline CEMP**). These industry standards include methods set out in BS 3882:2015, BS 8601:2013, the Good Practice Guide for Handling Soils and the Code of Practice for the Sustainable Use of Soils on Construction Sites. As set out in **Chapter 04: Description of the Proposed Project**, the buried depth of cables will be beneath the soil profile (which generally extends to a maximum depth of 1.2 m or bedrock, whichever is the shallower) and the full depths of subsoil and topsoil will be excavated, stored separately adjacent to the trench and reinstated in the correct order once the cables are laid. Surplus material, which will not include soils, will be disposed of as appropriate at a registered landfill.

54. The current best practice guidelines, which are included in the Outline CEMP (**Appendix 4A: Outline CEMP**) promote standard working methods and techniques to protect soil resources which include, but are not limited to, the following:

- Handling of soil resources only when sufficiently dry to prevent compaction and damage to soil structure, generally limiting soil operations to the months April to September (although this period may be extended during dry periods);
- Stripping, handling, storage and transportation of topsoil separately from subsoil;
- Appropriate seeding of soil storage mounds if required for a period longer than six months, to prevent erosion and to maintain soil structure, nutrient content and biological activity;
- Decompaction of the subsoil before topsoil re-instatement; and
- Minimising the number of machine movements across topsoil to reduce compaction and retain soil structure.

55. Survey data undertaken at areas of permanent development will be used to inform the SMP which will be produced by the appointed contractor prior to the commencement of soil handling activities. Delivery of this document will be secured through planning condition.

12.8 Assessment of Environmental Effects

56. The impacts and effects (both beneficial and adverse) associated with the construction, operation and maintenance and decommissioning of the proposed Project are outlined in the sections below. The assessments consider the embedded mitigation measures described in **Section 12.7**.

57. The assessment considers temporary impacts that arise from the construction of the proposed Project and include the stripping of topsoil and subsoil from the cable trench, the separate storage of topsoil and subsoil in piles adjacent to the works and the reinstatement in the correct order of subsoils and topsoils over the cable ducts. Temporary construction compounds and access roads will remove land temporarily from agricultural use, with the topsoil stripped and stored adjacent to the site and a geotextile membrane and layers of granular stone spread over the subsoil. Alternatively protective matting or temporary metal road surfaces could be used to protect the soil resources. The compounds and access roads would be restored using original soils once works are complete.

58. The permanent impacts arise from the areas of built infrastructure, particularly the substation, that remove land permanently from agricultural use. These impacts arise because of the construction of the proposed Project and are considered accordingly, rather than being impacts that result from the operation of the proposed Project.

12.8.1. Construction Effects

Temporary Effects

59. The installation of the proposed Project will require the temporary loss of agricultural land. The onshore export cable corridor is described in **Chapter 04: Description of the Proposed Project** as approximately 7.1 km in length, with a minimum cable corridor width of 100 m, a maximum cable corridor width of 900 m and a refined cable corridor width of 35 m. The total onshore development area footprint is given as 200.9 ha of predominantly agricultural land.

Magnitude of impact

60. The working width to install the cable within the cable corridor will extend to 35 m, which will require 25.3 ha of agricultural land along the length of the corridor, of which 12.1 ha is BMV

quality in Grades 2 and 3a, pursuant to the desk studies. This land will be required temporarily as it will be reinstated immediately following the completion of construction. During construction, the magnitude of impact on all agricultural land is **medium** and the magnitude of impact on BMV land is **small.**

61. The cable installation will result in the temporary displacement of the soil resources along the onshore export cable corridor and the associated construction compounds and temporary access roads. The soils that are excavated from the cable trench will be stored adjacent to the point of excavation, with topsoils stored separately from subsoils, and the soils will retain their function during construction. During construction, the magnitude of change to the soil resource is **negligible to small**.

Sensitivity of the receptor

62. The working width within the onshore export cable corridor includes 12.1 ha mapped as Grade 2 and 3a (BMV) quality agricultural land. The sensitivity of this receptor is therefore considered to be **medium to high**. The working width also includes 13.2 ha of non-BMV land which is of **low to negligible** sensitivity.

63. Medium loamy soil textures are a receptor of **medium** sensitivity, and the fine sandy soils are a receptor of **low** sensitivity.

Significance of the effect

64. The sensitivity of the BMV agricultural land is **medium to high** and the magnitude of the impact is assessed as **small.** Therefore, the effect on BMV agricultural land will be temporary and of **moderate / minor** significance, which is considered not to be significant in EIA terms due to the temporary requirement for land which will be reinstated immediately on completion of construction.

65. The sensitivity of the non-BMV agricultural land is **low to negligible** and the magnitude of the impact is assessed as **small.** Therefore, the effect on non-BMV agricultural land will be of **minor / negligible** significance, which is not significant in EIA terms. The effect will be temporary.

66. The sensitivity of the soil resource is **low to medium,** and the magnitude of impact is assessed as **negligible to small**. Therefore, the effect on soil resources will be of **minor / negligible** significance, which is not significant in EIA terms.

Further mitigation and residual effects

67. No additional measures are available to mitigate the temporary loss of agricultural land.

68. The magnitude of impact and sensitivity of both agricultural land and the soil resource remain the same.

Permanent Effects

69. There are no permanent effects on soil resources to consider. The permanent effects on agricultural land are concerned with the removal of approximately 8.2 ha of agricultural land, of which 2.3 ha is BMV land in Grade 2 for the onshore substation and transition joint bays.

Magnitude of impact

70. The magnitude of impact on BMV agricultural land is **negligible**.

Sensitivity of the receptor

71. The area required permanently is Grade 2 BMV quality and Subgrade 3b quality. The sensitivity of this receptor is **high to low.**

Significance of the effect

72. The sensitivity of BMV quality agricultural land is **high** and the magnitude of the impact is assessed as **negligible**. Therefore, the permanent effect on BMV agricultural land will be of **minor** significance, which is not significant in EIA terms. The permanent effect on non-BMV land will be of **negligible** significance.

12.8.2. Operation and Maintenance (O&M) Effects

73. The effects on agriculture and soils, whether temporary or permanent, occur during and because of the construction of the proposed Project; there are no further impacts to consider arising from the operation of the proposed Project.

12.8.3. Decommissioning Effects

74. Land will be reinstated to agricultural use following the removal of compounds and other infrastructure, reducing the extent of the permanent adverse effects on agricultural land to **negligible**, which is not significant in EIA terms.

75. Whether the onshore export cables will remain in-situ or be removed at decommissioning is yet to be determined. If the cables remain in situ, there will be no additional impacts to consider on agricultural land or soils but if the cables are to be removed from below ground, the same temporary effects on BMV agricultural land (**moderate / minor adverse**), non-BMV land (**minor / negligible adverse**) and soil resources (**minor / negligible adverse**) would be experienced as for the construction phase.

12.9 Summary of Additional Mitigation Measures

76. There are no additional mitigation or enhancement measures required.

12.9.1. Monitoring

77. Soils reinstated in the cable trenches following the installation of the cables should be monitored for signs of damage to the soil structure from over-compaction and contamination and remediated accordingly.

12.10 Summary of Effects and Conclusions

78. This section summarises the residual significant effects of the proposed Project on Agriculture and Soils following the implementation of mitigation.

79. The residual temporary and permanent effects on agricultural land remain not significant.

80. The residual effect on soil resources is minor / negligible and is not significant.

Table 12-10: Assessment summary

Potential Impact	Receptor	Receptor Sensitivity	Magnitude of impact	Significance of effect	Additional Mitigation	Residual Significance of Effect
Construction						
Temporary loss of BMV agricultural land	BMV agricultural land	Medium to high	Small	Minor	None required	Minor Not significant
Permanent loss of BMV agricultural land	BMV agricultural land	High	Negligible	Minor	None required	Negligible / Not significant
Loss of or damage to soil resources	Soil resources	Low to medium	Negligible to small	Minor / Negligible	None required	Minor / Negligible Not significant
Operation and Maintenance						
None anticipated						
Decommissioning						
Loss of or damage to soil resources	Soil resources	Low to medium	Negligible to small	Minor/Negligible	None required	Minor / Negligible Not significant

12.11 Cumulative Effects of the Project

12.11.1. Introduction

81. Cumulative effects are those effects upon receptors arising from the proposed Project alongside all existing, and / or reasonably foreseeable projects, plans and activities that result in cumulative effects with any element of the proposed Project. Existing projects are generally considered as part of the baseline and as such are considered within the impact assessment presented above.

82. This section assesses potential cumulative effects on Agricultural Land from identified projects, plans and activities that have the potential to act cumulatively with the proposed Project. Effects on Soils do not occur cumulatively.

83. PINS Advice 17: Cumulative Effects Assessment (2019) suggests that CEA follows a four-stage process. The aim of this approach is to accurately determine relevant projects and associated relationships with scoped in receptors identified in the ES, to be included within the interproject CEA.

84. The approach to the assessment of cumulative effects is detailed in **Appendix 5B: Approach to Cumulative Effects Assessment** and is also summarised in **Table-12-11**.

Table-12-11: PINS Advice 17 Stages of the CEA process

CEA Stage	Activity
Stage 1	Determine a zone of influence (ZoI) via desk study for each topic receptor scoped into the ES. This will establish a *long list* of projects within each ZoI that will be shortlisted in Stage 2. This list of plans and projects/activities is drawn up through a desk study of planning applications, development plan documents, relevant development frameworks and any other available sources to identify 'other development' within the ZoI. Information on each project (location, development type, status, etc.) is documented, along with the certainty or tier assigned to the 'other development' (i.e. confidence it will take place in the current form and when it will take place in relation to the proposed project). PINS notes that the project should then consult with the relevant planning authority/authorities and statutory consultees regarding the long list.
Stage 2	Screening of the long list identified in Stage 1, to establish a short list for the CEA. Screening is based on the criteria presented in the scoping report and subsequent comments by the regulator and statutory consultees. PINS has provided inclusions/ exclusion threshold criteria, against which the potential for 'other development to give rise to significant cumulative effects by virtue of overlaps in temporal scope, the scale and nature of the 'other developments' and /or receiving environment, or any other relevant factors is assessed. From this assessment, a shortlist of 'other developments' to be included in the CEA is produced. It is noted that documented information on each of the 'other developments' is likely to be high level at this stage, outlining the key issues to take forward.
Stage 3	Gathering of all information available on short listed projects generated in Stage 2. At this stage all available data and information about the shortlisted projects that will be included in the CEA is collected to inform the assessment. This should utilise the most current information for each project in the public domain, and assess the assumptions and limitations of the information collected on each shortlisted project.
Stage 4	Each of the shortlisted projects are reviewed in turn by the different topics to assess whether cumulative effects may arise and the nature of those effects (i.e. beneficial or adverse). The significance of the effects on environmental receptors

CEA Stage	Activity
	is established within each ES technical chapters. Where significant adverse cumulative effects are identified, mitigation measures are also considered within the CEA alongside the mechanism to secure that mitigation, e.g. consent condition requirements.

12.11.2. Scope of Cumulative Effects Assessment

85. There are no anticipated potential pathways for cumulative effects in relation to Agriculture and Soils. The cable route was developed in conjunction with the selected landfall location, the outcomes of stakeholder engagement activities and in line with the intention to minimise construction disruption and cumulative environmental impacts with other projects. If construction and installation of the two projects occur simultaneously, there will be no additive effects but instead there will be benefits in avoiding disruption to the same soil resource twice, which would otherwise increase the magnitude of change, and in temporarily removing the same agricultural land from production twice.

12.12 Inter-related Effects of the proposed Project

86. The term 'Inter-related' considers the environmental interactions ('inter-relationships') with other receptors within the proposed Project. These are referred to in the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 and further described in **Chapter 31: Inter-related Effect Assessment.**

87. As set out in PINS Advice Note 17 (PINS), 2019, *inter-related project effects*, or 'interrelationships between topics', derive from combinations of different project-specific impacts which, when acting together on the same receptor, could result in a new or different effect, or an effect of greater significance than the proposed Project effects, when considered in.

88. Inter-related effects comprise the following:

- *Project lifetime effects*: effects that have the potential to occur during more than one phase of the proposed Project (i.e. construction, operation and maintenance and decommissioning) and to interact in a way that could potentially create a more significant effect than if it was assessed in isolation.
- *Receptor-led effects*: effects that have the potential to interact, spatially and temporally, to create inter-related effects on a receptor.

89. **Chapter 31: Inter-related Effects Assessment** details the approach to the inter-related effects assessment and includes a description of the likely inter-related effects that may occur because of the proposed Project on Agriculture and Soils.

90. **Chapter 11: Geology and Hydrogeology** considers the potential for effects arising from contamination. No existing contaminated land sites have been identified within the Study Area for the onshore elements of the proposed Project. The assessment does not identify the potential for any contamination of land/soils arising from the construction, operation or decommissioning of the onshore elements of the proposed Project. Therefore, there is not considered to be any potential for inter-related effects for this receptor group.

91. There is not considered to be any potential for combined effects for Agriculture and Soils with other topic areas.

12.13 Transboundary Effects

92. A transboundary effect refers to the impacts or effects of a project that extend beyond the boundaries of the United Kingdom and have the potential to affect the environment of other countries within the European Economic Area (EEA). These effects can occur either from the proposed Project on its own or when combined with the effects of other projects or activities in the wider geographical area.

93. There are not anticipated to be any transboundary effects relating to Agriculture and Soils.

12.14 References

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