



MORGAN AND MORECAMBE OFFSHORE WIND FARMS: TRANSMISSION ASSETS

The Applicants' Response to ExQ2:1.1.6 - Mitigation Hierarchy



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Glossary

Term	Meaning
Applicants	Morgan Offshore Wind Limited (Morgan OWL) and Morecambe Offshore Windfarm Ltd (Morecambe OWL).
Code of Construction Practice	A document detailing the overarching principles of construction, contractor protocols, construction-related environmental management measures, pollution prevention measures, the selection of appropriate construction techniques and monitoring processes.
Commitment	This term is used interchangeably with mitigation and enhancement measures. The purpose of commitments is to avoid, prevent, reduce or, if possible, offset significant adverse environmental effects. Primary and tertiary commitments are taken into account and embedded within the assessment set out in the ES.
Environmental Impact Assessment	The process of identifying and assessing the significant effects likely to arise from a project. This requires consideration of the likely changes to the environment, where these arise as a consequence of a project, through comparison with the existing and projected future baseline conditions.
Environmental Statement	The document presenting the results of the Environmental Impact Assessment process.
Mitigation measures	This term is used interchangeably with Commitments. The purpose of such measures is to avoid, prevent, reduce or, if possible, offset significant adverse environmental effects.
Onshore Order Limits	See Transmission Assets Order Limits: Onshore (below).
Onshore substations	The onshore substations will include a substation for the Morgan Offshore Wind Project: Transmission Assets and a substation for the Morecambe Offshore Windfarm: Transmission Assets. These will each comprise a compound containing the electrical components for transforming the power supplied from the generation assets to 400 kV and to adjust the power quality and power factor, as required to meet the UK Grid Code for supply to the National Grid.
Preliminary Environmental Information Report	A report that provides preliminary environmental information in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. This is information that enables consultees to understand the likely significant environmental effects of a project, and which helps to inform consultation responses.
The Secretary of State for Energy Security and Net Zero	The decision maker with regards to the application for development consent for the Transmission Assets.
Transmission Assets	See Morgan and Morecambe Offshore Wind Farms: Transmission Assets (above).
Transmission Assets Order Limits	The area within which all components of the Transmission Assets will be located, including areas required on a temporary basis during construction and/or decommissioning (such as construction compounds).

Acronyms

Acronym	Meaning
CoCP	Code of Construction Practice
СоТ	Project Commitment
DCO	Development Consent Order
EIA	Environmental Impact Assessment
ES	Environmental Statement
NPS	National Policy Statement
PEIR	Preliminary Environmental Information Report
WSI	Written scheme of investigation

1 The Applicants' Response to ExQ2:1.1.6 - Mitigation Hierarchy

1.1 Introduction

1.1.1.1 The Applicants have prepared this clarification note in response to part a) of the Examining Authority's Question (ExQ)2: 1.1.6:

'Critical national priority

Paragraph 4.2.4 of National Policy Statement (NPS) EN-1 (published November 2023) sets out the Government's conclusion that there is a critical national priority (CNP) for the provision of nationally significant low carbon infrastructure. Paragraph 4.2.7 goes on to explain that the CNP policy applies following the normal consideration of the need case, the impacts of the project, and the application of the mitigation hierarchy.

Paragraph 4.2.11 says that applicants should demonstrate that all residual impacts are those that cannot be avoided, reduced or mitigated and 4.2.12 says that applicants should set out how residual impacts will be compensated for as far as possible.

- a) For clarity and the avoidance of doubt, for each topic area the applicants are requested to set out (including any relevant cross-referencing to relevant documents) how they have met the test in paragraph 4.2.11 of NPS EN-1 that applicants must apply the mitigation hierarchy and demonstrate that it has been applied.
- b) It is assumed that the mitigation hierarchy has to be demonstrated to have been applied for each relevant topic area and that, if it has not been demonstrated to have been applied for just one topic area, then this would mean that the CNP policy would not be applicable for the application as a whole. Do you agree with this interpretation?'
- 1.1.1.2 The response to part a) is provided within this document and the response to part b) within the Applicants' response to ExQ2 and dDCO (S_D5_5).
- 1.1.1.3 This document should be read in conjunction with:
 - ES Volume 1, Chapter 4: Site selection and consideration of alternatives (AS-026);
 - Volume 1, Annex 4.1: Selection and refinement of cable landfall (APP-031);
 - Volume 1, Annex 4.3: Selection and refinement of onshore infrastructure (AS-028);
 - Volume 1, Chapter 5: Environmental assessment methodology (APP-034); and
 - Volume 1, Annex 5.3: Commitments register (REP4-018).

1.1.2 Background

- 1.1.2.1 Under the Infrastructure Planning (Environmental Impact Assessment)
 Regulations (2017) ('EIA Regulations'), Environmental Impact
 Assessments are required to include 'a description of any features of
 the proposed development, or measures envisaged in order to avoid,
 prevent or reduce and, if possible, offset likely significant adverse
 effects on the environment'. This describes the mitigation hierarchy that
 should be applied to likely significant adverse effects from a proposed
 development under the EIA Regulations. This also aligns with
 paragraphs 4.2.11 and 4.2.12 of the Overarching National Policy
 Statement for Energy (EN-1), reproduced below:
 - '4.2.11 Applicants must apply the mitigation hierarchy and demonstrate that it has been applied. They should also seek the advice of the appropriate SNCB or other relevant statutory body when undertaking this process. Applicants should demonstrate that all residual impacts are those that cannot be avoided, reduced or mitigated.
 - 4.2.12 Applicants should set out how residual impacts will be compensated for as far as possible. Applicants should also set out how any mitigation or compensation measures will be monitored and reporting agreed to ensure success and that action is taken. Changes to measures may be needed e.g. adaptive management. The cumulative impacts of multiple developments with residual impacts should also be considered.'
- 1.1.2.2 The Applicants have sought the advice of Natural England and other relevant statutory bodies. Records of pre-application discussions with these statutory bodies are provided in the Technical Engagement Plan and its appendices (APP-189 to APP-192).
- 1.1.2.3 As set out in Volume 1, Chapter 5: Environmental assessment methodology (APP-034). Mitigation measures are measures developed to avoid, prevent, reduce or, if possible, offset significant adverse environmental effects. In some cases, measures are proposed that would create or enhance beneficial environmental or social effects; these are referred to as enhancement measures
- 1.1.2.4 In addition to the topic chapters and annexes, a full list of all measures proposed to avoid, prevent, reduce or, if possible, offset the identified significant adverse effects is provided in Volume 1, Annex 5.3: Commitments Register (REP4-018).
- 1.1.2.5 EIA methodology: For the purposes of this ES, the term 'measures adopted as part of the Transmission Assets' is used to include measures that have been identified during the EIA process and that are presented on the Commitments Register. This is provided at Volume 1, Annex 5.3: Commitments register (REP4-018). This includes the following types of mitigation measures, that are set out in every topic chapter of the ES.
 - Embedded mitigation. This includes the following measures, as identified in the IEMA 'Guide to Shaping Quality Development' (IEMA, 2015).

- Primary (inherent) mitigation. These are measures included as part of the project design. IEMA describes these as 'modifications to the location or design of the development made during the pre-application phase that are an inherent part of the project and do not require additional action to be taken'. This includes modifications arising through the iterative design process. These measures will be secured through the consent itself through the description of the project and the parameters secured in the Development Consent Order and/or marine licences. For example, a reduction in footprint or height.
- Tertiary (inexorable) mitigation. IEMA describes these as 'actions that would occur with or without input from the EIA feeding into the design process. These include actions that will be undertaken to meet other existing legislative requirements, or actions that are considered to be standard practices used to manage commonly occurring environmental effects'. It may be helpful to secure such measures through a Code of Construction Practice or similar.
- Secondary (foreseeable) mitigation. IEMA describes these as 'actions that will require further activity in order to achieve the anticipated outcome'. These include measures required to reduce the significance of environmental effects (such as lighting limits) and may be secured through an environmental management plan.
- 1.1.2.6 The development of mitigation and enhancement measures (where relevant) forms a key part of the iterative EIA process described above, whereby measures are developed throughout the EIA process in response to the findings of initial assessments and stakeholder engagement.

1.2 Process

- 1.2.1.1 In accordance with the EIA Regulations, the ES identifies likely significant environmental effects, for the purposes of the decision-making process. It is not reasonably possible, or practical to compare all residual adverse effects (those with a minor adverse significance or worse) during the construction, operation and maintenance and decommissioning phases, and an exercise would not provide meaningful insights. Therefore, the Applicants have focussed their review on those impacts that result in a residual significant adverse effect (e.g., those effects that remain the largest), in order to clarify how the test in paragraph 4.2.11 of NPS EN-1 has been met, relating to mitigation hierarchy.
- 1.2.1.2 Following the application of mitigation ten residual significant adverse effects have been identified within the EIA across all topics. **Table** 1-1 shows how the mitigation hierarchy has been followed. The Applicants are not proposing compensation for the ten remaining significant adverse effects as set out in **Table** 1-1. It should be noted that all of these residual effects relate to the construction stage only.

Table 1-1 Mitigation hierarchy

Significant Residual Effect	Avoidance	Mitigation (prevent or reduce)	Compensation	Justification of residual effects
Onshore Ecology and Nature Conservation Temporary loss of approximately 1.78ha of Mill Brook Valley Biological Heritage Site (BHS) due to land required for the Morgan/Morecambe National Grid connection works and the National Grid connection compound at Penwortham.	The temporary construction compounds will be micro-sited to avoid the BHS wherever reasonably practicable (CoT126).	 Pre-construction survey to determine best quality habitats to avoid. Survey will record a detailed species list (for future restoration). Topsoil and subsoil will be stored separately to retain the seedbank for reinstatement. Fencing and signage to cordon off areas to stop unintended impacts. All trees will be retained with a 10 m buffer. This will ensure successful reinstatement of grassland as far as possible. Post- 	impact will be reinstated (CoT27) having consideration to the soils and sub-soils (CoT08). Because of the precautionary nature of the assessment and the likelihood of reestablishing the area, the Applicants have not proposed compensation for this impact as it is not proportionate to the level of long-term adverse residual effects. Ongoing management of the area has been secured under DCO Schedules 2A & 2B, Requirement	The reason for the significant effect is because the BHS is within the Order Limits adjacent to the Penwortham Substation. The temporary construction compounds will be in situ for the duration of the construction and will then be removed. The detailed species list will be recorded and seedbank retained. These measures will provide the best opportunity for the seedbank to re-establish. The significant adverse effect assessed was considered precautionary and where possible the temporary construction compounds will be micro-sited to avoid the BHS. This will be determined at detailed design.
Onshore Ecology and Nature Conservation Temporary habitat loss of 2.24 ha of Priority Habitats (semi-improved grassland) within Mill Brook Valley BHS.	The temporary construction compounds will be micro-sited to avoid the Priority Habitats wherever reasonably practicable (CoT126).	Mitigation as for the BHS.	Compensation as for the BHS.	Justification as for the BHS.
Historic Environment Loss of, or harm to, buried archaeological remains and deposits of geoarchaeological and palaeoenvironmental interest in the construction phase.	Transmission Assets' evolution where all buried and unknown archaeological features are. Therefore it is impossible to avoid them when defining a project's Order Limits. A range of known sensitive historical sites or areas have been avoided where practicable during the site selection process and subsequent refinement of scheme design (CoT03). One example of this is the potential for the potential extended Quaker burial ground adjacent to Lower Lane (at the eastern end of the onshore export cable corridor).	during construction, leading to analysis, reporting of results and archiving of data. These further investigations will not reduce the overall impacts or effects but will serve to offset such impacts and effects. The programme of archaeological surveys may lead to additional mitigation in the form of avoidance or minimisation of physical impacts where this is possible within the Onshore Order	appropriate. The Applicants are committed to a further programme of investigations which may lead to additional mitigation; including mitigation and minimisation of impacts. At this stage the additional mitigation commitments are deemed proportionate to the level of risk and in line with the industry standard in dealing with unknown archaeological features.	unknown archaeological features are located. However, the historic environment will be protected in accordance with the measures

Significant Residual Effect	Avoidance	Mitigation (prevent or reduce)	Compensation	Justification of residual effects
Land use The permanent loss of agricultural land including BMV	loss of agricultural land including BMV during construction. Best and Most Versatile Soils have been considered as part of the site selection process and included as a BRAG criteria-Table 4.7, Table 4.10 and Table 4.14 of Volume 1, Annex 4.3: Selection and	restore the quality of soils, including peat deposits during construction of the Transmission Assets. It sets out measures to conserve soil resources; avoid damage to soil structure; maintain soil drainage during construction; and identify principles for the reinstatement of the soil profile following the construction. However, CoT81 will not materially reduce the permanent loss of agricultural land associated with construction of the permanent onshore substations and link boxes.	versatile land is not something that can be replaced or therefore mitigated through compensation.	Although opportunities have been explored to reduce the area of potential loss, the permanent loss of agricultural land is an unavoidable consequence of the construction of the permanent onshore infrastructure on agricultural land.
Land use The temporary disruption caused to farm holdings during the construction phase has been assessed to be of moderate adverse significance.	cable corridors were sited to minimise disturbance to agricultural holdings and to reduce severance. In addition, landowner meetings were also held between February and May 2023 to discuss the alignment of the Preliminary Environmental Impact Report (PEIR) Red Line Boundary along field margins with the aim of reducing severance to landowners (refer to Volume 1, Annex 4.3: Selection and Refinement of Onshore Infrastructure (AS-028)). The key refinement made to address the comments received was to relocate the	20, 22, 25, 27, 39 and 84) as identified in Table 6.17 of Volume 3, Chapter 6: Land use and recreation (APP-104). Mitigation measures are also set out in the Applicants' response to Hearing Action Points: ISH2 38 (REP4-111) which at Annexure 1 sets out mitigation options and accommodation measures that can be applied to different farm holdings. The Outline CoCP (REP4-026) and Outline Soil	considered appropriate in terms of EIA. However, as explained in the Applicants' response to Hearing Action Points: ISH2 38 (REP4-111) where compensation (or sourcing	

Landscape character - landfall/ onshore export The Applicants have sought to avoid the cable corridor

Significant residual effects have been identified on the following Landscape Character Area during the Site selection process: Volume 1, Chapter construction phase:

19a: Fylde Coastal Dunes: Temporary construction through the iterative design process to avoid, activities within the open sandy beach and dune system would introduce discordant elements into a predominantly natural and dark coastal setting. These effects would, however, be reversible following completion of construction. Within parts of Avoid sensitive features: The route of the the character area influenced by existing urban features, such as Blackpool Airport, the lit road corridor and adjacent golf course, the construction activities would be less intrusive.

Landscape character – onshore substations

Significant residual effects arise on the following Landscape Character Area, during the construction phase:

LCA 15d: Coastal Plain – The Fylde: Construction activity would introduce discordant features into an open agricultural and urban fringe landscape. The works would result in the substantial loss of characteristic rural elements within the footprint of the substation and construction compound sites. These changes are assessed as uncharacteristic in nature, of localised spatial extent, and of a longterm yet temporary duration

Visual impacts – landfall /onshore export cable corridor

Visual impacts -400 kV grid connection cable

Significant residual effects arise from the Transmission Assets on the following visual receptors during the construction phase:

- People using beach.
- People using Blackpool Road Recreation Ground.
- People using PRoW BW0502012, BW0502013, BW0502016, - BW0503012, FP050302, FP05010011, FP050304, FP050305, FP050502, BW0509012, FP00905, FP070907 and FP0709010.
- People using National Cycle Route 62 at Hillock Lane.
- Occupiers of residential properties at Bridge Farm, Bridge Hall Farm, Moss Side Farm, The

potential impacts on landscape and visual resources through the following measures:

I: Site Selection and Alternatives of the ES describes the opportunities were explored where practicable, sensitive visual receptors in proximity to components of the Transmission Assets.

onshore export cable corridor has been designed to avoid crossing woodlands and areas of groups of trees, wherever possible.

The Applicants have sought to reduce the potential Having applied the mitigation hierarchy in impacts on landscape and visual resources through the following measures listed below:

Burial of onshore export cables: The onshore export cables would be buried for the full length of that compensation is not necessary. The the onshore export cable corridor (approximately 17 km), extending between the landfall site at Lytham St Annes, the onshore substations at reckleton, and the 400 kV grid connection corridor towards the National Grid substation at Penwortham.

All major crossings, including roads, rivers and railways, would be delivered using Horizontal Directional Drilling (HDD) or other trenchless techniques, with the exception of Leach Lane. (See CoT02 of the Commitments Register)

Management of Public Rights of Way (PRoW): PRoWs along the onshore export cable corridor and the 400 kV grid connection corridor would be managed in accordance with CoT102 and CoT32. additional environmental benefit, nor is it Measures may include bridging PRoWs to maintain access during construction, in line with the relevant commitments (ES Volume 1. Annex 5.3; document reference F1.5.3).

Provision of operational access routes: Operational access routes have been designed and incorporated along the onshore export cable corridor and the 400 kV grid connection corridor to facilitate routine operation and maintenance of the infrastructure. These access routes are designed to be approximately 3.5 m in width and would, where practicable, follow existing paths and tracks to minimise additional land take and disturbance.

Protection of sensitive features: Protection and replanting of hedgerows would be implemented to minimise adverse landscape, visual and other potential effects.

Landscape design principles (for the substation):

 Specifically placed woodland blocks around onshore substations' perimeters to filter/screen views and to break up the bulk and scale of the buildings, reducing the visual impact in views towards the substations, and integrate the development into its landscape context.

 Minimise, where possible, off-site deposition of soil by sensitive incorporation within the locality. Soil will be suitably stored prior to re-use, and topsoil and subsoil may be incorporated to allow for successful establishment of proposed

accordance with the requirements of NPS EN-1 and EN-3, and following a comprehensive assessment of residual effects on landscape and visual resources, the Applicants conclude affected receptors are capable of being replaced to an equivalent standard within the extent of the Order Limits through mitigation measures secured in the DCO. No receptors identified within the agreed LVIA study area nave been assessed as irreplaceable, nor are there any features whose value cannot be Use of trenchless technologies at major crossings: reproduced within a reasonable timescale.

> The Applicants' mitigation hierarchy is considered sufficient to deliver a comparable landscape outcome within an appropriate timeframe. As demonstrated in the LVIA (Volume 3, Chapter 10, APP-123), residual effects are appropriately addressed through embedded and secured mitigation measures. Accordingly, compensation would not provide required to make the development acceptable n planning terms.

The assessment reported in Volume 3, Chapter 10 Landscape and visual resources (APP-123) is based on an iterative design approach, where throughout the development of the onshore components of the Transmission Assets, landscape considerations have been embedded as an ntegral element of the design process.

Accordingly, the landscape mitigation measures necessary to reduce the effects of the Transmission Assets on landscape character and views have already been incorporated into the Projects' design and are reflected in the assessment of effects, where it is assumed that these measures will form part of the final design. Despite the iterative design approach, significant landscape and visual effects have remained because they are an unavoidable consequence of the construction of the permanent onshore infrastructure.

Old Dairy, Hillock Cross Farm, Savick Brook Farm and Marsh Farm.

Visual impacts – onshore substations

Significant residual effects arise from the Transmission Assets on the following visual receptors during the construction phase:

- Bridleway BW0505016, south of the Morgan onshore substation site
- Bridleway BW0505016, west of the Morgan onshore substation site
- Footpath FP050503, south of the Morecambe onshore substation site
- Sequential effects on PRoWs (BW0505016, FP050503 and FP050504).

vegetation. Temporary soil mounds on the western edge of compounds at the Morecambe substation site, adjacent to Lower Lane, will form acoustic barriers.

•The permanent access roads may be framed by hedges and individual trees.

Furthermore, the oLMP sets out the landscape strategy for the Transmission Assets. By incorporating the landscape design, the onshore substations will reduce landscape and visual impact.

The Applicants have sought to mitigate the potential impacts on landscape and visual resources through the following measures:

Management of vegetation removal: The Applicants have sought to mitigate potential impacts on landscape resources through careful management of vegetation removal along the onshore export cable and 400 kV grid connection corridors. Hedgerows and trees would only be removed where necessary, with trenchless installation techniques, including Horizontal Directional Drilling (HDD), employed to avoid substantial areas of woodland and large Category A specimen trees. Localised removal may still be required at haul road crossing points and to provide safe access and visibility at construction access points. Replanting of trees directly above, or in close proximity to, the onshore export cables would not be possible due to operational and technical constraints.

Landscape design principles (for the substation):

•Existing agricultural use of pasture fields to the north of the Morgan substation and to the south, west and north west of Morecambe substation sites will be reinstated following completion of the construction activities and use of the compound areas.

•Strengthen and enhance existing hedgerow field boundaries within the vicinity of substations by planting gaps with new native (and of local provenance) species hedge plants and hedgerow trees that would improve hedgerow continuity and provide further screening and filtering of views, enhance landscape character and provide enhanced habitats and habitat connectivity for wildlife.

•Create naturalistic scrub areas to link with woodland and grassland around the attenuation ponds.

Significant Residual Effect	Avoidance	Mitigation (prevent or reduce)	Compensation	Justification of residual effects
		 Species rich grassland areas will be established to provide a low maintenance ground cover which also enhances the local biodiversity in areas that are not to be returned to agricultural use or planted as woodland. 		
		•Outside of the impermeable areas, the site finishes would consist of stone chippings over an appropriate thickness of sub-base to provide suitable surface for plant maintenance and permeability.		
		•Create new native hedges, especially where connectivity with off-site hedgerows and woodland could be improved.		
		•Furthermore, the oLMP sets out the landscape strategy for the Transmission Assets. By incorporating the landscape design, the onshore substations will mitigate landscape and visual impact.		

Morgan and Morecambe Offshore Wind Farms: Transmission Ass	sets
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