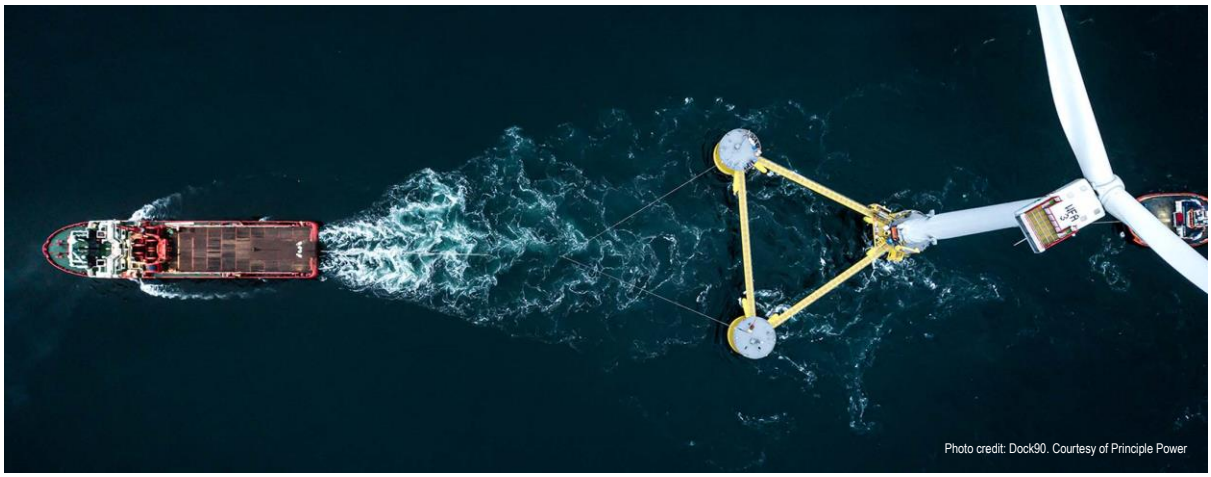


Project Erebus Environmental Statement
Chapter 21: Landscape and Visual Impact

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Acronyms

Term	Definition
AOD	Above Ordnance Datum
AIS	Air Insulated Switchgear (substation technology)
Cadw	National Agency for Conservation of the Historic Environment (NB: this is not an acronym so is not capitalised)
CEMP	Construction Environmental Management Plan
EIA	Environmental Impact Assessment
ES	Environmental Statement
ETG	Expert Topic Group
GIS	Gas Insulated Switchgear (substation technology)
GLVIA	Guidelines for Landscape and Visual Impact Assessment
HDD	Horizontal Directional Drilling
km	Kilometre
LCAs	Landscape Character Areas
LVIA	Landscape and Visual Impact Assessment
LEMP	Landscape and Ecological Management Plan
MDS	Maximum Design Scenario
m	Metre
mm	Millimetre
NLCAs	National Landscape Character Areas

Term	Definition
NRW	Natural Resources Wales
OLMP	Outline Landscape Mitigation Plan
OPEN	Optimised Environments Limited
PCNP	Pembrokeshire Coast National Park (PCNP).
PCC	Pembrokeshire County Council
PDE	Project Design Envelope
RHPG	Registered Historic Park and Gardens
SCAs	Seascape Character Areas
TCC	Temporary Construction Compound
TJB	Transition Joint Bay
ZTV	Zone of Theoretical Visibility

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Chapter 21 **Landscape and Visual Impact**

21.1 Introduction

21.1.1.1 This chapter of the Environmental Statement (ES) presents the Landscape and Visual Impact Assessment (LVIA) for the onshore elements of the Erebus Offshore Wind Farm (the Project). The onshore elements of the Project (hereafter referred to as the Proposed Development) are described in Chapter 4: Proposed Development Description.

21.1.1.2 The key elements of the Proposed Development include the proposed substation, onshore export cable and landfall (where the offshore export cable will meet the onshore export cable). The landfall for the purpose of this chapter includes the intertidal area (Mean Low Water to Mean High Water Springs).

21.1.1.3 The LVIA has been undertaken by Chartered Landscape Architects at Optimised Environments Limited (OPEN), in accordance with the LVIA methodology set out in Sections 21.4 and 21.5. The Chapter has been authored by Stuart Cargill MLA CMLI, who has 15 years' experience in LVIA.

21.1.1.4 This chapter has been informed by the following ES chapters:

- Chapter 2: Overview of EIA Methodology
- Chapter 3: Site Selection and Alternatives
- Chapter 4: Proposed Development Description

21.1.1.5 This chapter should be read in conjunction with the following ES documents:

- Chapter 13: Seascape, Landscape and Visual Impact Assessment (SLVIA)
- Chapter 20: Terrestrial and Coastal Ecology and Onshore Ornithology
- Chapter 25: Onshore Archaeology and Cultural Heritage.

21.1.1.6 The LVIA is supported by Volume 3 Technical Appendix 21.1 - LANDMAP Assessment along with plan graphics and visual representations within Volume 2, LVIA Figures and Visualisations. LVIA figures include Zone of Theoretical Visibility (ZTV) maps; reference photography; outline landscape mitigation and visual representations, including baseline panorama views, model views and photomontages.

21.2 Legislation, Policy and Guidelines

European Landscape Convention (ELC)

21.2.1.1 The ELC is devoted exclusively to the protection, management and planning of all landscapes in Europe. Landscape is described as "an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors" (ELC, 2000). The definition applies to all urban and peri-urban landscapes, towns, villages, rural areas, the coast and inland areas. In addition, it applies to ordinary or even degraded landscape as well as those areas that are of outstanding value or protected.

21.2.1.2 The ELC became binding in the UK from 1 March 2007. As a signatory, the UK government has therefore undertaken to adopt general policies and measures to protect, manage and plan landscapes as follows:

- to recognise landscapes in law as an essential component of people's surroundings, an expression of the diversity of their shared cultural and natural heritage, and a foundation of their identity;
- to establish and implement landscape policies aimed at landscape protection, management and planning through the adoption of the specific measures. These include awareness-raising, training and education, identification and assessment of landscapes, definition of landscape quality objectives and the implementation of landscape policies;
- to establish procedures for the participation of the general public, local and regional authorities, and other parties with an interest in the definition and implementation of the landscape policies mentioned in the bullet above; and
- to integrate landscape into regional and town planning policies and in cultural, environmental, agricultural, social and economic policies, as well as in any other policies with possible direct or indirect impact on landscape.

21.2.1.3 Given the UK's adoption of the ELC and its aims, the ELC gives an appropriate basis for the importance placed on the Welsh landscape.

21.2.2 Legislation

21.2.2.1 Relevant legislation documents have been reviewed and taken into account as part of this assessment. Table 21.1 lists the legislation relevant to the assessment of the effects on seascape, landscape and visual receptors.

Table 21.1 – Legislation relative to seascape, landscape and visual receptors

Legislation description	Relevance to assessment
National Parks and Access to the Countryside Act 1949	
National Parks and Access to the Countryside Act 1949 provided the framework for the establishment of National Parks and AONBs. The provisions of this Part 2 of this Act have effect for the purpose of - *(a) conserving and enhancing the natural beauty, wildlife and cultural heritage of the*	The potential effect of the onshore elements of the Proposed Development on Pembrokeshire Coast National Park (PCNP) is considered in Section 21.10

Legislation description	Relevance to assessment
areas specified in the next following subsection; and *(b) promoting opportunities for the understanding and enjoyment of the special qualities of those areas by the public*.	
Environment Act (1995)	
Sets out the duty of certain bodies to have regard to the purposes for which National Parks are designated (to preserve and enhance the natural beauty of the Park areas and for the purpose of promoting their enjoyment by the public) that they shall seek to foster the economic and social well-being of local communities within the National Park by cooperating with local authorities. If it appears there is a conflict between those purposes then the relevant authority shall attach greater weight to the purpose of conserving and enhancing the natural beauty, wildlife and cultural heritage of the area of the National Park.	The potential effect of the onshore elements of the Proposed Development on PCNP is considered in Section 21.10

21.2.3 National Planning Policy

21.2.3.1 Table 21.2 lists the national planning policy relevant to the assessment of the effects on seascape, landscape and visual receptors.

Table 21.2 – National planning policy relative to seascape, landscape and visual receptors

Policy description	Relevance to assessment
EN-1 Overarching NPS for Energy	
Paragraph 5.9.5 of EN-1 advises that the applicant should carry out a landscape and visual assessment and makes reference to the following documents: Landscape Institute and Institute of Environmental Management and Assessment (2002, 2nd edition): Guidelines for Landscape and Visual Impact Assessment; and Land Use Consultants (2002): Landscape Character Assessment – Guidance for England and Scotland.	The Guidelines for Landscape and Visual Impact Assessment' (GLVIA) (2002, 2nd edition) has been superseded by GLVIA Version 3. Landscape Character Assessment – Guidance for England and Scotland has been superseded by Natural England's 'An Approach to Landscape Character Assessment'. This LVIA has been prepared following the updated versions of these documents which are referred to in **Section 21.4**.
Paragraph 5.9.5: *"The landscape and visual assessment should include reference to any landscape character assessment and associated studies as a means of assessing landscape impacts relevant to the proposed project. The applicant's assessment should*	Published landscape character assessments and associated studies for the Study Area are referred to in **Section 21.6** of the LVIA.

Policy description	Relevance to assessment
also take account of any relevant policies based on these assessments in local development documents in England and local development plans in Wales."	
Paragraph 5.9.6: *"The applicant's assessment should include the effects during construction of the project and the effects of the completed development and its operation on landscape components and landscape character."*	The effect on landscape components and landscape character during construction and operation are considered in Section 21.9 and 21.10 of the LVIA.
Paragraph 5.9.7: "The assessment should include the visibility and conspicuousness of the project during construction and of the presence and operation of the project and potential impacts on views and visual amenity."	The visual effects of the Proposed Development during construction and operation are considered in Section 21.11 of the LVIA.
Paragraph 5.9.7: "Landscape effects depend on the existing character of the local landscape, its current quality, how highly it is valued and its capacity to accommodate change. All of these factors need to be considered in judging the impact of a project on landscape. Virtually all nationally significant energy infrastructure projects will have effects on the landscape. Projects need to be designed carefully, taking account of the potential impact on the landscape. Having regard to siting, operational and other relevant constraints the aim should be to minimise harm to the landscape, providing reasonable mitigation where possible and appropriate."	The quality, value and capacity of the landscape to accommodate change are considerations of the landscape assessment. The design of the Proposed Development has considered and addressed the potential impact on seascape, landscape and visual receptors, in order to minimise harm by mitigation of landscape effects as presented in Section 21.8 of the LVIA. Adverse landscape and visual effects are minimised through environmental mitigation measures.
Paragraph 5.9.12 and Paragraph 5.9.13: *"The duty to have regard to the purposes of nationally designated areas also applies when considering applications for projects outside the boundaries of these areas which may have impacts within them. The aim should be to avoid compromising the purposes of designation and such projects should be designed sensitively given the various siting, operational, and other relevant constraints.'* … and paragraph 5.9.13 advises *'The fact that a proposed project will be visible from within a designated area should not in itself be a reason for refusing consent."*	The potential effect of the onshore elements of the Proposed Development on PCNP is considered in Section 21.10
Paragraph 5.9.14: *"Outside nationally designated areas, there are local landscapes that may be highly valued locally and protected by local designation. Where a local development document in England has policies based on landscape character assessment, these should be paid particular attention. However, local landscape designations should not be used in*	The value of the local landscape is a consideration within the LVIA and is informed by local landscape designations identified in local development plan documents. Effects on landscape character are assessed in respect of each landscape receptor in Section 21.10 of the LVIA.

Policy description	Relevance to assessment
themselves to refuse consent, as this may unduly restrict acceptable development."	
Paragraph 5.9.17: "*The IPC [now the Planning Inspectorate and the Secretary of State] should consider whether the project has been designed carefully, taking account of environmental effects on the landscape and siting, operational and other relevant constraints, to minimise harm to the landscape, including by reasonable mitigation."*	Chapter 3: Site Selection and Alternatives of the ES sets out the iterative process that has influenced the design of the Proposed Development. The mitigation of landscape and visual effects has been carefully considered in the LVIA, to minimise 'harm to the landscape' where possible as outlined in Section 21.8
Paragraph 5.9.22: *"Within a defined site, adverse landscape and visual effects may be minimised through appropriate siting of infrastructure within that site, design including colours and materials, and landscaping schemes, depending on the size and type of the proposed project. Materials and designs of buildings should always be given careful consideration."*	Adverse landscape and visual effects are minimised through environmental mitigation measures as presented in Section 21.8 of the LVIA. The role of the site selection process in minimising landscape and visual effects is presented in Chapter 3: Site Selection and Alternatives of the ES. Choice of colours and materials is set out in Chapter 4: Proposed Development Description.
Paragraph 2.4.2: *"Proposals for renewable energy infrastructure should demonstrate good design in respect of landscape and visual amenity, and in the design of the project to mitigate impacts such as noise and effects on ecology."*	The Proposed Development has been designed to address potential landscape and visual effects. Environmental mitigation measures that address landscape and visual effects are presented in Section 21.8 of the LVIA.
EN-3 National Policy Statement for Renewable Energy Infrastructure	
Paragraph 2.4.2 advises that "*Proposals for renewable energy infrastructure should demonstrate good design in respect of landscape and visual amenity, and in the design of the project to mitigate impacts such as noise and effects on ecology."*	The Proposed Development has been designed to address potential landscape and visual effects. Environmental mitigation measures that address landscape and visual effects are presented in Section 21.8.
Paragraph 2.6.209 of EN-3 advises that: *"Where adverse effects are anticipated either during the construction or operational phases, in coming to a judgement, the IPC should take into account the extent to which the effects are temporary or reversible."*	Sections 21.9, 21.10 & 21.11 set out the extent to which the identified effects are temporary or reversible.
Future Wales: The National Plan to 2040 (2021)	
It is noted in relation to Developments of National Significance that *"The planning system sets policy and takes decisions on on-shore schemes. The Welsh Government is supportive of off-shore proposals and sees them as an important part of our future energy mix but they do not fall within the remit of Future Wales".* However, the policies set out therein (17 and 18) provide useful provisions	The visual effects of the Proposed Development during construction and operation are considered in Section 21.11 of the LVIA. The effect on landscape components and landscape character during construction and operation are considered in Section 21.9 and 21.10 of the LVIA.

Policy description	Relevance to assessment
and advice in relation to renewable energy and nationally designated landscapes. Policy 17 – Renewable and Low Carbon Energy and Associated Infrastructure advises that *"Applications for large-scale wind and solar will not be permitted in National Parks and Areas of Outstanding Natural Beauty and all proposals should demonstrate that they will not have an unacceptable adverse impact on the environment."* Policy 18 – Renewable and Low Carbon Energy Developments of National Significance states that *"Proposals for renewable and low carbon energy projects (including repowering) qualifying as Developments of National Significance will be permitted subject to policy 17 and the following criteria:* *1. outside of the Pre-Assessed Areas for wind developments and everywhere for all other technologies, the proposal does not have an unacceptable adverse impact on the surrounding landscape (particularly on the setting of National Parks and Areas of Outstanding Natural Beauty);* *2. there are no unacceptable adverse visual impacts on nearby communities and individual dwellings"*	The potential effect of the onshore elements of the Proposed Development on PCNP is considered in Section 21.10
Planning Policy Wales 11 (PPW) (2021)	
Section 6.3 Landscape advises that: *"Landscape policy is guided by the European Landscape Convention."* The landscape of Wales is stated as a key consideration when developing policies and when proposing development. 6.3.3 notes that *"Collaboration and engagement with adjacent planning authorities, Natural Resources Wales (NRW), Cadw and the third sector will be necessary to draw on a wide range of expertise and evidence. This means:* *ensuring Wales contributes to meeting international responsibilities and obligations for landscapes;* *ensuring statutorily designated sites are properly protected and managed;* *ensuring that the value of all landscapes for their distinctive character and special qualities is protected; and* *ensuring the opportunities landscapes provide for tourism, outdoor recreation, local*	The effect on landscape components and landscape character during construction and operation are considered in Section 21.9 and 21.10 of the LVIA. The consideration of the opportunity for the generation of renewable energy is presented in Chapter 4: Proposed Development Description. As recognised by NPS EN-1, large scale infrastructure projects are likely to have effects on landscape character.

Policy description	Relevance to assessment
employment, renewable energy and physical and mental health and well-being are taken into account and multiple well-being benefits for people and communities secured. *6.3.4 Where adverse effects on landscape character cannot be avoided, it will be necessary to refuse planning permission.*	
6.3.5 provides advice in relation to National Parks and AONB in Wales advising that: *"Planning authorities have a statutory duty to have regard to National Parks and AONB purposes. This duty applies in relation to all activities affecting National Parks and AONBs, whether those activities lie within, or in the setting of, the designated areas.* *The designated landscapes should be drivers of the sustainable use and management of natural resources in their areas, and planning authorities should have regard to their identified special qualities in the exercise of their functions and any relevant management plans."*	The potential effect of the onshore elements of the Proposed Development on PCNP is considered in Section 21.10
6.3.6 states that *"In National Parks, planning authorities should give great weight to the statutory purposes of National Parks, which are to conserve and enhance their natural beauty, wildlife and cultural heritage, and to promote opportunities for public understanding and enjoyment of their special qualities."*	The potential effect of the onshore elements of the Proposed Development on PCNP is considered in Section 21.10
6.3.12 notes that in relation to the Characteristics of Local Landscapes *"Planning Authorities should provide for the conservation and, where appropriate, enhancement of local landscapes.* *This may include policies for landscape features, characteristics and qualities of local significance, and the designation of Special Landscape Areas (SLAs). Planning authorities should state which features, characteristics or qualities require extra protection, and explain how the policy or designation will achieve this protection."*	There are no locally designated Special Landscape Areas in the LVIA Study Area.
6.3.20 notes the importance of LANDMAP as an *"information resource, methodology and monitoring baseline for the landscapes of Wales"* LANDMAP assessments "can help to inform development management decisions" 6.5 sets out the considerations in relation to Coastal Areas.	A detailed LANDMAP assessment is presented in Appendix 21.1 and the LANDMAP evaluation information is also considered in the landscape sensitivity assessments in Section 21.10. Seascape Character Areas (SCAs) are also considered in Section 21.10.

Policy description	Relevance to assessment
6.5.12 sets out provision for Designated or Protected Sites on the Coast advising that *"Development Proposals should aim to protect or enhance the natural or historic character and landscape of undeveloped coastlines. The particular landscapes of the coastline should be recognised and protected where they represent significant characteristics of place. Designation as a heritage coast does not directly affect the status of the area in planning terms, however, the features which contributed to the designation of such areas will be important considerations in development plans and in making development management decisions".*	The potential effect of the onshore elements of the Proposed Development on Registered Historic Parks and Gardens, Heritage Coast and the PCNP is considered in Section 21.10 and in Chapter 24 – Onshore Archaeology and Cultural Heritage
PPW Technical Advice Notes (TANs)	
TAN 12 Design, states that '*Appraisal of the landscape should focus on its quality in terms of geology and geomorphology, vegetation and habitats, visual and sensory quality and historic and cultural quality. "LANDMAP" is one method of assessment which has the potential to provide a framework and information base from which good design and management can be developed.'*	A detailed LANDMAP assessment is presented in Appendix 21.1 and the LANDMAP evaluation information is also considered in the landscape sensitivity assessments in Section 21.10. The Proposed Development has sought to compliment the colour / finish of the Greenlink Converter building and the colour/ finish proposed for Greenlink have been obtained and applied to the Proposed Development.
TAN 24 Historic Environment states that *'Planning Policy Wales identifies that local planning authorities should protect and conserve parks and gardens, and their settings, included in the register of historic parks and gardens in Wales. Whilst inclusion in the register does not introduce any new consent regimes, registered historic parks and gardens, and their settings, may be protected through the planning system.'*	The potential effect of the onshore elements of the Proposed Development on Registered Historic Parks and Gardens, Heritage Coast and the PCNP is considered in Section 21.10 and in Chapter 24 – Onshore Archaeology and Cultural Heritage

21.2.4 Local Planning Policy

21.2.4.1 Table 21.3 lists the local planning policy relevant to the assessment of the effects on seascape, landscape and visual receptors.

Table 21.3 – Local planning policy relative to seascape, landscape and visual receptors

Policy description	Relevance to assessment
Pembrokeshire County Council LDP (2013 - currently undergoing review) *For the County excluding the area of Pembrokeshire Coast National Park	
GN.1 General Development Policy *Development will be permitted where the following criteria are met:* *1. The nature, location, siting and scale of the proposed development is compatible with the capacity and character of the site and the area within which it is located;* *2. It would not result in a significant detrimental impact on local amenity in terms of visual impact, loss of light or privacy, odours, smoke, fumes, dust, air quality or an increase in noise or vibration levels;* *3. It would not adversely affect landscape character, quality or diversity, including the special qualities of the Pembrokeshire Coast National Park and neighbouring authorities.*	The visual effects of the Proposed Development during construction and operation are considered in Section 21.11 of the LVIA. The effect on landscape components and landscape character during construction and operation are considered in Section 21.9 and 21.10 of the LVIA. The potential effect of the onshore elements of the Proposed Development on PCNP is considered in Section 21.10
SP 16 The Countryside *"The essential requirements of people who live and work in the countryside will be met whilst protecting the landscape and natural and built environment of Pembrokeshire and adjoining areas. Development which minimises visual impact on the landscape and relates to one of the following will be promoted:* *1. Enterprises for which a countryside location is essential.* *2. Opportunities for rural enterprise workers to be housed in suitable accommodation that supports their employment62.* *3. The re-use of appropriate existing buildings".*	The visual effects of the Proposed Development during construction and operation are considered in Section 21.11 of the LVIA. The effect on landscape components and landscape character during construction and operation are considered in Section 21.9 and 21.10 of the LVIA. Environmental mitigation measures that address landscape and visual effects are presented in Section 21.8. See also Chapter 3: Site Selection and Alternatives
Pembrokeshire Coast National Park LDP (2020)	
Policy 8 Special Qualities (Strategy Policy) *"The special qualities of the Pembrokeshire Coast National Park will be conserved and enhanced. The priorities will be to ensure that:*	The potential effect of the onshore elements of the Proposed Development on PCNP is considered in Section 21.10

Policy description	Relevance to assessment
a) The sense of remoteness and tranquillity is not lost and is wherever possible enhanced (see Policy 9). *c) The pattern and diversity of the landscape is protected and wherever possible enhanced (see Policy 14).* *d) The historic environment is protected and where possible enhanced.* *i) Development of the undeveloped coast is avoided and sites within stretches of the developed coast are protected for uses that need a coastal location (see Policy 17, Policy 18, Policy 33) and Policy 38).* *In assessing the impact upon the special qualities of the National Park, matters of detail and cumulative impact will be given special consideration".*	The effect on landscape components and landscape character during construction and operation are considered in Section 21.9 and 21.10 of the LVIA.
Policy 9 Light Pollution *"Proposals that are likely to result in a significant level of external artificial lighting being emitted shall include a full lighting scheme and will be permitted:* *a) where the lighting proposed relates to its purpose; and,* *b) where there is no unacceptable adverse effect on the character of the area, local residents, vehicle users, pedestrians, biodiversity and the visibility of the night sky.* *Wherever possible opportunities to mitigate potential cumulative impacts on the night sky should be explored".*	There is no proposed operational lighting along the onshore cable corridor, part of which would be located within the PCNP. Effects of lighting at the onshore substation are considered in Section 21.11
Policy 14 Conservation and enhancement of the Pembrokeshire Coast National Park *"Development will not be permitted where this would have an unacceptable adverse effect on the qualities and special landscape and seascape character of the Pembrokeshire Coast National Park including locally distinctive characteristics by:* *a) causing visual intrusion; and/or,* *b) introducing or intensifying a use which is incompatible with its location; and/or* *c) failing to harmonise with, or enhance the landform, landscape and seascape character of the National Park; and/or* *d) losing or failing to incorporate important traditional features.* *In assessing the impact upon the National Park, matters of detail and cumulative impact will be given special consideration".*	The potential effect of the onshore elements of the Proposed Development on the PCNP is considered in Section 21.10 The physical effect on landscape components within PCNP is considered in Section 21.9 of the LVIA. Visual effects of the onshore export cable construction within the PCNP are considered in Section 21.11
Policy 33 Renewable and Low Carbon Energy *"Proposals for renewable and low carbon energy development including those relating to wind, solar and hydro power, anaerobic digestion and biomass will be permitted subject to the following criteria:* *a) Small and medium scale renewable energy schemes would not individually or cumulatively have an unacceptable adverse*	The potential effect of the onshore elements of the Proposed Development on the PCNP is considered in Section 21.10 The physical effect on landscape components

Policy description	Relevance to assessment
effect on the visual amenities, landscape character and/or nature conservation value of the local area. *b) Large scale renewable energy and low carbon energy schemes would not individually or cumulatively have an unacceptable adverse effect on the special qualities of the National Park.* *c) Onshore connections to off- shore renewable energy generators would not have an unacceptable adverse effect on the visual amenities, landscape character or nature conservation of the developed and undeveloped coast. Where an undeveloped coastal location is required proposals need to demonstrate why the location is necessary with the least obtrusive approach to design being taken (See also Policy 8, Policy 9 and Policy 62).* *d) All renewable and low carbon energy development proposals will be required to demonstrate that:* *i. Measures have been taken to minimise impacts on the landscape and natural environment of the National Park.* *ii. There will be no unacceptable impacts on residential amenity.*	within PCNP is considered in Section 21.9 of the LVIA. Visual effects of the onshore export cable construction within the PCNP are considered in Section 21.11 Cumulative effects are considered in the LVIA as described in Section 21.6 See also Chapter 3: Site Selection and Alternatives

21.2.5 Guidelines

21.2.5.1 Guidance relevant to the LVIA is set out in the following documents:

- Landscape Institute and IEMA (2013) - Guidelines for Landscape and Visual Impact Assessment: Third Edition (GLVIA3);
- Natural England (2014). An Approach to Landscape Character Assessment;
- Planning Inspectorate (2018) Advice Note Nine: Rochdale Envelope;
- Planning Inspectorate (2019). Advice note seventeen: Cumulative effects assessment relevant to nationally significant infrastructure projects - Version 2
- Natural Resources Wales (2021). Guidance Note 046 - Using LANDMAP in Landscape and Visual Impact Assessments (LVIA);
- NatureScot (2012). Assessing the Cumulative Impact of Onshore Wind Energy Developments;
- Landscape Institute (2019). Visual Representation of Development Proposals; and,
- NatureScot (2017) - Visual Representation of Windfarms, Guidance (Version 2.2).

21.2.5.2 Although some of this guidance is from publications by bodies located in other UK nations it is commonly drawn on for work carried out in Wales where no equivalent guidance exists.

21.3 Consultation and Scoping

21.3.1.1 The Applicant submitted a Scoping Report (MarineSpace Ltd, 2019) in support of a formal request for a Scoping Opinion to NRW and The Planning Inspectorate (on behalf of Welsh Ministers) in October 2019. A Scoping Opinion was received on 22 January 2020 from NRW. Table 21.4 sets out the comments received that relate to the LVIA and how these have been addressed comments that relate to SLVIA are set out in Table 13.4 of Chapter 13.

Table 21.4 – LVIA Consultation

Consultee	Response	Applicant Action
NRW (Scoping Opinion), January 2020	We advise the addition of the National Park Management Plan and reference to the Special Qualities of the park into the baseline data for the Pembrokeshire Coast National Park. It would also be advisable to refer to the detailed assessments in LANDMAP where the landfall and substation proposals are concerned.	The potential effect of the onshore elements of the Proposed Development on the PCNP and its Special Qualities is considered in Section 21.10 A detailed LANDMAP assessment is presented in Appendix 21.1 and is LANDMAP evaluation is also considered in the landscape sensitivity assessments in Section 21.10.
NRW (Scoping Opinion), January 2020	With regard to the Seascape Character Areas identified in the National Park's Seascape Character Assessment, we suggest that SCA32 Inner Milford Haven is included in relation to the potential landfall/substation. A number of other factors are noted in the SCAs as well as those mentioned in the report e.g. coastal splendour; remote, unspoilt cliffs & sheltered bays. Full account needs to be taken of factors contributing to sensitivity.	SCA 32 is included in the LVIA in Section 21.10.
NRW (Scoping Opinion), January 2020	It is recommended that the applicant engage with NRW Advisory to support selection of viewpoints and photomontage production.	LVIA study area and viewpoints discussed and agreed with NRW, PCC and PCNPA in consultation meeting dated 01/04/2021
NRW, PCC and PCNPA (Consultation meeting) April 2021	PCC mentioned the assessment of onshore cable corridor in the LVIA seems unnecessary. Later requesting a proportionate approach for the LVIA, in particular for the cable corridor.	It was explained that the LVIA would focus on construction effects of the cable corridor.
NRW, PCC and PCNPA (Consultation meeting) April 2021	NRW highlighted that the colour / finish of the building should be considered in the LVIA noting the NRW paper on environmental colour assessment. PCC agreed and added that it is important for the building colour / finish to relate to the Greenlink project, either	The Proposed Development has sought to compliment the colour / finish of the Greenlink Converter building and the colour/ finish proposed for Greenlink have been obtained and applied to the Proposed Development.

Consultee	Response	Applicant Action
	to match their approach or make it consciously different.	
NRW, PCC and PCNPA (Consultation meeting) April 2021	Viewpoints – PCC suggested an alternative position for Viewpoint 5 at Pennar further to the west than initially suggested to pick up recreational users.	LVIA viewpoints were circulated to consultees for further consideration. Viewpoint 5 was moved to an elevated position on the road west of Pennar as suggested by PCC.
NRW (Consultation Feedback) April 2021	The viewpoints for the onshore cable corridor and onshore substation seem sensible. It may be that Viewpoint 8 at Angle Bay needs more than one view/different precise location, depending on exactly where the landfall is and what technique is used (HDD versus trenched/visible cables).	Viewpoint 8 was positioned at the northern end of the car park with views across both the beach and the field to the east of the car park, maximising the amount of cable / landfall visible.
NRW, PCC and PCNPA (Consultation meeting) September 2021	Meeting to discuss the Landscape Strategy for the onshore elements including outline mitigation principles. NRW were keen to understand if the onshore substation mitigation principles would influence views from the PCNP.	The onshore substation is well concealed from the PCNP and where limited visibility does occur (close to Viewpoint 4), other elements in the landscape also intervene. The LVIA assesses Viewpoint 4 in Section 21.11 A key factor in the mitigation strategy is also the reinstatement of hedgerows along the onshore cable corridor including within PCNP.
NRW, PCC and PCNPA (Consultation meeting) September 2021	NRW noted that in relation to substation material and colour, it might be beneficial to use dark colour to minimise impact view and that darker colours have been used successfully elsewhere in the park. NRW also asked if a colour assessment was going to be completed. PCC added that a decision in line with what Greenlink will propose is the better way forward.	It was agreed that the Proposed Development should take account of the Greenlink example in terms of building colour / finish.
NRW, PCC and PCNPA (Consultation meeting) September 2021	NRW requested an increase the meadow planting along the onshore cable corridor, where possible. It was explained by ITPE and OPEN that this may be possible along field margins and that this will be investigated on a field-by-field case and in conjunction with the ecologist to	Environmental mitigation measures that address landscape and visual effects are presented in Section 21.8.

Consultee	Response	Applicant Action
	identify areas that provide certainty on habitat creation/retention.	
NRW, PCC and PCNPA (Consultation meeting) September 2021	PCC requested an understanding of what the extent of cut and fill requirement was at the substation, in reference to the outline planting mitigation plan.	Earthworks drawings were shared with consultees and appear on Volume 3 Technical Appendix 19.4
NRW, PCC and PCNPA (Consultation meeting) September 2021	PCC requested to know how much work has been progressed in relation to potential cumulative effects. It was explained by OPEN that Greenlink would be the key cumulative consideration for the LVIA. Following the meeting the approach to cumulative assessment was sent back to consultees. OPEN explained that visualisations will illustrate the relationship between the Proposed Development and Greenlink. PCC asked if it would be possible to illustrate a more detailed option instead of a Rochdale envelope 3D block model. OPEN explained that this would depend on the model information available.	The EIA compliance statement an updated plan dated 27th September for the Greenlink project, were provided to Blue Gem Wind following submission to PCC. The information in these documents has been used in the production of cumulative visualisations. In addition, the colour and finish of the Greenlink convertor hall as presented in these documents has been followed in the assignment of colour banding for the Erebus GIS building colour and finish.
NRW, PCC and PCNPA (Consultation meeting) September 2021	OPEN explained updated viewpoint locations including the revised Viewpoint 5 described in earlier meeting and Viewpoint 7 which has moved to avoid hedgerows that obstruct the view near the preliminary location.	These microsited locations were accepted.
NRW, PCC and PCNPA (Consultation meeting) September 2021	NRW agreed that the mitigation principles discussed at the meeting including the outline planting at the substation, seems like a good approach. PCC agreed and requested that proposed levels be added to the substation mitigation plans.	Environmental mitigation measures that address landscape and visual effects are presented in Section 21.8. These are based on the mitigation principles discussed at the meeting. The levels have been added to the substation landscape mitigation plan as shown on Figure 21.16
Public Exhibitions	In person public exhibitions were held in Hundleton on the 14th July 2021 and Angle 29th July 2021. Visualisations of the proposed	LVIA Visualisations have been updated since the exhibition and also include the Greenlink Proposal in a cumulative view.

Consultee	Response	Applicant Action
	substation were included in the exhibition.	LVIA visualisations are found in Figures 21.18 – 21.25.

21.4 Assessment Method and Scope

21.4.1.1 The project characteristics for the Proposed Development are set out in Chapter 4: Proposed Development Description. For the ES the design of the Proposed Development includes some optionality in relation to the final size and locations of infrastructure being proposed.

21.4.1.2 A degree of flexibility has to be maintained therefore to allow future iterations during the detailed design process, however, sufficient information regarding the design parameters for the development is also needed in order to inform the EIA and in particular the LVIA.

21.4.1.3 The LVIA has adopted a 'Rochdale Envelope'[1] approach and the Project Design Envelope (PDE), as described in Chapter 4, sets out the design options for the Proposed Development including the maximum extents for key components of the onshore infrastructure. The assessment considers the maximum 3D volume and height parameters proposed for development within the site, in order to ensure the worst case scenario is represented in the visualisations and assessed in this chapter. Further details of the use of a PDE or "Rochdale envelope" are also provided in Chapter 2: Overview of EIA Methodology. The LVIA assessment parameters are summarised in this chapter, in section 21.7.

21.4.2 Types of effect

21.4.2.1 The LVIA predicts, describes and assesses the likely significant effects that the Proposed Development may have on the landscape and visual resource, and covers the following types of effect which may arise during construction, decommissioning or operation of the Proposed Development.

21.4.3 Landscape Effects

21.4.3.1 Landscape effects potentially arise from the introduction of new onshore elements which may be visible and may therefore affect the perceived character of the landscape. This may also include effects on designated landscapes.

21.4.3.2 GLVIA 3, paragraph 5.4, advises that Landscape Character Assessment should be regarded as the main source for baseline studies and identifies the following factors which combine to create areas of distinct landscape character:

21.4.3.3 *"the elements that make up the landscape in the study area including:*

- *physical influences - geology, soils, landform, drainage and water bodies;*
- *landcover, including different types of vegetation and patterns and types of tree cover; and*
- *the influence of human activity, including landuse and management, the character of settlements and buildings, and pattern and type of fields and enclosure.*
- *The aesthetic and perceptual aspects of the landscape - such as, for example, its scale, complexity, openness, tranquillity or wildness;*

[1] The Planning Inspectorate (2018) Advice Note Nine: Rochdale Envelope

- *The overall character of the landscape in the study area, including any distinctive Landscape Character Types or Areas that can be identified, and the particular combinations of elements and aesthetic and perceptual aspects that make each distinctive, usually by identification as key characteristics of the landscape."*

21.4.3.4 In Wales, LANDMAP data is used to provide further insight into the character and components of the landscape.

21.4.4 Visual Receptors

21.4.4.1 Visual effects potentially arise from the introduction of the Proposed Development in views and the resultant effects on visual amenity experienced by people from principal visual receptors (i.e. groups of people, such as within settlements, using transport routes or recreational trails) and representative viewpoints.

21.4.5 Cumulative Effects

21.4.5.1 In addition to the above, cumulative effects may arise where the study areas for two or more projects overlap so that they are experienced at a proximity where they may have a greater incremental effect, or where projects may combine to have a sequential effect.

21.4.6 Study area

21.4.6.1 The initial step in the LVIA is the establishment of the Study Area for the assessment. The onshore LVIA Study Areas for the Proposed Development extend to define a limit beyond which professional judgement considers it would be unlikely for significant effects to arise. This judgement is based on knowledge of similar projects, the extent of ZTV for the onshore substation, an understanding of the character of the local landscape and scale of the construction and development of the onshore components of the Proposed Development.

21.4.6.2 The Study Area for the LVIA of the proposed onshore Cable Route and Landfall extends to a 1 km buffer along the Cable Corridor. This broadly consists of a 60m wide corridor along the Cable Route, with a wider area at Landfall. The proposed Study Area for the LVIA of the onshore substation extends to a 3km radius around the onshore substation platform area (which for the Proposed Development is the Air Insulated Switchgear (AIS) option as this has the larger footprint in comparison with the Gas Insulated Switchgear (GIS) option). Together, these form the onshore LVIA Study Area for the Proposed Development, see Figure 21.1.

21.4.6.3 The onshore LVIA Study Area is not intended to provide a boundary beyond which the Proposed Development would not be seen, but rather to define the area within which there is potential for significant landscape or visual effect. In addition, a significant effect is very unlikely to occur towards the edges of the onshore LVIA Study Area.

21.4.7 Field survey

21.4.7.1 Field survey work was undertaken during periods of clear visibility between May and August 2021. Field surveys were carried out throughout the LVIA Study Area from publicly accessible locations.

21.4.7.2 The landscape of the area surrounding the Proposed Development has been assessed for any particular features that contribute to landscape character or that are important to the wider landscape setting. The field surveys provided an experience of the character areas of the onshore LVIA Study Areas and verification of how these areas might be affected by the Proposed Development.

21.4.7.3 The visual amenity of the onshore LVIA Study Area was surveyed from receptors representative of the range of views and viewer types likely to experience the Proposed Development. Views from a variety of distances, aspects, elevations and extents are included.

21.4.7.4 For the onshore substation, the focus is on the areas shown on the Zone of Theoretical Visibility (ZTV) Volume 2 Figure 21.8 to have theoretical visibility. For the proposed onshore export cable and landfall the focus of the field survey is on the landscape, which is physically affected, although visibility of these elements is also considered in the 1 km onshore cable corridor Study Area as part of the wider field survey analysis. The field survey allows the assessors to judge the likely scale, distance, extent and prominence of the Proposed Development directly.

21.4.8 Elements Scoped Out of Assessment

21.4.8.1 This LVIA includes a 'Preliminary Assessment' which identifies those aspects of the landscape and visual resource that do not have potential to undergo a significant effect as a result of the Proposed Development. These aspects of the landscape and visual resource are then scoped out of the detailed assessment. The Preliminary Assessment is presented in Sections 21.11, 21.12 and 21.14 of this report.

21.5 Assessment criteria and assignment of significance

21.5.1 Approach to assessment

21.5.1.1 The LVIA is undertaken using the following steps:

- The features of the Proposed Development that may result in landscape and visual effects are described;
- The overall scope of the assessment is defined, including the Study Area and range of possible landscape and visual effects;
- The landscape baseline is established using landscape character assessment and the zone of theoretical visibility (ZTV) maps, to identify landscape receptors that may be affected and their key characteristics and value;
- The visual baseline is established by identifying the extent of possible visibility, identifying the people who may be affected, identifying visual receptors and selecting viewpoints;
- A preliminary assessment is undertaken of landscape and visual receptors using ZTV analysis, to identify which landscape and visual receptors are unlikely to be significantly affected and those that are more likely to be significantly affected, which require to be assessed in more detail;
- Interactions are identified between the Proposed Development and landscape and visual receptors, to predict potentially significant effects arising and measures are proposed to mitigate effects;
- An assessment of the susceptibility of landscape and visual receptors to specific change and the value attached to landscape receptors and views is undertaken, combining these judgements to assess the sensitivity of the landscape and visual receptor to the Proposed Development;

- An assessment of the size/ scale of landscape effect, the degree to which landscape elements are altered and the extent to which the effects change the key characteristics of the landscape is undertaken, combining these judgements to assess the magnitude of change on the landscape receptor;
- An assessment of the size/ scale of visual effect, the extent to which the change would affect views, whether this is unique or representative of a wider area, and the position of the Proposed Development in relation to the principal orientation of the view and activity of the receptor. These judgements are combined to assess the magnitude of change on the visual receptor; and
- The assessments of sensitivity to change and magnitude of change are combined to assess the significance of seascape, landscape and visual effects.

21.5.1.2 GLVIA3 sets out an approach to the assessment of magnitude of change in which three separate considerations are combined within the magnitude of change rating. These are the size or scale of the effect, its geographical extent and its duration and reversibility. Notably GLVIA3 is not a prescriptive methodology but guidance. The guidance suggests that this approach is to be applied in respect of both landscape and visual receptors. It is considered that the process of combining all three considerations in one rating can distort the aim of identifying likely significant effects of development. For example, a high magnitude of change, based on size or scale, may be reduced to a lower rating if it occurred in a localised geographical area and for a short duration. This might mean that a potentially significant effect will be overlooked if effects are diluted down due to their limited geographical extents and/ or duration or reversibility.

21.5.1.3 As advocated by GLVIA3 the assessment has used professional judgement in defining the methodology for the LVIA. The consideration of the size or scale of the effect, its geographical extent and its duration and reversibility has therefore been undertaken separately, by basing the magnitude of change on size or scale to determine where significant and not significant effects occur, and then describing the geographical extents of these effects and their duration and reversibility separately. Duration and reversibility are stated separately in relation to the assessed effects (i.e. as short/medium/long-term and temporary/permanent) and are considered as part of drawing conclusions about likely significance, combining with other judgements on sensitivity and magnitude, to allow a final judgement to be made on whether each effect is significant or not significant.

21.5.1.4 The assessment methodology utilises six scales of magnitude of change - high, medium-high, medium, medium-low, low and negligible/none; which are preferred to the 'maximum of five categories' suggested in GLVIA3 as a means of clearly defining and summarising magnitude of change judgements.

21.5.2 Defining impact significance - landscape

Sensitivity of landscape receptor

21.5.2.1 The sensitivity of a landscape character receptor is a combination of the judgements made about the value associated with that receptor and the susceptibility of the receptor to the development proposed.

Value of the landscape receptor

21.5.2.2 The value of a landscape character receptor is a reflection of the value that society attaches to that landscape. The assessment of the landscape value is classified as high, medium-high, medium, medium-low or low and the basis for this assessment is made clear using evidence and professional judgement, based on the following range of factors.

21.5.2.3 **Landscape designations** - A receptor that lies within the boundary of a recognised landscape related planning designation is of increased value, depending on the proportion of the receptor that is affected and the level of importance of the designation which may be international, national, regional or local. The absence of designations does not however preclude value, as an undesignated landscape character receptor may be valued as a resource in the local or immediate environment. LANDMAP visual and sensory evaluation is also a consideration in relation to landscape value.

21.5.2.4 **Landscape quality** - The quality of a landscape character receptor is a reflection of its attributes, such as scenic quality, sense of place, rarity and representativeness and the extent to which its valued attributes have remained intact. A landscape with consistent, intact, well-defined and distinctive attributes is considered to be of higher quality and, in turn, higher value, than a landscape where the introduction of elements has detracted from its character.

21.5.2.5 **Landscape experience** - The experiential qualities that can be evoked by a landscape receptor can add to its value and relates to a number of factors including:

- the perceptual responses it evokes;
- the cultural associations that may exist in literature or history, or the iconic status of the landscape in its own right;
- the recreational value of the landscape; and
- the contribution of other values relating to the nature conservation or archaeology of the area.

Landscape susceptibility to change

21.5.2.6 The susceptibility of a landscape character receptor to change is a reflection of its ability to accommodate the changes that will occur as a result of the addition of the Proposed Development. Some landscape receptors are better able to accommodate change as a result of the development than others due to certain characteristics that are indicative of capacity to accommodate change. These characteristics may or not also be special landscape qualities that underpin designated landscapes.

21.5.2.7 The assessment of the susceptibility of the landscape receptor to change is classified as high, medium-high, medium, medium-low or low and the basis for this assessment has been made clear using evidence and professional judgement. The following indicators of landscape susceptibility are considered in the context of the development proposed:

- **Overall strength and robustness:** Collectively the overall characteristics and qualities of a particular landscape result in a strong and robust landscape that is capable of reasonably accommodating the influence of the Proposed Development without undue adverse effects on the special landscape qualities (in the case of a designated landscape) or the key characteristics.
- **Landscape scale and topography:** The scale and topography are large enough to physically accommodate the influence of the Proposed Development. Topographical features such as more complex, distinctive or small-scale coastal landforms are likely to be more susceptible than simple, broad and homogenous coastal landforms.

- **Openness and enclosure:** Openness in the landscape may increase susceptibility to change because it can result in wider visibility, however an open landscape may also be larger scale and simple, which would decrease susceptibility. Conversely, enclosed landscapes can offer more screening potential, limiting visibility to a smaller area, however they may also be smaller scale and more complex which would increase susceptibility.
- **Skyline:** Prominent and distinctive skylines and horizons with important landmark features that are identified in the landscape character assessment, are generally considered to be more susceptible to development in comparison to broad, simple skylines which lack landmark features or contain other infrastructure features.
- **Relationship with other development and landmarks:** Contemporary landscapes where there are existing similar developments or other forms of development (industry, mineral extraction, masts, urban fringe / large settlement, major transport routes) that already have a characterising influence result in a lower susceptibility to development in comparison to areas characterised by limited development or smaller scale, historic development and landmarks.
- **Perceptual qualities:** Notable landscapes that are acknowledged to be particularly scenic, wild or tranquil are generally considered to be more susceptible to development in comparison to ordinary, cultivated or farmed / developed landscapes where perceptions of 'wildness' and tranquillity are less tangible. Landscapes which are either remote or appear natural may vary in their susceptibility to development.
- **Landscape context and association:** the extent to which the Proposed Development will influence the character of landscape receptors across the Study Area relates to the associations that exist between the landscape receptor within which the Proposed Development are located and the landscape receptor from which the Proposed Development are experienced. In some situations, this association is strong, where the landscapes are directly related, and in other situations weak, where the landscape association is weak. The context and visual connection to areas of adjacent landscape character or designations has a bearing on the susceptibility to development.

Landscape sensitivity rating

21.5.2.8 An overall sensitivity assessment of the landscape receptor is made by combining the assessment of the value of the landscape character receptor and its susceptibility to change. The evaluation of landscape sensitivity has been applied for each landscape receptor - high, medium-high, medium, medium-low and low - by combining individual assessments of the value of the receptor and its susceptibility to change.

Landscape magnitude of change

21.5.2.9 The magnitude of change affecting landscape receptors is an expression of the scale of the change that will result from the Proposed Development and is dependent on a number of variables regarding the size or scale of the change and the geographical extent over which the change would be experienced.

Size or scale of change

21.5.2.10 This criterion relates to the size or scale of change to the landscape that will arise as a result of the Proposed Development, based on the following factors.

- **Landscape elements:** The degree to which the pattern of elements that makes up the landscape character is altered by the Proposed Development, by removal or addition of elements in the landscape. The magnitude of change will generally be higher if the features that make up the landscape character are extensively removed or altered, and/or if many new elements are added to the landscape.
- **Landscape characteristics:** The extent to which the effect of the Proposed Development changes, physically or perceptually, the key characteristics of the landscape that may be important to its distinctive character. This may include, for example, the scale of the landform, its relative simplicity or irregularity, the nature of the landscape context, the grain or orientation of the landscape, the degree to which the receptor is influenced by external features and the juxtaposition of the Proposed Development in relation to these key characteristics. If the Proposed Development are located in a landscape receptor that is already affected by other similar development, this may reduce the magnitude of change, particularly if there is a high level of integration and the developments form a unified and cohesive feature in the landscape.
- **Landscape designation:** In the case of designated landscapes, the degree of change is considered in light of the effects on the special landscape qualities which underpin the designation and the effect on the integrity of the designation. All landscapes change over time and much of that change is managed or planned. Often landscapes will have management objectives for 'protection' or 'accommodation' of development. The scale of change may be localised, or occurring over parts of an area, or more widespread affecting whole landscape receptors and their overall integrity.
- **Distance:** The size and scale of change is also strongly influenced by the proximity of the Proposed Development to the receptor. Distance may be an influential factor to the extent that over a long range the scale of the influence on landscape receptors may be small or very limited. Conversely, landscapes closest to the development are likely to be most affected. Where the development is located within a 'host' landscape character area this would be directly affected whilst adjacent areas of landscape character would be indirectly affected.
- **Amount and nature of change:** The amount of the Proposed Development that is seen. Generally, the greater the amount of the Proposed Development that can be seen, the higher the scale of change. Generally, the magnitude of change is likely to be lower where the Proposed Development is largely perceived to be at a distance, rather than 'within' the landscape being considered.

Geographical extent

21.5.2.11 The geographic extent over which the landscape effects are experienced is also assessed, which is distinct from the size or scale of effect. This evaluation is not combined in the assessment of the level of magnitude, but instead expresses the extent of the receptor that will experience a particular magnitude of change and therefore the geographical extents of the significant and non-significant effects.

21.5.2.12 The extent of the effects will vary depending on the specific nature of the Proposed Development and is principally assessed through analysis of the extent of perceived changes to the landscape character through visibility of the Proposed Development.

Duration and reversibility

21.5.2.13 The duration and reversibility of landscape effects is based on the period over which Proposed Development are likely to exist (during construction and operation) and the extent to which these elements are removed (during decommissioning) and its effects reversed at the end of that period. Long-term, medium-term and short-term landscape effects are defined as follows:

- long-term - more than 10 years (may be defined as permanent or irreversible);
- medium-term - 6 to 10 years; and
- short-term - 1 to 5 years.

Landscape magnitude of change rating

21.5.2.14 The 'magnitude' or 'degree of change' resulting from the Proposed Development is described as 'High', 'High-medium', 'Medium', 'Medium-low' 'Low' or 'Negligible'. In assessing magnitude of change, the assessment focuses on the size or scale of change and its geographical extent. The duration and reversibility are stated separately in relation to the assessed effects (i.e. as short / medium / long-term and temporary / permanent).

Evaluating landscape effects and significance

21.5.2.15 The level of landscape effect is evaluated primarily through the combination of landscape sensitivity and magnitude of change. Once the level of effect has been assessed, a judgement is then made as to whether the level of effect is 'significant' or 'not significant' as required by the EIA Regulations. This process is assisted by the matrix in Table 21.5 which is used to guide the assessment. Geographical extent and duration and reversibility are considered relevant in drawing conclusions about significance, combining with other judgements on sensitivity and magnitude, to allow a final judgement to be made on whether each effect is significant or not significant.

21.5.2.16 Further information is also provided about the nature of the effects (whether these would be direct / indirect; temporary / permanent / reversible; beneficial / neutral / adverse or cumulative).

21.5.2.17 A significant effect occurs where the combination of the variables results in the Proposed Development having a defining effect on the landscape receptor, or where changes of a lower magnitude affect a landscape receptor that is of particularly high sensitivity. A major loss or irreversible effect over an extensive area or landscape character, affecting landscape elements, characteristics and / or perceptual aspects that are key to a nationally valued landscape are likely to be significant, particularly if they are of long duration and irreversible.

21.5.2.18 A non-significant effect would occur where the effect of the Proposed Development is not defining, and the landscape character of the receptor continues to be characterised principally by its baseline characteristics. Equally a small-scale change experienced by a receptor of high sensitivity may not significantly affect the special landscape quality or integrity of a designation. Reversible effects, on elements, characteristics and character that are of small-scale or geographical extent or affecting lower value receptors, are unlikely to be significant.

21.5.3 Defining impact significance - visual

21.5.3.1 Visual Effects are concerned wholly with the effect of the Proposed Development on views, and the general visual amenity. Visual Effects are defined by the Landscape Institute in GLVIA 3, paragraphs 6.1 as follows:

21.5.3.2 *"An assessment of visual effects deals with the effects of change and development on views available to people and their visual amenity. The concern ... is with assessing how the surroundings of individuals or groups of people may be specifically affected by changes in the context and character of views."*

21.5.3.3 Visual effects are identified for different receptors (people) who would experience the view at their place of residence, within their community, during recreational activities, at work, or when travelling through the area. The visual effects may include the following:

- **Visual effect**: a change to an existing static view, sequential views, or wider visual amenity as a result of development or the loss of particular landscape elements or features already present in the view;
- **Cumulative visual effects**: the cumulative or incremental visibility of similar types of development may combine to have a cumulative visual effect.

21.5.3.4 The level of visual effect (and whether this is significant) is determined through consideration of the sensitivity of the visual receptor and their view and the magnitude of change that would be brought about by the Proposed Development.

Zone of Theoretical Visibility (ZTV)

21.5.3.5 Plans mapping the ZTV are used to analyse the extent of theoretical visibility of the onshore substation. The ZTVs provide a starting point in the assessment process and tend towards giving a 'worst case' or greatest calculation of the theoretical visibility. ZTV production for the LVIA, including limitations, is described in section 2.5.7 of this report.

Viewpoint Analysis

21.5.3.6 Viewpoint analysis is used to assist the assessment and is conducted from selected viewpoints within the Study Area. The purpose of this is to assess both the level of visual effect for particular receptors and to help guide the design process and focus of the assessment. A range of viewpoints are examined in detail and analysed to determine whether a significant visual effect would occur.

21.5.3.7 The assessment involves visiting the viewpoint location and viewing visualisations prepared for each viewpoint location. The fieldwork is generally conducted in periods of fine weather with good visibility and considers seasonal changes such as reduced leaf cover or hedgerow maintenance. The viewpoint analysis is used to assist in the assessment of effects on visual receptor locations as well as landscape character effects reported in the LVIA.

Evaluating visual sensitivity to change

21.5.3.8 In accordance with paragraphs 6.31-6.37 of GLVIA3, the sensitivity of visual receptors is determined by a combination of the value of the view and the susceptibility of the visual receptors to the change likely to result from the Proposed Development on the view and visual amenity.

Value of the view

21.5.3.9 The value of a view or series of views reflects the recognition and the importance attached either formally through identification on mapping or being subject to planning designations, or informally through the value which society attaches to the view(s). The value of a view has been classified as high, medium-high, medium, medium-low or low and the basis for this assessment has been made clear using evidence and professional judgement, based on the following criteria.

- **Formal recognition** - The value of views can be formally recognised through their identification on OS or tourist maps as formal viewpoints, sign-posted and with facilities provided to add to the enjoyment of the viewpoint such as parking, seating and interpretation boards. Specific views may be afforded protection in local planning policy and recognised as valued views. Specific views can also be cited as being of importance in relation to landscape or heritage planning designations, for example the value of a view has been increased if it presents an important vista from a designed landscape or lies within or overlooks a designated area, which implies a greater value to the visible landscape.
- **Informal recognition** - Views that are well-known at a local level and/or have particular scenic qualities can have an increased value, even if there is no formal recognition or designation. Views or viewpoints are sometimes informally recognised through references in art or literature, and this can also add to their value. A viewpoint that is visited or appreciated by a large number of people will generally have greater importance than one gained by very few people.

Susceptibility to change

21.5.3.10 Susceptibility relates to the nature of the viewer experiencing the view and how susceptible they are to the potential effects of the Proposed Development. A judgement to determine the level of susceptibility therefore relates to the nature of the viewer and their experience from that particular viewpoint or series of viewpoints, classified as high, medium-high, medium, medium-low or low and based on the following criteria:

- **Nature of the viewer** - The nature of the viewer is defined by the occupation or activity of the viewer at the viewpoint or series of viewpoints. The most common groups of viewers considered in the visual assessment include residents, motorists, and people taking part in recreational activity or working. Viewers, whose attention is focused on the landscape, or with static long-term views, are likely to have a higher susceptibility. Viewers travelling in cars or on trains will tend to have a lower susceptibility as their view is transient and moving. The least sensitive viewers are usually people at their place of work as they are generally less susceptible to changes in views.
- **Experience of the viewer** - The experience of the visual receptor relates to the extent to which the viewer's attention or interest may be focused on the view and the visual amenity they experience at a particular location. The susceptibility of the viewer to change arising from the Proposed Development may be influenced by the viewer's attention or interest in the view, which may be focused in a particular direction, from a static or transitory position, over a long or short duration, and with high or low clarity. For example, if the principal outlook from a settlement is aligned directly towards the Proposed Development, the experience of the visual receptor is altered more notably than if the experience relates to a glimpsed view seen at an oblique angle from a car travelling at high speed. The visual amenity experienced by the viewer varies depending on the presence and relationship of visible elements, features or patterns experienced in the view and the degree to which the landscape in the view may accommodate the influence of the Proposed Development.

Visual sensitivity rating

21.5.3.11 An overall level of sensitivity is applied for each visual receptor or view - high, medium-high, medium, medium-low or low by combining individual assessments of the value of the view and the susceptibility of the visual receptor to change. Each visual receptor, meaning the particular person or group of people likely to be affected at a specific viewpoint, is assessed in terms of their sensitivity.

Visual magnitude of change

21.5.3.12 The visual magnitude of change is an expression of the scale of the change that will result from the Proposed Development and is dependent on a number of variables regarding the size or scale of the change and the geographical extent over which the change would be experienced. A separate assessment is also made of the duration and reversibility of visual effects.

Size or scale of change

21.5.3.13 An assessment is made regarding the size or scale of change in the view that is likely to be experienced as a result of the Proposed Development, based on the following criteria:

- **Distance:** the distance between the visual receptor/viewpoint and the Proposed Development. Generally, the greater the distance, the lower the magnitude of change, as the Proposed Development will constitute a smaller scale component of the view.
- **Size:** the amount and size of the Proposed Development that is seen. Visibility may range from small or partial visibility of the Proposed Development, to wider visibility of the onshore elements. Generally, the larger and greater number of the Proposed Development that appear in the view, the higher the magnitude of change. This is also related to the degree to which the Proposed Development may be wholly or partly screened by landform, vegetation (seasonal) and / or built form. Conversely open views are likely to reveal more of the Proposed Development, particularly where this is a key characteristic of the landscape context.
- **Scale:** the scale of the change in the view, with respect to the loss or addition of features in the view and changes in its composition. The scale of the Proposed Development may appear larger or smaller relative to the scale of the receiving landscape.
- **Field of view:** the vertical / horizontal field of view (FoV) and the proportion of the view that is affected by the Proposed Development. Generally, the more of the proportion of a view that is affected, the higher the magnitude of change. If the Proposed Development extend across the whole of the open part of the outlook, the magnitude of change is higher as the full view has been affected. Conversely, if the Proposed Development cover just a narrow part of an open, expansive and wide view, the magnitude of change is likely to be reduced as it will not affect the whole open part of the outlook. This can in part be described objectively by reference to the horizontal / vertical FoV affected, relative to the extent and proportion of the available view.
- **Contrast:** the character and context within which the Proposed Development are seen and the degree of contrast or integration of any new features with existing landscape elements, in terms of scale, form, mass, line, height, colour, luminance and motion. Developments which contrast or appear incongruous in terms of colour, scale and form are likely to be more visible and have a higher magnitude of change.

- **Consistency of image:** the consistency of image of the Proposed Development in relation to other developments. The magnitude of change of Proposed Development is likely to be lower if its layout design is broadly similar to other developments in the landscape, in terms of its scale, form and general appearance. New development is more likely to appear as logical components of the landscape with a strong rationale for their location.
- **Skyline / background:** Whether the Proposed Development would be viewed against the skyline or a background landscape may affect the level of contrast and magnitude. If the Proposed Development add to an already developed skyline the magnitude of change would tend to be lower.
- **Number:** generally, the greater the number of separate Proposed Development seen simultaneously or sequentially, the higher the magnitude of change. Further effects would occur in the case of separate developments and their spatial relationship to each other would affect the magnitude of change. For example, development that appears as an extension to an existing development would tend to result in a lower magnitude of change than a separate, new development.
- **Nature of visibility:** the nature of visibility is a further factor for consideration. The Proposed Development may be subject to various phases of development change and the manner in which the Proposed Development may be viewed could be intermittent or continuous and / or vary seasonally, due to periodic management or leaf fall.

Geographical extent

21.5.3.14 The geographic extent over which the visual effects has been experienced is also assessed, which is distinct from the size or scale of effect and is described in terms of the physical area or location over which it is experienced (described as a linear or area measurement). The extent of the effects varies according to the specific nature of the Proposed Development and is principally assessed through ZTV, field survey and viewpoint analysis of the extent of visibility likely to be experienced by visual receptors.

Duration and reversibility

21.5.3.15 The duration and reversibility of visual effects are based on the period over which the Proposed Development are likely to exist (during construction and operation) and the extent to which the Proposed Development are removed (during decommissioning) and the effects reversed at the end of that period.

- Long-term, medium-term and short-term visual effects are defined as follows:
- long-term - more than 10 years (may be defined as permanent or irreversible);
- medium-term - 6 to 10 years; and
- short-term - 1 to 5 years.

Visual magnitude of change rating

21.5.3.16 The 'magnitude' or 'degree of change' resulting from the Proposed Development is described as 'High', 'High-medium', 'Medium', 'Medium-low' 'Low' and 'Negligible'. In assessing the magnitude of change the assessment focuses on the size or scale of change and its geographical extent. The duration and reversibility are stated separately in relation to the assessed effects (i.e. as short / medium / long-term and temporary / permanent). The basis for the assessment of magnitude for each receptor is made clear using evidence and professional judgement.

21.5.4 Evaluating visual effects and significance

21.5.4.1 The level of visual effect is evaluated through the combination of visual sensitivity and magnitude of change. Once the level of effect has been assessed, a judgement is then made (using professional judgement) as to whether the level of effect is 'significant' or 'not significant' as required by the relevant EIA Regulations. This process is assisted by the matrix in Table 21.5 which is used to guide the assessment. Geographical extent and duration and reversibility are considered as part of drawing conclusions about significance, combining with other judgements on sensitivity and magnitude, to allow a final judgement to be made on whether each effect is significant or not significant.

21.5.4.2 Further information is also provided about the nature of the effects (whether these would be direct / indirect; temporary / permanent / reversible; beneficial / neutral / adverse or cumulative).

21.5.4.3 A significant effect is more likely to occur where a combination of the variables results in the Proposed Development having a defining effect on the view or visual amenity or where changes affect a visual receptor that is of high sensitivity.

21.5.4.4 A non-significant effect is more likely to occur where a combination of the variables results in the Proposed Development having a non-defining effect on the view or visual amenity or where changes affect a visual receptor that is of low sensitivity.

21.5.5 Defining impact significance - cumulative, landscape and visual

21.5.5.1 NatureScot's guidance, Assessing the Cumulative Impact of Onshore Wind Energy Developments (2012) is widely used across the UK to inform the specific assessment of the cumulative landscape and visual effects of different types of development. Both GLVIA3 and NatureScot's guidance provides the basis for the methodology for the cumulative LVIA. The NatureScot (2012) guidance defines:

- "Cumulative effects as the additional changes caused by a proposed development in conjunction with other similar developments or as the combined effect of a set of developments taken together (NatureScot 2012, p4);
- Cumulative landscape effects are those effects that 'can impact on either the physical fabric or character of the landscape, or any special values attached to it' (NatureScot 2012, p10); and
- Cumulative visual effects are those effects that can be caused by combined visibility, which occurs where the observer is able to see two or more developments from one viewpoint and / or sequential effects which occur when the observer has to move to another viewpoint to see different developments" (NatureScot 2012, p11).

Evaluation of significance

21.5.5.2 The matrix in Table 21.5 is used as a guide to help inform the threshold of significance when combining sensitivity and magnitude to assess significance. On this basis potential effects are assessed as Negligible, Minor, Moderate-Minor, Moderate, Moderate-Major and Major. In those instances where the magnitude has been assessed as 'no change' and the level of effect is recorded as 'No effect'.

21.5.5.3 For the purposes of this assessment, any effects with a significance level of Major and Moderate-Major have been deemed significant in EIA terms (dark shaded boxed in Table 21.5). 'Moderate' levels of effect have the potential, subject to the assessor's professional judgement, to be considered as significant or not significant, depending on the sensitivity and magnitude of change factors evaluated. These assessments are explained as part of the assessment, where they occur. Significance can therefore occur at a range of levels depending on the magnitude and sensitivity, however in all cases, a significant effect is considered more likely to occur where a combination of the variables results in the Proposed Development having a defining effect on the landscape/seascape character or view. Definitions are not provided for the individual categories of significance shown in the matrix and the reader should refer to the detailed definitions provided for the factors that combine to inform sensitivity and magnitude

21.5.5.4 Effects assessed as being either Moderate-Minor, Minor or Negligible level are assessed as not-significant (white shaded boxes in Table 21.5).

21.5.5.5 In line with the emphasis placed in GLVIA3 upon the application of professional judgement, an overly mechanistic reliance upon a matrix is avoided through the provision of clear and accessible narrative explanations of the rationale underlying the assessment made for each landscape and visual receptor.

Table 21.5 – Matrix used to guide determination of effect significance.

		Sensitivity				
		High	**Medium-high**	**Medium**	**Medium-low**	**Low**
Magnitude	**High**	Major (**Significant**)	Major (**Significant**)	Moderate-Major (**Significant**)	Moderate (**Significant / Not Significant**)	Moderate (**Significant / Not Significant**)
	Medium-high	Major (**Significant**)	Moderate-Major (**Significant**)	Moderate (**Significant / Not Significant**)	Moderate (**Significant / Not Significant**)	Moderate - Minor (**Not significant**)
	Medium	Moderate-Major (**Significant**)	Moderate (**Significant / Not Significant**)	Moderate (**Significant / Not Significant**)	Moderate - Minor (**Not significant**)	Minor (**Not significant**)
	Medium-low	Moderate (**Significant / Not Significant**)	Moderate (**Significant / Not Significant**)	Moderate - Minor (**Not significant**)	Minor (**Not significant**)	Minor (**Not significant**)
	Low	Moderate - Minor (**Not significant**)	Moderate - Minor (**Not significant**)	Minor (**Not significant**)	Minor (**Not significant**)	Negligible (**Not significant**)
	Negligible	Minor (**Not significant**)	Minor (**Not significant**)	Minor (**Not significant**)	Negligible (**Not significant**)	Negligible (**Not significant**)

Nature of effects

21.5.5.6 The EIA Regulations 2017 state that the ES should define *'the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development'.*

21.5.5.7 In accordance with the EIA Regulations 2017, in this assessment the nature of effects refers to whether the landscape and / or visual effect of the Proposed Development is positive or negative (herein referred to as 'beneficial' / 'neutral' or 'adverse').

21.5.5.8 Guidance provided in GLVIA3 on the nature of effect states that 'in the LVIA, thought must be given to whether the likely significant landscape and visual effects are judged to be positive (beneficial) or negative (adverse) in their consequences for landscape or for views and visual amenity', but it does not provide guidance as to how that may be established in practice. The nature of effect is therefore one that requires interpretation and, where applied, this involves reasoned professional opinion.

21.5.5.9 In this LVIA a precautionary approach has been adopted, which assumes that significant landscape and visual effects are weighed on the adverse side of the planning balance, unless otherwise stated. Beneficial or neutral effects may, however, arise in certain situations and are stated in the assessment where relevant, based on the following definitions.

- **Beneficial effects** - contribute to the landscape and visual resource through the enhancement of desirable characteristics or the introduction of new, beneficial attributes. The development contributes to the landscape by virtue of good design or the introduction of new landscape planting. The removal of undesirable existing elements or characteristics can also be beneficial, as can their replacement with more appropriate components.
- **Neutral effects** - occur where the development fits with the existing landscape character or visual amenity. The development neither contributes to nor detracts from the landscape and visual resource and can be accommodated with neither beneficial or adverse effects, nor where the effects are so limited that the change is hardly noticeable. A change to the landscape and visual resource is not considered to be adverse simply because it constitutes an alteration to the existing situation.
- **Adverse effects** - are those that detract from the landscape character or quality of visual attributes experienced, through the introduction of elements that contrast, in a detrimental way, with the existing characteristics of the landscape and visual resource, or through the removal of elements that are key in its characterisation.

21.5.6 Proposed Onshore Substation Zone of Theoretical Visibility Analysis

21.5.6.1 The ZTV Volume 2 Figure 21.8 has been generated using Geographic Information Systems software to demonstrate the extent to which the onshore substation may theoretically be seen from any point in the Study Area. ZTV analysis has been carried out for a maximum parameter model based on the maximum onshore substation height of 15 m applied to the finished ground level within the onshore substation platform. The onshore substation platform has been established using a balanced cut and fill in order to determine the ground level of 46.85 m Above Ordnance Datum (AOD). An additional 300 mm of material is required to create the platform resulting in a finished ground level of 47.15 m AOD.

21.5.6.2 The AIS and Gas Insulated Switchgear (GIS) Proposed Development options vary in size, scale and design. The ZTV has been calculated to illustrate the worst case levels of theoretical visibility for the onshore substation. In order to achieve this the largest footprint (AIS option) and the tallest infrastructure (GIS option) have formed the basis of the ZTV calculations. This is hereafter called the onshore substation maximum parameter. It should be noted that given the onshore substation maximum parameter is larger in footprint than the GIS option and taller than the AIS option, that the ZTV represents an unrealistic worst case position in terms of theoretical or likely actual visibility.

21.5.6.3 ZTVs are primarily calculated based on the visibility at 2 m above the height of the landform relative to the height of the project (i.e. viewer height of 2 m). The ZTV shown in Volume 2 Figure 21.8 reflects bare ground theoretical visibility. There are limitations in the production of the ZTV, and these should be borne in mind in its consideration and use:

- The ZTVs are based on 5 m data grid (Ordnance Survey Terrain 5) with a viewer height of 2 m above ground level;
- The bare ground ZTV does not take into account the screening effects of woodlands, vegetation, buildings, or other local features that may prevent or reduce visibility;
- The ZTV does not indicate the decrease in visibility that occurs with increased distance from the onshore substation. The nature of what is visible from 1 km away would differ markedly from what is visible from 3 km away, although both are indicated on the ZTV as having the same level of visibility; and
- There is a wide range of variation within the visibility shown on the ZTV. For example, an area shown as having visibility of the onshore substation may only gain views of the smallest extremity rather than all of it as may be the case elsewhere.

21.5.6.4 These limitations mean that while the ZTV is used as a starting point in the assessment, providing an indication of where the onshore substation would theoretically be visible, the information drawn from the ZTV is not completely relied upon to accurately represent visibility of the onshore substation.

21.5.7 Visualisations

21.5.7.1 The viewpoint assessment of the onshore substation is illustrated by a range of visualisations, including photographs and block model photomontages, which are in line with current best practice and the guidance provided in Landscape Institute - Visual Representation of Development Proposals (2019). Visualisations have a number of limitations when using them to form a judgement on a development. These include:

- The images provided give a reasonable impression of the scale of and distance to the onshore substation, but can never be 100% accurate;
- The viewpoints illustrated are representative of views in the area but cannot represent visibility at all locations;
- To form the best impression of the visual impacts of the onshore substation these images are best viewed at the viewpoint location shown;
- The visualisations must be printed at the right size to be viewed properly (A1 width) and viewed at a comfortable viewing distance;
- The first visualisation sheet for each of the viewpoints illustrates the existing view with a baseline photograph;

- The second visualisation sheet for viewpoints 1-5 illustrates the proposed substation maximum parameter as a dashed red line enclosing a 3D volume with a maximum height of 15 m (maximum height of onshore substation infrastructure). Because the onshore substation infrastructure could potentially be located anywhere within the substation maximum parameter, the maximum height parameter of 15 m has been applied to the maximum platform parameter of 128 m x 88.5 m to create the LVIA Rochdale envelope shown in these visualisations. This visualisation also shows an illustrative GIS building block model located on the onshore substation platform. This provides an indication of the likely form and extent of a GIS substation building within the envelope of the proposed substation maximum parameter;
- The third visualisation sheet for viewpoints 1-5 illustrates the cumulative context of the Greenlink Convertor Station where visible;
- The fourth visualisation sheet for viewpoints 1-5 illustrates the GIS onshore substation building option as an illustrative 3D model located on the onshore substation platform at year 1 following completion of construction activity;
- The fifth visualisation sheet for viewpoints 1-5 illustrates the GIS onshore substation building option as an illustrative 3D model located on the onshore substation platform at year 15 along with the mitigation planting. Mitigation planting estimated to be 7-10m after 15 years and shown on the visualisation at 8.5m in height.

21.5.7.2 The photographs used to produce the photomontages have been taken using Canon EOS 5D and 6D Digital SLR cameras, with a fixed lens and a full-frame (35 mm negative size) CMOS sensor. The photographs are taken on a tripod with a pano-head at a height of approximately 1.5 m above ground. To create the baseline panorama, the frames are individually cylindrically projected, digitally joined and then modified to create a planar projected panorama with a 53.5-degree field of view. Tonal alterations are made using Adobe software to create an even range of tones across the photographs once joined.

21.5.7.3 The photographs and photomontages used in this assessment are for illustrative purposes only and, whilst useful tools in the assessment, are not considered to be completely representative of what will be apparent to the human eye. The assessments are carried out from observations in the field and therefore may include elements that are not visible in the photographs.

21.5.8 Limitations to Assessment

Graphic production

21.5.8.1 ZTV and photomontage visualisations have specific limitations which are described in detail in section 21.5.7 above.

Fieldwork

21.5.8.2 Fieldwork was at times restricted during periods of COVID 19 lockdown throughout 2020 and early 2021. It is not possible to visit every part of the Study Area when undertaking an LVIA and therefore some aspects of the assessment are based on desk based study and professional experience. For example, parts of the Study Area do not have readily accessible public access these areas include the Pembroke Power Station and Valero Oil Refinery but also include large areas of agricultural land that have no public access. In all parts of the study, it is considered that public roads and footpaths have provided sufficient coverage of the Study Area to form the basis of a robust LVIA.

21.6 Baseline Assessment

Introduction

21.6.1.1 This section identifies aspects of the landscape and visual resource that may be significantly affected by the Proposed Development and provides a description of the existing landscape and visual conditions in the area that may be affected (landscape and visual baseline). Establishing the baseline will, when reviewed alongside the description of the Proposed Development provided in Volume 1 Chapter 4 Proposed Development, form the basis for the identification and description of landscape and visual effects.

21.6.1.2 The baseline description of the landscape and visual resource that may be affected is primarily determined by the physical footprint of the Proposed Development and the onshore substation ZTV, Volume 2 Figure 21.8. The baseline also describes current pressures that may cause change in the landscape in the future, and which need to be considered cumulatively with the Proposed Development, in particular drawing on information for other developments that are not yet present in the landscape but are at earlier stages in the planning process.

21.6.1.3 A preliminary assessment has identified those landscape and visual receptors that may have the potential to experience significant effects, which require to be assessed in full (see sections 21.10.1, 21.11.1, 21.12.1 and 21.14.1). This section provides a baseline overview and a detailed baseline description is provided separately within the assessment section for each receptor that may be significantly affected.

Landscape baseline overview

Site Context

21.6.1.4 The onshore elements of the Proposed Development are located within the administrative boundaries of Pembrokeshire County Council and Pembrokeshire Coast National Park Authority, in southwest Wales. Within this area, the Proposed Development onshore cable corridor stretches between the landfall at West Angle Bay to the onshore substation site south of Pembroke Power Station. The onshore substation site is on gently sloping land to the west of Lambeeth Farm on a minor road close to Goldborough Road.

21.6.1.5 The Peninsula can be broadly characterised as agricultural with a strong coastal influence. It is defined by the sea and coast that surround it with the Bristol Channel to the south and west and Milford Haven to the north. Much of the coast in the area is rugged with cliffs stretching around the Peninsula. The exception to this is the sandy beaches found at Freshwater West and West Angle Bay, which are popular visitor locations and the mud flats found at Angle Bay and Pembroke River. Large swathes of mudflats are a notably common feature of the northern coastline of the Peninsula, and in the context of the site are associated with Pembroke River.

21.6.1.6 The agricultural landscape of the Peninsula is largely arable in nature with occasional wooded valleys, areas of dunes and extensive hedgerows along field boundaries and roadsides. The cliffs that define the coastal edge are incised and, in many places, fields are found to abruptly meet the cliff edge with only a narrow strip of vegetation. The Pembrokeshire Coastal Path / Wales Coast Path follows the coastal edge closely in these sections weaving in and out of the rugged and incised coastal cliffs.

21.6.1.7 Woodlands in the area tend to be found on north facing sloping land near Angle or in valleys particularly where valley sides are steeply incised by watercourses. There are no hills in the area although the agricultural landscape is undulated, and views are varied as a result. See Volume 2 Figure 21.2 – Landform.

21.6.1.8 The landscape of the Study Area is rural in nature although the roads are often busy with visitors to the beaches in the area and travelling to and from the Pembroke Power Station and Valero Oil Refinery. As a result, the area has a relatively busy feel on the very few routes in and out of the Angle Peninsula.

21.6.1.9 The industrial elements already present at the Pembroke Power Station and Valero Oil Refinery are substantial both in scale and in the area of land occupied. Views of these industrial elements are available from much of the area and also extend further afield to Pennar in the east, Milford Haven to the north and the Marloes Peninsula to the northwest. Other industry is also found nearby at Pembroke Dockyard and the Oil Refineries at Waterston, Hebrandston and Robeston all of which are located close to the Milford Haven settlement. Site context photographs along the proposed onshore cable corridor and surrounding the onshore substation are provided in Volume 2 Figures 21.7a-e.

Landscape Character

21.6.1.10 The Welsh landscape is classified at the national level by National Landscape Character Areas (NLCAs). The 48 NLCAs are defined at a broad landscape scale, each with descriptive character profiles. All of the LVIA Study Area and the Proposed Development lies within NLCA 47: South Pembrokeshire Coast.

21.6.1.11 LANDMAP, also referred to by Natural Resources Wales (NRW) as *'the Welsh landscape baseline', is a Geographic Information System based landscape resource and dataset 'where landscape characteristics, qualities and influences on the landscape are recorded and evaluated into a nationally consistent dataset.'* A LANDMAP assessment has been carried out and is reported in Volume 3 Technical Appendix 21.1. LANDMAP aspect areas are shown in Volume 2 Figures 21.9 - 21.13.

21.6.1.12 LANDMAP guidance states that *'Assessors carrying out LVIA need to judge the appropriate scale of reporting for the development, which may not always be the reporting scale of LANDMAP. For example, a housing proposal may need smaller reporting units whereas a wind farm may need larger ones.'* The guidance goes on to recommend that LANDMAP is used as the starting point and that *'reporting units may be LANDMAP visual and sensory aspect areas, where these are not entirely suitable, other LANDMAP aspect layers can be used to assist with the subdivision or amalgamation of visual and sensory aspect boundaries.'*

21.6.1.13 Landscape Character Areas (LCAs) were identified in the Pembrokeshire County Council Landscape Character Assessment - Consultation Draft 2019 (PCCLCA) and the Pembrokeshire Coast National Park Authority Landscape Character Assessment – 2011 (PCNPALCA). These studies used LANDMAP to inform their baseline characterisation assessments, and it is considered that the identified LCAs represent the most appropriate scale 'reporting units' for the Proposed Development. The LCAs identified in these studies have therefore been used as the basis for Landscape Character Assessment in the LVIA. LCAs[2] are mapped in Volume 2 Figure 21.3 and with the onshore substation ZTV in Volume 2 Figure 21.14. LANDMAP evaluations for overlapping aspect areas have also been noted in the sensitivity assessments for each of the LCAs that are assessed in detail.

[2] Note – Pembrokeshire County Council LCAs are referred to as candidate areas in the draft Landscape Character Assessment and so have a prefix ‘cLCA’ in both the assessment and Figures within the LVIA.

21.6.1.14 The onshore substation and eastern half of the onshore cable corridor lies within cLCA 25 – Hundelton and Lamphey. The onshore cable corridor also crosses LCA 6 – Castlemartin / Merrion Ranges and LCA 7 - Angle (also where the proposed landfall would be located).

Seascape Character

21.6.1.15 The Pembrokeshire Seascape Character Assessment (PCNP, 2013) defines Seascape Character Areas (SCAs) at a local level which is consistent in scale with the LCAs identified in the Pembrokeshire County Council Landscape Character Assessment (Consultation Draft 2019) and the Pembrokeshire Coast National Park Authority Landscape Character Assessment (2011).

21.6.1.16 The Pembrokeshire Seascape Character Assessment (PCNP, 2013) defines both inland and offshore boundaries in its definition of Seascape Character Areas (SCAs) including land which has a strong visual relationship with the sea/tidal waters and coastal landscape character types such as dunes or cliffs. As a result, there is a large degree of overlap with the assessment of Landscape Character in the Study Area due to its coastal characteristics. The onshore substation lies within SCA 32 – Inner Milford Haven, the western half of the onshore cable corridor runs along the boundary between SCA 32 Inner Milford Haven and SCA 34 – Freshwater West and the landfall lies within SCA 31 - Outer Milford Haven. Seascape Character Areas (SCAs) within the Study Area are mapped alongside LCAs / cLCAs in Volume 2 Figure 21.3 and assessed as part of Landscape Character Assessment.

Landscape Designations

21.6.1.17 A landscape designation is an area of landscape identified as being of importance at international, national or local level, either defined by statute or identified in development plans or other documents. The landscapes are designated in relation to their special qualities or features which warrant special consideration through the planning system.

21.6.1.18 There are three ways in which such designations are relevant to the LVIA:

- The presence of a designation can give an indication of a recognised value that may increase the sensitivity of a landscape character receptor, viewpoint or visual receptor, and may therefore affect the significance of the effect on that receptor;
- The presence of a relevant designation can lead to the selection of a representative viewpoint within the designated area, as the viewpoint will provide a representative outlook from that area; and
- Designated areas may be included as landscape character receptors so that the effects of the Proposed Development on the landscapes that have been accorded particular value can be specifically assessed.

21.6.1.19 In relation to the Proposed Development, landscape designations within the LVIA Study Area include the Pembrokeshire Coast National Park, South Pembrokeshire Heritage Coast and Orielton Registered Historic Park and Garden. Landscape Designations are mapped in Volume 2 Figure 21.4 and with the onshore substation ZTV in Volume 2 Figure 21.14.

Visual Baseline Overview

21.6.1.20 Principal Visual Receptors within the Study Area for the Proposed Development are varied but are typical to the southwest Wales coast. Principal visual receptors found within the LVIA Study Area include individual properties, small settlements roads and recreational routes. Principal visual receptors are mapped in Volume 2 Figure 21.5 and with the onshore substation ZTV in Volume 2 Figure 21.15.

21.6.1.21 The Study Area has few settlements within it with larger settlement found at its edges with Pembroke Dock or outside with Milford Haven. These larger settlements are closely associated with the coast and particularly with the Milford Haven waterway and the numerous jetties and piers associated with the Oil Refineries. Smaller settlements in the Study Area include Hundleton to the east of the onshore substation and Angle which is to the east of the proposed landfall at West Angle Bay. Individual properties whilst scattered and infrequent, are also found in the Study Area. Key properties which relate to the onshore substation include – Lambeeth, Moreston, Moreston Cottage and Goldborough which would have close views of the onshore substation. Individual properties are also found along the onshore cable corridor, key properties are considered to be those that lie within close proximity (approximately 100 m) to the onshore cable corridor, due to the increased potential of visual effects from construction activities. Key properties for the onshore cable corridor assessment are considered to include – Lambeeth Farm, properties at Wallaston Green, Neath Farm, The Burrows and Beach House.

21.6.1.22 Roads within the Study Area are largely minor roads that connect the scattered settlement and industry, these are supported by the B4320 which runs along the Peninsula connecting Angle to Pembroke.

21.6.1.23 The Pembrokeshire Coastal Path, which follows the route of the Wales Coast Path is the only long distance recreational route in the Study Area.

21.6.1.24 Public Rights of Way (PRoWs) provide further access across more rural parts of the Study Area. The PRoW of most relevance to the assessment is PRoW SP34 6/1 which passes the onshore substation site on the minor road to Lambeeth Farm and therefore there is potential for it to be affected by the construction activities of both the onshore cable corridor and onshore substation but also during the operation of the onshore substation. Other PRoWs that cross the rural landscape would only experience temporary disruption resulting from the onshore export cable construction.

Cable Route

21.6.1.25 As the onshore export cable is proposed to be buried there would be little or no visual effects resulting from the proposed onshore export cable once operational. In addition, the relatively discreet nature of the proposed onshore cable corridor means that only the views of close range receptors would be affected during construction.

Proposed Onshore Substation

21.6.1.26 The built infrastructure proposed for the onshore substation has a greater extent of visibility and therefore visual receptors over a wider area would potentially be affected. Visual effects would also likely occur during operation, as well as construction and decommissioning.

Representative Viewpoints

21.6.1.27 The viewpoints identified for assessment have been selected to cover a variety of landscape character areas; roads; recreational routes; points from different directions and distances; and to inform the definition of the likely extent of significant visual effects from the identified principal visual receptors.

21.6.1.28 Eight viewpoints for the landscape and visual assessment have been selected through consultation and agreement with NRW, PCC and PCNPA. The precise viewpoint locations have been finalised based on site survey and potential visibility of the Proposed Development. Assessment viewpoints are identified in Table 21.6 below and mapped in Volume 2 Figure 21.8. Further context photographs of the Proposed Development are also provided in Volume 2 Figures 21.7a-e.

Table 21.6 – Viewpoints

ID	Name	Grid Ref		Receptor Type / LCT / Designation
1	Goldborough Road, east of Wallaston Cross	192914	201290	Road User / cLCA25- Hundelton and Lamphey and SCA32 – Inner Milford Haven
2	Wales Coast Path, Lambeeth Farm	193751	201639	Recreational Walker, Residential / cLCA25 - Hundelton and Lamphey
3	Goldborough Road, near Moreston	193853	200997	Road User, Residential / cLCA25 - Hundelton and Lamphey and SCA32 – Inner Milford Haven
4	B4320, near Wogaston	191686	200120	Road User / cLCA25 – Hundelton and Lamphey & LCA6 – Castlemartin Merrion Ridges / PCNP
5	Pennar	195271	202828	Settlement, Road User / cLCA16 – Southern Haven Developed
6	B4319, near Junction with B4320	188383	200948	Road User, Residential / LCA7 – Angle Peninsula and SCA32 – Inner Milford Haven / PCNP
7	Minor Road, South Studdock	185294	202377	Road User / LCA7 – Angle Peninsula and SCA31 – Outer Milford Haven / PCNP
8	West Angle Bay	185379	203269	Recreational Walker, Visitor / LCA7 – Angle Peninsula and SCA31 – Outer Milford Haven / PCNP / South Pembrokeshire Heritage Coast

Cumulative Baseline

21.6.1.29 Existing developments are included in the baseline for both the landscape and visual effects assessments. These developments have an existing influence on the baseline landscape and visual environment. The nearby Pembroke Power Station and the Valero Oil Refinery are large industrial developments that have a substantial influence on the character of the area. A number of related overhead electricity power lines cross the landscape and close to the site area and are a common feature in this landscape due to the proximity of the Pembroke Power Station.

21.6.1.30 Adjacent developments may complement one another, or may be discordant with one another, and it is the increased or reduced level of significance of effects which arises as a result of this change that is assessed. Where this occurs, the magnitude of change varies according to cumulative effect factors such as its consistency of image and degree of contrast or integration with the onshore elements of the Proposed Development, as well as other 'non-cumulative' factors, such as its distance, lateral spread and amount of visibility.

Cumulative sites for consideration in the LVIA

21.6.1.31 Cumulative effects refer to effects upon receptors arising from the Proposed Development, when considered alongside other proposed developments and activities and any other reasonably foreseeable project(s) proposals.

21.6.1.32 GLVIA3 (Landscape Institute and IEMA, 2013, p120) defines cumulative landscape and visual effects as those that *'result from additional changes to the landscape and visual amenity caused by the proposed development in conjunction with other developments (associated with or separate to it), or actions that occurred in the past, present or are likely to occur in the foreseeable future.'*

21.6.1.33 Other proposed developments that have the potential for cumulative effects in combination with the Proposed Development are typically considered to be those developments that are found within the LVIA Study Area. Beyond the LVIA Study Area cumulative effects are limited by distance and lack of intervisibility with other proposed developments. This is in line with guidance (NatureScot, 2012, p15) which states that *'the focus should be on the key cumulative effects which are likely to influence decision making, rather than an assessment of every potential cumulative effect'.* It is noted, however, that NRW have requested a slightly wider Study Area for cumulative assessment of onshore developments in their advice – '*There are potential cumulative landscape & visual effects from other landfall cables and other development, including on the National Park. ZOIs are considered acceptable for landscape & visual effects (Landfall site 2km, Onshore export cable options 1km, onshore substation 5km)*'. The LVIA has therefore adopted this Study Area for the onshore cumulative assessment (the LVIA Cumulative Search Area).

21.6.1.34 A comprehensive list of projects that have the potential to contribute to cumulative effects of the onshore elements of the Proposed Development has been compiled and this 'long list' and the approach to compiling this list is described in Volume 3 Technical Appendix 30.1. Those cumulative projects listed within the 'long list' that lie within the LVIA Cumulative Search Area are listed below in Table 21.7 and shown in Volume 2 Figure 21.17.

21.6.1.35 To focus the cumulative assessment on the potential for significant cumulative effects, the LVIA has undertaken a process of scoping out projects and activities from this list where it is assessed there would be no potential for them to give rise to a significant cumulative effect as a result of the addition of the Proposed Development. This Preliminary Assessment is based on professional judgement, assessment rationale and guidance relevant to landscape and visual impacts. The results of this are also presented in Table 21.7. Where the projects are to be included in the cumulative assessment they are highlighted in grey.

Table 21.7 – Cumulative Developments

Planning Ref	Type	Status	Preliminary Assessment
12/0820/PA	Residential Development	Consented	No cumulative interaction and not included in cumulative LVIA.
13/0824/PA	Residential Development	Consented	No cumulative interaction and not included in cumulative LVIA.
14/0122/PA	Residential Development	Consented	No cumulative interaction and not included in cumulative LVIA.
14/0429/PA	Hotel development	Consented	No cumulative interaction and not included in cumulative LVIA.
14/0158/PA	Mixed use retail and commercial	Consented	Very limited and distant cumulative interaction and not included in cumulative LVIA.
14/0901/PA	School	Consented	No cumulative interaction and not included in cumulative LVIA.
14/1028/PA	Commercial Development	Consented	No cumulative interaction and not included in cumulative LVIA.
14/1098/PA	Residential Development	Consented	No cumulative interaction and not included in cumulative LVIA.
15/0144/PA	Residential Development	Consented	Very limited and distant cumulative interaction and not included in cumulative LVIA.
15/0514/PA	Residential Development	Consented	No cumulative interaction and not included in cumulative LVIA.
15/0570/PA	Retail	Consented	No cumulative interaction and not included in cumulative LVIA.
15/0715/PA	Commercial Development	Consented	No cumulative interaction and not included in cumulative LVIA.
15/0929/PA	Car Park	Consented	No cumulative interaction and not included in cumulative LVIA.
15/1266/PA	Recycling Centre	Consented	No cumulative interaction and not included in cumulative LVIA.

Planning Ref	Type	Status	Preliminary Assessment
16/0428/PA	School	Consented	No cumulative interaction and not included in cumulative LVIA.
17/1285/PA	Residential Care Home	Consented	No cumulative interaction and not included in cumulative LVIA.
18/0211/PA	Residential Development	Consented	No cumulative interaction and not included in cumulative LVIA.
18/0274/PA	Residential Development	Consented	No cumulative interaction and not included in cumulative LVIA.
18/0332/SO	Commercial Development	Scoping	No cumulative interaction and not included in cumulative LVIA.
18/1067/SO	Energy	Scoping	The META project consists of three test offshore sites, the two in the Milford Haven Channel are not proposed to include onshore infrastructure and the one at East Pickard Bay is proposed to have onshore elements close to Freshwater West. However, the development details provided at scoping do not include sufficient information for a cumulative assessment to carried out. Not included in the cumulative LVIA.
19/0577/PA	Recycling Centre	Consented	No cumulative interaction and not included in cumulative LVIA.
19/0618/PA		Consented	No cumulative interaction and not included in cumulative LVIA.
19/0928/PA	Residential Development	Consented	No cumulative interaction and not included in cumulative LVIA.
NP/20/0222/FUL 20/0041/PA 20/0044/PA 18/0899/SO	Energy (Greenlink)	Consented	Included in cumulative LVIA due to close proximity of development to the onshore substation infrastructure. Whilst the potential for cumulative interaction of the onshore export cable exists geographically, the construction of the Proposed Development would not occur within the same timeframe as Greenlink and therefore cumulative effects of construction activities would not occur.
APP/N6845/A/16/3163511	Energy (Valero - Cogeneration Facility)	Consented	Not included in cumulative LVIA. No potential for significant effects due to distance and limited intervisibility within existing cumulative context of Oil Refinery.

Planning Ref	Type	Status	Preliminary Assessment
EN010054	Energy (South Hook Combined Heat and Power Station)	Consented	Not included in cumulative LVIA. No potential for significant cumulative effects due to limited and distant visibility of this development within the context of the landscape and visual receptors that are susceptible to the Proposed Development.
APP/N6845/A/16/3146073	Energy (Egnedol Sustainable Energy)	Refused	Not included in cumulative LVIA.
DNS/3245065	Energy (Blackberry Lane Solar Park)	Application	Not included in cumulative LVIA. No potential for significant effects due to distance and lack of intervisibility.
DNS/3266103	Energy Project Valorous	Scoping	It is considered that for the onshore elements of project Valorous there is insufficient information for a cumulative assessment to be made. The Valorous scoping report includes a 2 km radius search area for the proposed substation rather than a location and the detail of the substation in terms of size and scale is also not known. Whilst the Erebus onshore substation location is within this 2 km radius search area, various locations (up to 12 at scoping) are being considered for the Valorous substation site. On this basis, it is not included in the cumulative LVIA.
DNS/3261355	Rhoscrowther Wind Farm	Application	Included in cumulative LVIA due to proximity of development to the onshore substation infrastructure and potential for cumulative effects.

Cumulative Effects Summary

21.6.1.36 The preliminary cumulative assessment has determined that the Greenlink and Rhoscrowther Wind Farm developments have the potential for significant cumulative effects and so require detailed assessment. The LVIA therefore includes an assessment of the cumulative effects of the Proposed Development in conjunction with the Greenlink Development in a consented scenario and the Rhoscrowther Wind Farm in the application scenario.

21.7 Potential Environmental Effects

21.7.1 Key Parameters

21.7.1.1 The likely significant effects of the Project Design Envelope (PDE), and the Rochdale Envelope which represents a worst-case assessment scenario, are assessed and illustrated in the LVIA.

21.7.1.2 The LVIA is based on the onshore infrastructure of the Proposed Development described in Chapter 4: Proposed Development Description which provides detail on the built elements of the onshore substation, the onshore cable options and landfall. The key PDE parameters relevant to the LVIA are listed below in Table 21.8.

Table 21.8 – Key PDE Parameters for LVIA

Component	Description	Maximum Parameter
Onshore substation	Onshore substation platform (m^2) (the area in which the Substation can be located)	11,328
	Substation platform AOD (finished ground level)	47.15 m AOD
	Indicative dimensions of AIS site (m)	128 x 88.5
	AIS site (m^2)	11,328
	Indicative dimensions of GIS site (m)	77 x 63
	GIS site (m^2)	4,851
	Onshore substation infrastructure maximum height (m)	15
	GIS building dimensions (m)	35 x 25 x 15
	Indicative onshore substation construction compound dimensions (m)	250 X 150
	Onshore substation construction compound (m^2)	37,500
Cable Route	Total length of onshore Cable Route (km)	14.5
	66kV cable length (km)	12.5
	132kV cable length (km)	2
	Cable corridor width (m) (approximate and with widened areas for construction compounds and jointing pits)	60
	Cable construction corridor (m) (within cable corridor)	30
	Onshore Cable Trench width (m)	2.5
	Cable burial depth agricultural (m)	1.8
	Cable burial depth road (m)	1.2
	Cable Joint Chambers dimensions (m)	L-10 x W-3 x D-2 = 60 m^3
	Cable Joint Chambers (number)	58

Component	Description	Maximum Parameter
	Link Box Chambers / Partial Discharge Terminal Box dimensions (m)	2x2 = 4 m^2
	Link Box Chambers / Partial Discharge Terminal Box numbers	20 each = 40 totals
	No. of cable construction compounds	10
Landfall	HDD compound dimensions (near shore / sub tidal area) (m^2)	360
	HDD water depth (near shore / sub tidal area) (m)	5
	HDD exit protection (m)	Rock bags 21 x 5 x 1.2
	HDD exit protection area x 2 (m^2)	100
	HDD plume release (m^2)	2400
	Intertidal works dimensions – open cut trench (m)	650 x 3 x 10 (LxDxW)
	Transition Joint Bay dimensions (m)	12 x 6 x 2.25 (162 m^2 each, up to two)

21.7.1.3 Table 21.9 below combines the key parameters listed in Table 21.8 above with the construction, operational and maintenance and decommissioning phases of the Proposed Development described in Chapter 4: Proposed Development Description to establish the worst case scenario for the LVIA.

Table 21.9 – PDE worst case scenario for LVIA

Potential Pathway Change / Impact	Realistic Worst Case Scenario	Justification
Construction		
Landfall Landscape and Visual Effects	HDD and intertidal works on the beach at West Angle Bay and HDD landfall on the cliffs to the south of West Angle Bay.	The PDE includes the maximum dimensions and number of construction compounds and therefore, the greatest area of land disturbance and visible construction activity.
Cable corridor Landscape and Visual Effects	The PDE presents an Onshore Cable Corridor which is approximately 14.5 km in length and has a width of approximately 60 m (albeit with widened areas for construction compounds and jointing pits). The cable construction corridor has a 25 m width	The PDE includes the maximum width and therefore, the greatest area of potential disturbance and visible construction activity. The LVIA considers a 25 m wide cable construction corridor in relation to hedgerow and tree losses but does so within the context of the 60m wide cable corridor to ensure the worst case is being considered.

Potential Pathway Change / Impact	Realistic Worst Case Scenario	Justification
	accommodating cable trenches and haul road.	
Cable Construction Compounds Landscape and Visual Effects	Up to 4 construction compounds along the cable at 75m x 75m (5,625 m^2) each.	The PDE includes the maximum dimensions and number of construction compounds and therefore, the greatest area of land disturbance and visible construction activity.
Onshore Substation Construction activities Landscape and Visual Effects	Onshore substation construction compound dimensions 250 X 150, with an area of 37,500 m^2.	The PDE includes the maximum dimensions of construction compound and therefore, the greatest area of land disturbance and visible construction activity.
Construction Period	12 hour working day (7am-7pm Monday to Saturday)18 months total construction period Cable route – 9 months Onshore substation - 18 months	The PDE includes the maximum periods of construction activity and therefore, the worst case duration of effect.
Construction lighting	Temporary flood light gantries. Limited works outside of daylight hours and between the hours of 7pm and 7am.	Construction lighting will be required during working hours in the winter months, the lights of construction vehicles will also add to the levels of lighting.
Operation and Maintenance		
Cable Corridor and Landfall Landscape and Visual Effects	Maximum 40 number Link Boxes Chambers / Partial Discharge Terminal Boxes (20 each) along onshore export cable. Beneath ground with manhole access.	The PDE includes the maximum amount of visible above ground cable infrastructure.
Onshore Substation Landscape and visual effects	Maximum area of Onshore Substation Platform and AIS Onshore Substation – 11,328 m^2. Maximum area of GIS Substation – 4,851 m^2. Maximum height of Substation platform finished ground level – 47.15 m AOD. Maximum height of Substation infrastructure – 15 m (GIS building).	The onshore substation would be located within the maximum parameter for substation platform which is considered in the LVIA. The worst case height of Substation infrastructure (15 m high GIS building) has been applied to this maximum footprint to establish the overall Rochdale 3D envelope for the proposed Substation.

Potential Pathway Change / Impact	Realistic Worst Case Scenario	Justification
Operational Lighting	Onshore substation compound floodlighting. 10 lux along access paths and around major items of electrical plant, 110 lux at entrance and 2.2 lux perimeter lighting.	The PDE includes the maximum amount of visible lighting during operation and maintenance.
Decommissioning		
Cable Corridor and Landfall Landscape and Visual Effects	Cable ducts left in situ underground with cables removed.	Effects would relate principally to the decommissioning process, associated plant, materials, infrastructure and temporary structures, as well as the presence of dismantled structures, where they would be visible above ground.
Onshore Substation Landscape and visual effects	Removal of the onshore substation.	Effects would relate principally to the decommissioning process, associated plant, and materials to remove the onshore substation.

21.7.2 Potential effects for assessment

21.7.2.1 This section sets out the potential effects that are considered within the detailed assessment.

Potential effects during construction

21.7.2.2 The potential effects of the Proposed Development during construction would include effects on the physical elements of the sites where construction would take place, as well as effects on the landscape character and visual amenity of the construction works and surrounding area.

21.7.2.3 The effects would relate principally to the construction process, associated plant, construction compounds, materials, infrastructure and temporary fencing/ structures. Construction effects also relate to the presence of emerging structures of the onshore substation, where they would be visible above ground and the use of construction lighting during the hours of darkness. Construction working hours are proposed to be from 7am to 7pm. The use of construction lighting would therefore be limited to morning or later afternoon/ early evening during winter months. See Chapter 4: Proposed Development Description for more detail.

Potential effects during Operation

21.7.2.4 The potential effects of the Proposed Development during Operation relate principally to the presence of the onshore substation. Visible operational elements of the onshore export cable are limited to marker posts at field boundaries, the ground level concrete access hatches of the Transition Joint Bays at landfall and Cable Joint Chambers along the route. Following the construction phase, the land will be reinstated to its former agricultural use and disrupted hedgerows will be replaced. On this basis, it is anticipated that once operational, the potential effects of the buried onshore export cable would be **negligible** as a result of their presence largely under-ground.

21.7.2.5 Where unplanned replacement or maintenance of onshore export cable infrastructure is required, this would result in only very localised and temporary effects of a much reduced scale to the effects assessed for construction. Taking this into account, operational effects of the onshore export cable and landfall are not considered further in the assessment of operational effects.

Potential effects during decommissioning

21.7.2.6 The potential effects of the Proposed Development during decommissioning would relate principally to the removal of the onshore substation.

21.7.2.7 The decommissioning of the onshore export cable and landfall would have a lesser effect, as the ducts would be left in situ underground, while only the cables would be removed. Decommissioning would include potential effects on the landscape character and visual amenity of the sites and surrounding area. The effects would relate principally to the decommissioning process, associated plant, materials, infrastructure and temporary structures, as well as the presence of dismantled structures, where they would be visible above ground.

Potential cumulative effects

21.7.2.8 Potential cumulative effects may arise due to the addition of the Proposed Development to the existing and proposed electrical grid infrastructure and energy developments in the area and the degree to which the Proposed Development has additional effects on views and landscape character. Potential effects of the Proposed Development in addition to these existing baseline energy developments are considered in the main assessment.

21.7.2.9 The LVIA considers the potential for significant cumulative effects to arise as a result of the addition of the Proposed Development in the context of other large scale developments that are consented or at application stage, that are located or proposed within the onshore LVIA Study Area.

Potential Effects Summary

21.7.2.10 Potential Effects Summary in the below table sets out the potential landscape and visual effects that may arise from the introduction of the Proposed Development (it should be noted that their inclusion here does not imply that they would occur or be significant).

Table 21.10 – Summary of Potential Effects to be Assessed

	Specific Element	Potential Effect	Potential Sensitive Receptors
Construction	Construction plant, temporary construction facilities, construction cranes, construction of substation, trenching and cable laying construction activities, removal of landscape features, material stock piles, fences, movement of construction vehicles in and around the site, construction activities during hours of darkness including lighting and signage.	Temporary physical effects on landscape fabric Long term, permanent and temporary physical effects on landscape fabric (i.e. permanent/short term removal of vegetation / ground cover) Temporary effects on landscape character Temporary effects on views Temporary cumulative effects	Physical landscape features Landscape character receptors Visual receptors
Operation	Onshore substation compound and onshore substation building	Long term effects on landscape character Long term effects on views Long term cumulative effects	Landscape character receptors Visual receptors
Decommissioning	Construction plant, temporary construction facilities, construction cranes, removal of substation compound and building.	Temporary physical effects on landscape fabric Temporary effects on landscape character Temporary effects on views	Physical landscape features Landscape character receptors Visual receptors

21.7.2.11 The effects of the construction, operation and decommissioning of the Proposed Development on the landscape and visual resource would arise principally from the construction, operation and decommissioning of the onshore substation and also the laying of the onshore export cable. The temporary construction facilities, such as cranes, construction vehicles, construction compound, delivery vehicles and construction lighting required during the construction process would also have effects on the landscape and visual resource.

21.7.2.12 It is currently anticipated that the construction of the Proposed Development is to last approximately 18 months. The construction effects identified are therefore predicted to occur during this period and end at the start of the operational period with the restoration of the onshore cable corridor. It is anticipated that the Proposed Development would be in operation for approximately 25 years.

21.7.2.13 Some elements of the planting mitigation could be retained on site such as the proposed woodland planting at the onshore substation, a restoration plan would be agreed with PCC prior to decommissioning.

21.8 Mitigation

21.8.1.1 Mitigation measures will be designed in detail post-consent as part of the discharge of consent conditions. A Landscape and Ecological Management Plan (LEMP) will be provided which will include the detailed mitigation measures with regard to the re-establishment of hedgerows and planting of mitigation landscaping. This section includes an overview of the landscape and visual mitigation strategy and a description of the landscape mitigation principles and approach.

21.8.2 Primary Mitigation

21.8.2.1 Primary mitigation in respect of the Proposed Development has involved the sensitive siting and design of the onshore infrastructure during site selection, to avoid or reduce potential impacts.

21.8.2.2 The site selection process considered constraints relating to physical landscape elements (such as woodland, trees and hedgerows), landscape character and visual amenity, together with other environmental and technical constraints. The sensitivity of the surrounding landscape and of residents, road-users and recreational users of the landscape was also a key consideration. The capacity of the landscape to accommodate the Proposed Development is assessed in relation to the natural screening afforded by landform, woodland and trees.

21.8.2.3 The close proximity of existing electricity overhead lines and a wind turbine to the onshore substation and the relatively close proximity of existing industrial development to the north at the Pembroke Power Station provide a context of electrical infrastructure in the area within the immediately surrounding context of the site. This context was considered in site selection and aligning with it is also considered to be embedded mitigation. Whilst there is a locally intensification of such industrial/ electrical development, it is considered, in this instance, that this is beneficial compared to possible options which may have spread such developments more widely across the landscape and visual resource. See Chapter 3: Site Selection and Alternatives**.**

21.8.3 Construction Phase Mitigation

21.8.3.1 Mitigation opportunities during the construction phase of works will be limited and primarily relate to the restrictions imposed on the working areas and measures identified in Volume 3 Technical Appendix 4.1 Outline Construction Environmental Management Plan (CEMP) or in the avoidance or damage to landscape features where possible.

21.8.3.2 Post-consent, the final detailed design of the project and the development of the LEMP in combination with the CEMP will seek to stipulate measures to avoid, reduce or offset environmental effects of the construction works, including those related to landscape and visual amenity.

21.8.4 Operational Mitigation

Proposed Onshore Substation Mitigation

21.8.4.1 The position of the onshore substation site on the south facing slopes of an incised, wooded valley provides an element of visual screening and for many visual receptors in the Study Area provides a degree of mitigation of landscape and visual effects from the outset. Landscape mitigation principles have been developed for the onshore substation to further mitigate landscape and visual effects for those areas where visibility is found. In the consultation meeting with NRW and PCC (02/09/2021) NRW agreed with the mitigation principles discussed at the meeting including the outline planting at the substation.

21.8.4.2 These mitigation principles include proposed woodland and hedgerow planting and areas of proposed meadow grassland for ecological mitigation. The proposed landscape mitigation is presented in Volume 2 Figure 21.16 and is also shown at the predicted height after 15 years' establishment on the LVIA visualisations. The mitigation strategy and approach agreed in principle with consultees includes the following key aspects:

- Proposed woodland to the south of the onshore substation to help mitigate visual effects from Goldborough Road and nearby properties to the south;
- Proposed woodland to the east of the onshore substation to help mitigate visual effects from the east in particular from Pennar to the northeast;
- Proposed areas of meadow grassland habitat to improve biodiversity;
- Proposed native species hedgerows along the minor road to Lambeeth to complement existing hedgerows which along with additional woodlands along this edge would help to mitigate views of the onshore substation from the minor road to Lambeeth;
- Increased connectivity of existing hedgerows and woodlands particularly with the riparian woodland to the south of the onshore substation site;
- Complimentary building materials and finish for the substation that are consistent with large scale agricultural buildings and in line with the Greenlink proposals;
- Reinstatement of removed sections of hedgerows; and
- Restoration of all temporary works and construction areas in relation to re-establishment of ground cover and where practicable.

21.8.4.3 The proposed woodland comprises native species and would be located around the onshore substation enclosing the onshore substation infrastructure apart from the access and cable ingress points. Native hedgerows would be located along the minor road and field boundaries to increase connectivity between the woodland blocks and to the existing woodland and hedgerows (particularly the riparian woodland to the south of the onshore substation).

21.8.4.4 The mitigation woodland planting would be designed to comprise a mix of faster growing 'nurse' species and slower growing 'core' species. Nurse species, such as alder, birch, and pine would grow quicker so that after 15 years they would be approximately 7-10m in height. They would provide shelter to bring on core, canopy species, such as oak, beech and horse chestnut. Whilst the nurse species would be sufficiently fast growing to provide substantial screening of the onshore substation after 15 years, the core species would outlive the nurse species and provide a preferred native woodland with a more robust structure closer in character to other nearby woodlands.

21.8.4.5 In locations where it is possible to undertake advanced planting, and where practical to do so, mitigation woodland could be planted during the early phases of the onshore substation construction to ensure robust screening as early as possible. This advance planting, if implemented at the start of the pre-construction phase would give the woodland in these areas additional growth prior to completion of construction and commencement of operation. It is considered that this may be possible in areas immediately to the east and south of the onshore substation once the earthworks for the substation platform have completed. It should be noted that whilst the visualisations show planting mitigation at 15 years growth, this does not take account of any potential advance planting which would increase the screening effect, should it be possible.

Onshore cable corridor and Landfall Mitigation

21.8.4.6 Mitigation measures seek to avoid, reduce or offset temporary and permanent environmental effects, including those related to the landscape and visual resource. Landscape and visual effects change over time as mitigation, such as planting, and restoration of habitat types included as part of the Proposed Development establish, and mature and existing landscape evolves. As part of the LEMP, the Ecological and Landscape Strategy will include a landscape mitigation strategy for the onshore cable corridor.

21.8.4.7 The precise location of the cable trenches within the onshore cable corridor will not be finalised until later detailed design stages. However, the location of the onshore cable corridor is not ambiguous in relation to landscape features and the potential disruption that may be caused as a result of the cable installation. Taking this into account, the following principles are considered to form an appropriate landscape and visual mitigation strategy for the onshore export cable and landfall -

- Where practicable, reducing hedgerow and tree loss along the onshore cable corridor;
- Reinstatement of removed sections of hedgerows;
- Restoration of all temporary works and construction areas in relation to re-establishment of ground cover; and
- Protection of trees during the construction phase where practicable.

21.8.4.8 The Ecological Landscape Strategy will make a positive contribution to the character of the landscape whilst encouraging biodiversity at a local level, enhancing the environment and creating and enhancing habitat throughout the onshore cable corridor. Vegetation and habitat loss across the cable corridor would be kept to a minimum and proposed landscape mitigation planting will ensure that the character of the local area is retained and enhanced for future benefit. As the proposed landscape matures, the degree of adverse effect would reduce.

21.8.5 Additional Mitigation

21.8.5.1 In addition to the mitigation outline above it is considered that additional mitigation measures could be developed at detailed design stage, including - detailed planting proposals for the onshore substation; detailed design and materials selection for the onshore substation; and detailed consideration of the onshore substation building colour and finish.

21.9 Assessment of Physical Landscape

21.9.1 Physical Landscape Preliminary Assessment

21.9.1.1 The construction of the onshore substation, open trenching relating to the onshore cable corridor and creation of temporary access and construction compounds would have physical landscape effects on trees, hedgerows, agricultural land and the coastal landscape. Woodlands in the Study Area have been avoided through careful design of the onshore cable corridor to avoid disturbance.

21.9.1.2 For assessment purposes therefore, the physical landscape elements with the potential for significant effects have been divided into three categories: Agricultural Land; Hedgerows and Hedgerow Trees; and Coastal Landscape.

21.9.2 Physical Landscape Detailed Assessment

Agricultural Land

Baseline

21.9.2.1 Agricultural farmland is the predominant land use along the length of the onshore cable corridor, landfall options and on the substation site (albeit that the consented Greenlink will locate its construction compound on the substation site). Agriculture along the route is largely arable in nature with some grazing and the land is constantly being disturbed through cultivation and / or reseeding. The changing appearance of the agricultural landscape and the activities associated with ploughing fields or planting and harvesting crops is therefore a common and integral characteristic of the agricultural landscape. The presence and activity of farm machinery is also a feature of the arable farmland and on the rural roads as shown on context photos in Volume 2 Figures 21.7a-e)

Sensitivity

21.9.2.2 The onshore cable corridor crosses the PCNPA, and the characteristics associated with agriculture in this area increase its value within this context. The value of the agricultural land is therefore considered to be medium. Grass vegetation of grazing land is easily replaced and due to the level of existing disruption as a result of crop cultivation, combined with the widespread occurrence of agricultural land as a landscape element, susceptibility is considered to be low. Taking this into account the sensitivity of agricultural land is considered to be medium - low.

Magnitude of Change

21.9.2.3 The level of change relating to onshore export cable trenching, construction of running tracks and compounds, and presence of soil bunds within the cable corridor would form a relatively small-scale, short-term and localised disturbance to the agricultural land.

21.9.2.4 After the onshore export cable has been laid, the trench would be backfilled and soil bunds, temporary construction areas and haul roads removed. The agricultural land would then return to its previous use. Re-instatement is therefore considered relatively straightforward with minimal disruption required to return the land to its previous uses and productivity. Construction compounds would require a larger land take and may be there for a longer period, although still only occupying a small proportion of the wider agricultural landscape. Taking this into account magnitude of change is considered to be medium – low.

Significance of Effect

21.9.2.5 Taking account of the medium-low sensitivity and medium-low magnitude of change the effect is considered to be **minor** and not significant. The effect is adverse, short term and reversible.

Hedgerows and Hedgerow Trees

Baseline

21.9.2.6 Hedgerows of varied height are a common feature in the rural landscape of the onshore cable corridor. Taller hedgerows are often found on road corridors with smaller, less managed hedgerows between fields; it is also apparent from fieldwork that most hedgerows appear long established and are growing on large hedgerow banks that contribute to the sense of enclosure within hedgerow lined roads. Some hedgerows appear more formally managed, others have a scrubbier form often with a fragmented appearance. Whilst the hedgerow's continuity and condition are sometimes varied it is noted that the hedgerows are generally considered to be of a high quality within the Study Area. (see context photos in Volume 2 Figures 21.7a-d)

21.9.2.7 Hedgerow trees are not a common feature in the landscape of the Study Area and where they do occur within close proximity to the onshore cable corridor, they tend to be isolated trees or groups of scrubby trees that have grown along less intensively managed hedgerows. Hedgerow trees are found in field boundaries south and west of Angle, and the coastal paths on the sections immediately to the south of Pembroke Power Station, have small trees and hedgerows as field boundaries.

Sensitivity

21.9.2.8 Hedgerows and hedgerow trees form an important component of the rural and historic landscape character, including the part of the Study Area within PCNP. Hedgerows and hedgerow trees are also important in relation to the need to reduce carbon emissions, increasing their value. Value is considered to be medium – high. The susceptibility of taller hedgerows and hedgerow trees in good condition is higher (medium), in comparison to other shrubby or gappy hedgerows (medium-low), as their loss would be more apparent and their reinstatement longer term. On balance the susceptibility of hedgerows and hedgerow trees within the Study Area is considered to be medium. Sensitivity is considered to be medium-high for hedgerows and hedgerow trees.

Magnitude of Change

21.9.2.9 Careful consideration of onshore cable corridor routeing has sought to reduce the amount of hedgerow removal along the onshore cable corridor and as such the onshore export cable construction avoids the removal of long sections of hedgerow. Hedgerow trees found within close context to the onshore cable corridor tend to be smaller scrubby trees rather than mature trees.

21.9.2.10 Disturbed sections of hedgerows would be easily replaced. Reinstatement of lost hedgerows would mitigate the physical effects by infilling gaps and completing the enclosure, taking 3-5 years for low hedgerows and 5-10 years for taller hedgerows and scrubby hedgerow trees. Taking this into account, magnitude of change is considered to be medium-low.

Significance of Effect

21.9.2.11 Taking account of the medium-high sensitivity and medium-low magnitude of change the effect is considered to be **moderate** and not significant. Whilst hedgerows and hedgerow trees are of medium-high sensitivity, the Proposed Development has been carefully designed so that the potential disturbance is minimised, following construction of the onshore export cable hedgerows and scrubby hedgerow trees are easily replaced. The effect is adverse, short term and reversible.

Coastal Landscape

Baseline

21.9.2.12 This landscape element is made up of several distinct elements that together create the coastal character found at the Proposed Development landfall options. The distinct elements within this coastal landscape includes the cliff, the rocky shoreline, the beach and the beach car park. (see context photos P and Q in Volume 2 Figure 21.6c).

Sensitivity

21.9.2.13 The coastal area is within the PCNP heightening its value, West Angle Bay is one of a series of beaches that punctuate the coastline of the Angle peninsula, which is otherwise rocky with long sections of rugged cliffs. Value is therefore considered to be medium-high. When considering either of the options at landfall, (open trench or HDD) reinstatement of the disrupted landscape can be achieved with relative ease. Susceptibility is therefore considered to be medium-low. Taking this into account the sensitivity of the coastal landscape is considered to be medium.

Magnitude of Change

21.9.2.14 Potential effects are limited to physical effects resulting from the onshore export cable construction activities. The beach and rocky shore line are intertidal and any disturbance would occur partly underwater. The landfall elements of the Proposed Development include the following options: 1 - HDD under the beach and car park into the field to the east of the beach car park; 2 – HDD to above the cliff south of West Angle Bay; or, 3 - to open trench across the beach area and car park; or . The disturbance is of a temporary nature and disturbed areas and open trenches would be returned to existing conditions with relative ease following the completion of the construction activity. Taking this into account the magnitude of change is considered to be medium-low.

Significance of Effect

21.9.2.15 Taking account of the medium sensitivity and medium-low magnitude of change the effect is considered to be **moderate-minor** and not significant. The effect is adverse, short term and reversible.

21.10 Landscape Character Assessment

21.10.1 Landscape Character Preliminary Assessment

21.10.1.1 Landscape character receptors within the Study Area (including LCAs and landscape designations) are assessed to identify which are likely to be influenced by the Proposed Development.

Onshore Cable Corridor and Landfall

21.10.1.2 The effects of the onshore cable corridor and landfall are considered to be too small in scale and temporary in nature to give rise to significant landscape / seascape character effects. No woodland removal would occur as a result of the onshore cable corridor and whilst some hedge and small, scrubby tree removal would occur during construction the effect is temporary and limited when considered within the overall characteristics of the area. At the landfall there would be temporary disruption to the beach area (if the open trench option is pursued), however, the key characteristics of the wider landscape in the area would remain intact with only a very localised level of disruption over a relatively short duration. It is considered therefore that whilst these effects have some association with the LCAs in which the onshore export cable and landfall construction activities would occur, landscape / seascape characteristics are only likely to experience a low scale of change and/ or effects over very limited geographic areas for a short duration with little or no permanent change to the key characteristics.

21.10.1.3 As a result, it is considered that the proposed onshore cable corridor and landfall would not become a prevailing or defining element/ characteristic within the context of their existing landscape / seascape character and that the temporary effects during construction would be localised with only limited influence on key characteristics. This includes potential effects within the higher sensitivity areas of designated Pembrokeshire Coast National Park which the western half of the cable corridor and landfall would be located and the South Pembrokeshire Heritage Coast within which the proposed landfall would be located.

21.10.1.4 The LANDMAP assessment in Volume 3 Technical Appendix 21.1 supports this and concludes no significant effects would occur to aspect areas as a result of the onshore cable corridor and landfall construction. Landscape / seascape character effects that may arise as a result of the onshore cable corridor and landfall are therefore not assessed further in the LVIA as there is no potential for significant effects.

Onshore Substation

21.10.1.5 Table 21.11 below identifies which landscape character receptors within the onshore substation Study Area have the potential to undergo significant effects and require to be assessed in detail. See Volume 2 Figure 21.3 Landscape Character and 21.4 Landscape Designations and also Figure 21.14 which overlays the ZTV.

Table 21.11 - Preliminary Assessment Landscape Character – Onshore Substation

Landscape Character Receptor	Comment
Status - Potential for significant effects and included in detailed assessment.	
cLCA 25 – Hundelton and Lamphey	The onshore substation would be located within this LCA.
SCA 32 – Inner Milford Haven	The onshore substation would be located within this SCA.

Landscape Character Receptor	Comment
Status - Considered further in preliminary assessment but found to have no potential for significant effects and not included in detailed assessment.	
cLCA 16 – Southern Haven Developed	No potential for significant effects. Whilst the onshore substation would be visible from this cLCA across the Pembroke River, potential character effects would largely be limited due to distance. This cLCA is also heavily influenced by the existing industrial context of Milford Haven.
cLCA 24 – Southern Haven Mudflats	No potential for significant effects. This cLCA is heavily influenced by the existing industrial context of Milford Haven. Potential effects of the onshore substation from this area would largely be limited due to distance. Where the cLCA is closer to the onshore substation the ZTV shows more limited visibility and intervening landscape elements further restrict actual visibility.
cLCA 23 - Southern Haven Industrial Fringe	No potential for significant effects. This cLCA is heavily influenced by the existing industrial context of Milford Haven. Whilst the ZTV shows some visibility within the area, actual visibility would be curtailed by either being within or behind the Pembroke Power Station in relation to the Proposed Development.
Orielton RHPG	No potential for significant effects. The ZTV shows theoretical visibility of the onshore substation within this designated landscape is of limited extent and actual visibility is further limited by distance and landscape elements such a s tall hedgerows, woods and field boundary / roadside trees in the neighbouring landscape that intervene and also within the RHPG which includes mature estate woodlands.
Pembrokshire Coast National Park (PCNP)	No potential for significant effects. The ZTV shows very little theoretical visibility of the onshore substation within the PCNP, which is limited to two very small patches at the eastern edges of the PCNP area found on the Angle Penninsula. One of these is immediately west of the Oil Terminal and the other is on the B4320 south of Wogaston. Views towards the site from these edges are away from the designated landscape and are also restricted by nearby landscape elements such as high roadside hedgerows or the Oil Terminal itself. For these reasons, it is considered that the onshore substation would have little effect on the character of the PCNP. designated area itself. See also Viewpoint 4 which is located at the edges of PCNP near Wogaston.

Landscape Character Receptor	Comment
Status - Limited or no level of influence to the defining characteristics, due to limited / distant or no visibility of the Proposed Development, such that there is no potential for significant effects.	
LCA 6 – Castlemartin / Merrion Ranges cLCA 10 – The Haven North	

21.10.2 Landscape Character Detailed Assessment – Onshore Substation (Construction and Operation)

cLCA 25 – Hundelton and Lamphey

Baseline

21.10.2.1 Key characteristics are described in PCCLCA as follows:

- *'Geology is dominated by a broad outcrop of Old Red Sandstone (Silurian – Devonian). Carboniferous limestone and several narrow belts of Ordovician and Silurian slates and sandstones are also present. Low escarpment ridges are evident to the east and north. River processes have resulted in deposition of late glacial or post glacial sediment.*
- *The majority of the area is rural with small local settlements and rural hamlets, with isolated farmsteads interspersed throughout the agricultural landscape. Most dwellings are stone and render finished with slate roofs of traditional style.*
- *The farmland landscape comprises small fields and minor roads. Field boundaries are hedged to the east, with stone walls more prevalent elsewhere with varying levels of management. Modern farm buildings are evident and generally form nucleated complexes alongside traditional buildings.*
- *The Milford Haven Waterway Landscape of Outstanding historic Interest encroaches into the north of the area. Key elements of the historic environment include prehistory, and Bronze Age, Medieval buildings, and many small settlements have Medieval origins. Farm buildings are largely from the 19th Century. Cosheston is characterised by a planned linear settlement whilst Lamphey is a small nucleation around a small listed landmark medieval parish church. Both have Conservation Areas. Registered parks and Gardens exist within the area, including Orielton with its parkland and gardens.*
- *Culturally this area is part of a wider area characterised by rich farmland, English speaking communities and residential and commercial expansion. Both the rail system and major road arteries of the A40 and A477 traverse the area and form part of the trans European Road Network which has contemporary importance.*

- *Landscape habitat is largely formed by improved grassland within a mosaic fieldscape with arable, buildings and woodland, including linear broadleaf and conifer plantation forming a very minimal part of the habitat. There is potential for this area to support some of the commoner bird and bat Local Biodiversity Action Plan species. Hedgerows are dominant through the area with post and wire fencing limited. '*

21.10.2.2 This is a relatively large character area and as such some of the key characteristics apply to areas at some distance from the site.

21.10.2.3 The PCCLCA also highlights in a section titled *'Key Qualities'* that *'Large electricity pylons crossing the area detract from views as do views of the industrial structures along the Haven, and more recently large scale turbines at the northern shoreline.'* It is considered that whilst this industrial context is not located within this LCA it is nevertheless a key characteristic of it, particularly within the area of this LCA (the western half) that is located within the Study Area. The Pembroke Power Station and Valero Oil Terminal are present in the vast majority of views in the surrounding area and are a defining feature that contrasts with the otherwise largely agricultural and coastal scene experienced in this LCA.

Sensitivity

21.10.2.4 The vast majority of the LCA within the onshore substation Study Area is undesignated apart from the Orielton RHPG to the south of Hundelton. The western edges of the LCA also forms the boundary to the PCNP. LANDMAP evaluation noted in Volume 3 Technical Appendix 21.1 that overlaps with this LCA is as follow:

- Geological Landscape: PMBRKGL231 Greenhill (power station) – Low; and PMBRKGL234 Hundleton – Moderate.
- Landscape Habitats: PMBRKLH608 N. of Castlemartin – Moderate.
- Visual and Sensory: PMBRKVS061 Castlemartin – Moderate.
- Historic Landscape: PMBRKHL43920 Rhoscrowther – High.

21.10.2.5 Taking this into account, value of the LCA is considered to be medium.

21.10.2.6 The onshore substation would be located in this LCA, however, it would only occupy a localised part of the much wider LCA. Although there are parts of the landscape that are characterised by historic landscape estates the wider landscape has been modified by agricultural practices and modern influences such as transport links and electrical infrastructure further moderates its susceptibility. Susceptibility to change is therefore considered to be medium-low.

21.10.2.7 The combination of value and susceptibility results in a sensitivity of medium.

Magnitude of Change

21.10.2.8 The onshore substation is located within this LCA and therefore directly alters the features and patterns that contribute to the landscape character within the onshore site boundary. The changes that would occur within the site would be the replacement of agricultural land with an industrial type use. All other effects on this LCA relate to the visibility of the onshore substation from the wider landscape. The ZTV shows that theoretical visibility within this LCA is contained between the Pembroke Power Station to the northwest of the site and Hundelton to the east, with a band of theoretical visibility stretching southwest to a high point on the B4320 near Wogaston. The landscape is undulating and together with the successive layers of tall field boundary hedgerows and occasional trees, actual visibility of the onshore substation is further limited.

21.10.2.9 As a result, it is considered that beyond a very localised area (of around 1km from the substation site), the Proposed Development would have very little influence on the key characteristics of the LCA. Changes to landscape characteristics within this localised area would introduce further electrical/ industrial infrastructure within this landscape, which has some degree of existing influence of this type. This would occur within the context of the man-made influence noted in the baseline as occurring within the wider landscape and views, which includes the existing Pembroke Power Station, overhead lines and towers (including on the site itself), an existing wind turbine and more distant industry within the coastal scene including the large scale Valero Oil Refinery which borders this LCA further to the west.

21.10.2.10 The onshore substation would be evident during both construction and operation and the onshore substation construction compound would increase its influence across the LCA during construction. Taking all of this into account, the magnitude of change on the landscape character of the LCA is considered to be medium during construction and in year 1 reducing to medium- low in year 15 once mitigation woodland has matured.

21.10.2.11 For reference, magnitude of change for LANDMAP aspect areas within this LCA assessed in detail in Volume 3 Technical Appendix 21.1 are as follows:

- Historic Landscape: PMBRKHL43920 Rhoscrowther: medium-low during construction and operation in year 1, reducing to low in year 15.

Significance of Effect

21.10.2.12 The effect for this character area resulting from the introduction of the onshore substation is considered to be **moderate** and not significant during construction and year 1. The effect would reduce to **moderate - minor** and not significant in year 15 once proposed mitigation planting has matured. Construction effects are adverse, short term and reversible. Operational effects are adverse long term and reversible.

Cumulative Effect

Consented Scenario

21.10.2.13 The consented Greenlink development would be located to the north of the substation site, on the other side of the minor road/ PRoW SP34 6/1. The Greenlink development including the converter building would in itself have a very similar effect on the key characteristics of this LCA. Based on the information available, it is predicted that the planting proposed for the Greenlink development would screen the lower parts of the converter building at 15 years' growth with the upper parts remaining visible.

21.10.2.14 It is considered therefore that built development of this scale would be an influential component of the possible future baseline character of the view. The Proposed Development would add further built development within the same part of the LCA intensifying the effect on key characteristics. However, it would do so within an already established built context with a similar form of development.

21.10.2.15 Taking these factors into account, the cumulative magnitude of change is considered to be medium-low during construction and year 1 reducing to low in year 15 once proposed planting matures.

21.10.2.16 This results in a cumulative effect of **moderate-minor** and not significant for construction and year 1, reducing to **minor** and not significant in year 15. Cumulative effects are adverse, long term and reversible.

Application Scenario

21.10.2.17 The Rhoscrowther Wind Farm is a 3 turbine scheme proposed at the northwest edges of this character type cLCA25, in the area immediately to the south of the Oil Refinery. The addition of this application site to the cumulative context would slightly increase the influence of tall structures within this LCT which is already influenced by the stacks of the Oil Refinery and Power Station along with associated overhead line towers. Given the distance from the Proposed Development and the differing development type, the cumulative interaction between these turbines and the Proposed Development is considered to be minimal.

21.10.2.18 When considering the introduction of the Proposed Development to this scenario, the level of change is therefore considered to be broadly similar to the assessment against the consented scenario. The cumulative magnitude of change therefore remains medium-low during construction and year 1 reducing to low in year 15 once proposed planting matures.

21.10.2.19 This results in a cumulative effect of **moderate-minor** and not significant for construction and year 1, reducing to **minor** and not significant in year 15. Cumulative effects are adverse, long term and reversible.

SCA 32 – Inner Milford Haven

Baseline

21.10.2.20 SCA 32 (Figure 21.3) covers a large area of coastal landscape, the Milford Haven channel and the Pembroke River. SCA32 overlaps with Marine Character Area (MCA) 21 – Milford Haven within the Study Area and overlaps with all of the LCAs and cLCAs within the Study Area except for LCA 6 Castlemartin / Merrion Ridges. Key Characteristics for SCA 32 are described in the PCNP Seascape Character Assessment as follows:

- *'A large sheltered natural harbour of a ria with mudflats and sandy inlets, creeks and bays;*
- *Busy commercial shipping channel with tanker terminals, ferry terminal and marinas;*
- *Visually dominant refineries with gas/oil storage and power station;*
- *Gently sloping enclosing hills with pastoral landcover with arable;*
- *Historically rich area associated with the sea with the main urban settlements of Milford Haven and Pembroke Dock and historic small villages;*
- *Deciduous woodland on some sea edges, along creeks and minor valleys; and*
- *Long views down the main channel and framed views from inlets and bays.'*

Sensitivity

21.10.2.21 The area of SCA 32 within the onshore substation Study Area is undesignated. LANDMAP evaluation noted in Volume 3 Technical Appendix 21.1 that overlaps with this LCA is a follow:

- Geological Landscape: PMBRKGL231 Greenhill (power station) - Low; and PMBRKGL234 Hundleton - Moderate.
- Landscape Habitats: PMBRKLH608 N. of Castlemartin - Moderate.

- Visual and Sensory: PMBRKVS061 Castlemartin - Moderate; PMBRKVS067 Pembroke Dock - Moderate; PMBRKVS068 Hill Mountain - Moderate; PMBRKVS090 Industry/Milford Haven - Low; PMBRKVS091 Wooded Valley - High; and PMBRKVS098 Estuarine Mud - High.
- Historic Landscape: PMBRKHL43920 Rhoscrowther - High; PMBRKHL43875 Pembroke Dock - High; PMBRKHL43879 Gulf Oil Refinery - Moderate; PMBRKHL43882 Pembroke Power Station - Low; PMBRKHL43914 Carew Milton and Nash - Outstanding; and PMBRKHL43916 Texaco Oil Refinery - Moderate.

21.10.2.22 Taking this into account, value of the SCA is considered to be medium.

21.10.2.23 The onshore substation would be located in this SCA, however, it would only occupy a localised part of the much wider SCA which does not have an immediate relationship with the sea or nearby Milford Haven channel. Susceptibility to change is considered to be low.

21.10.2.24 The combination of value and susceptibility results in a sensitivity of medium-low.

Magnitude of Change

21.10.2.25 The ZTV of the Proposed Development also shows very little visibility within the sea, the closest area being within the Milford Haven channel. Much of the theoretical visibility within SCA32 is across the industrial landscape context of the Valero Oil Refinery and Pembroke Power Station to the northwest of the Proposed Development. The theoretical visibility within the Pembroke River estuary is limited at close range but opens out across the river and northern banks near Pennar.

21.10.2.26 On page 8 of the NRW, Wales National Seascape Assessment for MCA21 – Milford Haven, the figure titled Land with Views of: MCA21: Milford Haven illustrates the degree of visibility of the sea from the coastal landscape - Land with sea views (percentile). This figure shows that the site area and its immediate context has little or no views of the sea (based on bare ground visibility). The intervisibility with the sea from the land or vice-versa is an important aspect of seascape character and it is therefore important to note that the intervisibility between the sea and the landscape of the site and immediate context is of a low order.

21.10.2.27 Where visibility does occur therefore within SCA32, the Proposed Development would only have a minimal influence on seascape characteristics as they are not immediately or contextually evident for the Proposed Development site and surrounding landscape.

21.10.2.28 Taking this into account, the magnitude of change to seascape character as a result of the onshore substation is considered to be low during construction and in year 1 reducing to negligible in year 15 once mitigation woodland has matured.

21.10.2.29 For reference, magnitude of change for LANDMAP aspect areas within this LCA assessed in detail in Volume 3 Technical Appendix 21.1 are as follows:

- Historic Landscape: PMBRKHL43920 Rhoscrowther: medium-low during construction and operation in year 1, reducing to low in year 15; and
- Historic Landscape: PMBRKHL43875 Pembroke Dock: Negligible during construction and operation (year 1 and year 15).

Significance of Effect

21.10.2.30 The effect for this character area resulting from the introduction of the onshore substation is considered to be **minor** and not significant during construction, in year 1 and in year 15. Construction effects are adverse, short term and reversible. Operational effects are adverse long term and reversible.

Cumulative Effect

Consented Scenario

21.10.2.31 The consented Greenlink development will be located to the north of the substation site and as such will have slightly more influence on the seascape element of the SCA as described in the baseline. It is considered that built development of this scale will have a similar minimal influence on key characteristics as the Proposed Development would have. The Proposed Development would add further built development within the same part of the SCA within an already established built context with a similar form of development.

21.10.2.32 Taking these factors into account, the cumulative magnitude of change is considered to be low during construction and year 1 reducing to negligible in year 15 once proposed planting matures.

21.10.2.33 This results in a cumulative effect of **minor** and not significant during construction, in year 1 and in year 15. Construction effects are adverse, short term and reversible. Operational effects are adverse long term and reversible.

Application Scenario

21.10.2.34 The Rhoscrowther Wind Farm is a 3 turbine scheme proposed immediately south of this SCA in the area immediately to the south of the Oil Refinery. The addition of this application site to the cumulative context would slightly increase the influence that tall structures would have on the SCA particularly from within the Milford Haven Chanel itself. It would do so however within the existing context of the stacks of the Oil Refinery and Power Station along with associated overhead line towers and other turbines found along the fringes of this SCA further to the north. Given the distance from the Proposed Development and the differing development type, the cumulative interaction between these turbines and the Proposed Development is considered to be minimal.

21.10.2.35 When considering the introduction of the Proposed Development to this scenario, the level of change is therefore considered to be broadly similar to the assessment against the consented scenario. The cumulative magnitude of change therefore remains low during construction and year 1 reducing to negligible in year 15 once proposed planting matures.

21.10.2.36 This results in a cumulative effect of **minor** and not significant during construction, in year 1 and in year 15. Construction effects are adverse, short term and reversible. Operational effects are adverse long term and reversible.

21.11 Assessment of Visual Effects

21.11.1 Visual Effects Preliminary Assessment

21.11.1.1 Principal visual receptors and viewpoints within the LVIA Study Area are assessed to identify which are likely to be influenced by the Proposed Development.

Preliminary Assessment Visual Effects - Onshore Cable Corridor and Landfall

21.11.1.2 As described in section 21.7.2 Potential Effects, the effects of the onshore cable corridor and landfall would relate principally to the construction phase as a result of their underground nature. The preliminary assessment for the onshore cable corridor and landfall therefore only identifies those receptors that have the potential to undergo significant effects during construction. Table 21.12 below lists these visual receptors and identifies which are required to be assessed in detail.

Table 21.12 - Preliminary Assessment Visual Effects – Onshore Cable Corridor and Landfall (Construction)

Visual Receptor	Comment
Status - Potential for significant effects and included in detailed assessment.	
West Angle Bay Beach and Car Park	Potential for significant effects in views at close proximity of the construction activities associated with the landfall. Assessed in detail at viewpoint 8.
Goldborough Road	Potential for significant effects in views at relatively close range to the onshore cable corridor in the vicinity of the onshore substation site area. Assessed in detail at viewpoints 1 and 3.
PRoW SP34 6/1 (minor road to Lambeeth Farm)	Potential for significant effects in views at relatively close range to the onshore cable corridor in the vicinity of the onshore substation site area. Assessed in detail at viewpoints 1 and 2.
Individual property at The Burrows	These properties are within close proximity of the onshore cable corridor and are considered to have the potential for significant effects. Assessed in detail at viewpoint 6.
Minor access road to North and South Studdock, near the B4320	The onshore cable corridor crosses this minor access road and potential for significant effects is assessed in detail at viewpoint 7.
Properties within 100m of the onshore cable corridor including - Lambeeth Farm, Wallaston Green, Neath Farm and Beach House.	These properties are within close proximity of the onshore cable corridor and combined with their high sensitivity are considered to have the potential to experience significant effects. Included in the detailed assessment in relation to views of the onshore cable corridor construction activities.
Angle settlement	This settlement is in relatively close proximity to a section of the onshore cable corridor. Included in the detailed assessment in relation to views of the onshore cable corridor construction activities.
Status - Considered further in preliminary assessment but found to have no potential for significant effects and not included in detailed assessment.	
B4320	The B4320 is a key route through the Study Area and whilst there are occasional views of the wider landscape from this route through gaps in the roadside hedgerows, these views are infrequent and do not always include a view of the onshore cable corridor. Viewpoint 6 is one of the few locations where a clear view of the construction activity would be experienced. Taking this into account it is considered that the level of potential change does not have the potential to result in a significant sequential effect on this route. However, effects on road users at

Visual Receptor	Comment
	viewpoint 6 as a result of the onshore cable corridor are assessed in detail.
B4319	No potential for significant sequential effects, however, effects on road users at viewpoint as a result of the onshore cable corridor are assessed in detail.
Pembrokeshire Coastal Path and Wales Coast Path (running concurrently through the Study Area)	Views towards the onshore cable corridor from the coastal path are extremely limited due to intervening landform and vegetation. Viewpoint 8 is located on this route at Angle Bay, which is one of the few locations on the coastal path where clear views of the construction activity would be experienced. Taking this into account it is considered that the level of potential change does not have the potential to result in a significant sequential effect on this route. However, effects on the section of coastal path at Angle Bay as a result of the onshore cable corridor and landfall are assessed in detail at viewpoint 8.
Status - Limited level of influence, due to limited / restricted or distant visibility, such that there is no potential for significant effects.	
Other PRoWs in the Study Area	Limited and temporary level of influence on the other PRoWs in the onshore cable corridor Study Area. No potential for significant effects. However, effects as a result of the onshore export cable and landfall on the section of PRoW SP 2/1 (which corresponds with Pembrokeshire Coastal Path and Wales Coast Path) are assessed in detail at viewpoint 8.
Settlements of Pembroke Dock, Hundelton and Angle	No visibility of the onshore substation. Not included in the detailed assessment.

Preliminary Assessment Visual Effects – Onshore Substation

21.11.1.3 Operational and construction effects for the onshore substation are assessed and reported together to avoid repetition of detailed baseline and sensitivity assessments. As such the following preliminary assessment also considers these together. Table 21.13 identifies those onshore substation receptors that have the potential to undergo significant effects and require to be assessed in detail.

Table 21.13 - Preliminary Assessment Visual Effects – Onshore Substation (Operational and Construction)

Visual Receptor	Comment
Status - Potential for significant effects and included in detailed assessment.	
Road users on Goldborough Road	Potential for significant effects in views at relatively close range to the onshore substation. Assessed in detail at viewpoints 1 and 3.
PRoW SP34 6/1 (minor road to Lambeeth Farm)	Potential for significant effects in views at close range to the onshore substation. Assessed in detail at viewpoints 1 and 2.
Individual properties at Moreston, Moreston Cottages and Goldborough.	These properties are within close proximity of the onshore substation and are considered to have the potential for significant effects. Assessed in detail at viewpoint 3.
Pennar Settlement	Potential for significant effects in distant views of the Proposed Development. Assessed in detail at viewpoint 5.
Individual properties at Lambeeth Farm	These properties are within close proximity of the onshore substation and are considered to have the potential for significant effects. Assessed in detail at viewpoint 2.
Status - Considered further in preliminary assessment but found to have no potential for significant effects and not included in detailed assessment.	
B4320	The B4320 is a key route through the Study Area and whilst there are occasional views of the landscape from this route through gaps in the roadside hedgerows, these views are infrequent and available views of the onshore substation are restricted to the high point near Wogaston Farm. Taking this into account it is considered that the level of potential change does not have the potential to result in a significant sequential effect on this route. However, effects on road users as a result of the onshore substation are assessed in detail at viewpoint 6.
Pembrokeshire Coastal Path and Wales Coast Path (running concurrently through the Study Area)	Whilst there is potential for views of the onshore substation from the minor road to Lambeeth Farm, views towards the Proposed Development from the coastal path are extremely limited due to the high hedgerows and intervening landform. As a result, it

Visual Receptor	Comment
	is considered that there is no potential for significant effects on this route as a result of the Proposed Development. See also viewpoint 2 which is located on the minor road to Lambeeth Farm to the west of the coastal path.
Hundelton Settlement	Whilst there is some theoretical visibility of the onshore substation from this settlement, it is of limited extent and actual visibility is restricted by the successive layers of field boundary hedgerows, which intervene in views towards the onshore substation. No potential for significant effects.
Status - Limited level of influence, due to limited / restricted or distant visibility, such that there is no potential for significant effects.	
Other ProWs in the Study Area	Very limited, no or distant visibility of the onshore substation and no potential for significant effects.
Settlements of Pembroke Dock and Angle	No visibility of the onshore substation. Not included in the detailed assessment.

Summary of Preliminary Visual Assessment

21.11.1.4 The preliminary assessment has identified the visual receptors that require to be assessed in full as a result of the potential effects of the Proposed Development, these are listed as follows:

- **Viewpoint 1: Goldborough Road, east of Wallaston Cross** - Onshore export cable effects (construction) and onshore substation (construction and operational)
- **Viewpoint 2: Wales Coast Path, Lambeeth Farm** - Onshore export cable effects (construction) and onshore substation (construction and operational)
- **Viewpoint 3: Goldborough Road, near Moreston** - Onshore export cable effects (construction) and onshore substation (construction and operational)
- **Viewpoint 4: B4320, near Wogaston** - Onshore export cable effects (construction) and onshore substation (construction and operational)
- **Viewpoint 5: Pennar** - Onshore export cable effects (construction) and onshore substation (construction and operational)
- **Viewpoint 6: B4319, near Junction with B4320** - Onshore export cable effects (construction)
- **Viewpoint 7: Minor Road, North Studdock** - Onshore export cable effects (construction)
- **Viewpoint 8: West Angle Bay** - Onshore export cable and landfall effects (construction)
- **PRoW SP34 6/1 (minor road to Lambeeth Farm):** assessed at viewpoints 1 and 2 - Onshore export cable effects (construction) and onshore substation (construction and operational)

- **Individual property at The Burrows:** assessed at viewpoint 6 - Onshore export cable effects (construction)
- **Individual properties at Moreston, Moreston Cottages and Goldborough:** assessed at viewpoint 3 - Onshore export cable effects (construction) and onshore substation (construction and operational)
- **Individual properties at Lambeeth Farm:** assessed at viewpoint 2 - Onshore export cable effects (construction) and onshore substation (construction and operational).
- **Individual Properties at Wallaston Green, Neath Farm and Beach House** - Onshore export cable effects (construction)
- **Angle settlement** - Onshore export cable effects (construction)

21.11.2 Visual Effects Detailed Assessment

Viewpoint 1: Goldborough Road, east of Wallaston Cross

Baseline

21.11.2.1 This viewpoint is located on Goldborough Road at the junction with the minor road and PRoW SP34 6/1 to Lambeeth Farm. Goldborough Road runs between Wallaston Cross to the west and Hundelton to the east, also providing connection to the properties and farms in this area. The road is narrow and, on the section where the viewpoint is located, has an open aspect with only grass verges defining the road edge and the large, cultivated fields of either side of the road dominating the baseline character of view in all directions.

21.11.2.2 The view east towards the site is across these fields, which to the east are gently falling to the south across Goldborough Road. A prominent feature of the view in this direction is the large number of electricity transmission lines which are both pole and pylon mounted. Some are seen at relatively close proximity and on the skyline with others part of the more distant view. In addition, a single wind turbine is visible in the middle ground with turbines visible in the distance. The woodland that follows the valley of the watercourse that flows into Goldborough Pill lies at the lower reaches of these sloping fields. Beyond these immediate fields the landscape falls away to the east and the undulating agricultural character of the landscape with its high hedgerows and wooded valleys is very apparent from this slightly elevated position. The roofs of settlement at Hundelton can be seen to the southeast in the distance within its well wooded setting and a thin strip of the Pennar settlement can be seen to the east creating a distant horizon, immediately behind the site area.

Sensitivity

21.11.2.3 This viewpoint is not located within or close to any national, regional or local scenic designations or recognised scenic views, although it is likely to have some local value. Value is considered to be medium-low. This is a minor road and PRoW that, whilst providing a connection between Wallaston Cross and Hundelton and nearby properties, is narrow, winding with some steep and bumpy sections and grass in the centre of the road indicating its infrequent use. Taking this into account, susceptibility is considered to be medium.

21.11.2.4 The combination of value and susceptibility results in a sensitivity of medium.

Magnitude of Change

Onshore substation (construction and operational)

21.11.2.5 As can be seen in the visualisations for this viewpoint in Volume 2 Figure 21.18, the onshore substation would appear beyond the localised topography beside the overhead lines and a single turbine at relatively close proximity. The lower parts of the onshore substation would be largely screened by intervening landform so that only the upper parts of the GIS onshore substation building would be seen in this view. The GIS onshore substation building would have the appearance of a large agricultural building and would therefore integrate with the existing rural aspects of the existing view. It would not breach the distant skyline and would therefore be back-clothed by the settled valley beyond. The planting mitigation would only be partially visible from this viewpoint and would not alter the magnitude of change.

21.11.2.6 Operational lighting at the onshore substation would be mostly screened from view from this location.

21.11.2.7 Whilst taller elements of the construction activities associated with the building of the onshore substation would be visible, much of the ground based construction activity would not be visible due to the intervening topography. Construction lighting would only be partially visible in winter months when working days would extend into hours of darkness.

21.11.2.8 Taking these factors into account, the magnitude of change is considered to be medium-low during construction and in year 1 when construction activities are complete. As the planting mitigation is not readily apparent at this location after 15 years of growth, magnitude of change would remain medium-low in year 15.

Cable Route effects (construction)

21.11.2.9 Whilst construction compounds are also relatively close to the east and west of this location, they would not be visible due to intervening topography and hedgerows. This viewpoint is located adjacent to the onshore cable corridor and construction activity would therefore be very apparent for the short section immediately west and east of this location. The visual effect is of a short duration albeit that it would be experienced at different points along the road between Wallaston Cross and Lambeeth Farm during the programme of construction works, which would also include the construction of the onshore substation. Taking this into account the magnitude of change is considered to be medium.

Significance of Effect

21.11.2.10 The effect at this viewpoint resulting from the introduction of the onshore substation is considered to be **moderate-minor** and not significant during construction and in year 1 once construction activities are complete. The effect would remain **moderate-minor** and not significant in year 15. The onshore export cable construction effects at this viewpoint are considered to be **moderate** and significant due to the close proximity of the viewpoint to the construction compound. Construction effects are adverse, short term and reversible. Operational effects are adverse long term and reversible.

Cumulative Effect

Consented and Application Scenario

21.11.2.11 Neither the consented Greenlink development or the turbine application at Rhoscrowther would be visible from this location due to the screening effect of localised landform and intervening hedgerow. As a result, there is no cumulative change or cumulative effect.

Viewpoint 2: Wales Coast Path, Lambeeth Farm

Baseline

21.11.2.12 This viewpoint is located on the minor road and PRoW SP34 6/1 close to Lambeeth Farm. The road has a rough surface, is very narrow and has high hedgerows on either side. The viewpoint is not located on the route of the Wales Coast Path / Pembrokeshire Coastal Path but is considered to be a proxy viewpoint that represents the interests of walkers on the route as they pass through Lambeeth Farm. The view towards the site from the coastal paths is obscured by high hedgerows and trees for this section of the route. Other than access to and from the properties, the residents at Lambeeth Farm do not share the same view towards the site as the viewpoint location as the properties are set further down the slope and are behind high hedgerows.

21.11.2.13 The outlook from the viewpoint location is contained by the high hedgerows found along this minor road. The view towards the site is through a gap in the hedgerow and along the hedge lined minor road. The field seen through the hedgerow gap is foreshortened due to the rising topography to the west and the view is restricted to only a small part of the field as a result. The pylon-mounted, overhead electricity line passes to the west, is close to this viewpoint and the overhead line towers appear large in scale as a result. The single two bladed turbine that is located on the eastern boundary of the substation site can also be seen in the wider view.

Sensitivity

21.11.2.14 This viewpoint is not located within or close to any national, regional or local scenic designations or recognised scenic views, however, it is located on the PRoW SP34 6/1 and is close to the coastal paths increasing the local value of the location. Taking this into account, value is considered to be medium-high.

21.11.2.15 This is a very minor road with infrequent use other than to the properties at Lambeeth Farm or the occasional walker from the coastal path network to the east. Susceptibility is slightly increased therefore due to the higher susceptibility of these receptors which would most often pass this viewpoint. The site is partially obscured from the viewpoint by the intervening landscape, however, other parts of the road to the west would also have close proximity views of the proposed development that are more open in outlook. Taking this into account, susceptibility is considered to be medium.

21.11.2.16 The combination of value and susceptibility results in a sensitivity of medium-high.

Magnitude of Change

Onshore substation (construction and operational)

21.11.2.17 As can be seen in the visualisation for this viewpoint in Volume 2 Figure 21.19, the onshore substation would appear beyond the localised topography, overhead lines and single turbine at relatively close proximity. This would increase the developed nature of this view. Whilst the construction activities associated with the building of the onshore substation would be visible, much of the ground based construction activity would not be visible due to the intervening topography. Construction lighting would only be partially visible in winter months when working days would extend into hours of darkness.

21.11.2.18 Taking these factors into account, the magnitude of change is considered to be medium during construction and in year 1, reducing to medium-low in year 15 when mitigation woodland matures. Proposed planting does not screen the view of the GIS building shown in the visualisation due to the area of onshore cable route that cannot be planted with trees, it does however illustrate that the proposed planting would provide screening of other parts of the onshore substation and would therefore provide integration with the wider landscape.

Cable Route effects (construction)

21.11.2.19 The visible construction activity would be limited to the minor road crossing and the removal of a section of hedgerow to the west of the viewpoint which would be partly visible from this location. All other parts of the onshore export cable construction would likely not be visible from this location due to screening from hedgerows and localised topography. Taking this into account, the magnitude of change during construction is considered to be low.

Significance of Effect

21.11.2.20 The effect at this viewpoint resulting from the introduction of the onshore substation is considered to be **moderate** and significant during construction and in year 1 reducing to **moderate** and not significant in year 15 once planting mitigation matures. The onshore export cable construction effects at this viewpoint are considered to be **moderate-minor** and not significant. Construction effects are adverse, short term and reversible. Operational effects are adverse, long term and reversible.

Cumulative Effect

Consented Scenario

21.11.2.21 The consented Greenlink development would be located to the north of the substation site, on the other side of the minor road/ PRoW SP34 6/1. The Greenlink development including the converter building would be visible above the hedgerows that line the northern side of the minor road and in this regard, the onshore substation would be seen together with the Greenlink converter in the view west along this road. Based on the information available, it is predicted that the planting proposed for the Greenlink development would screen the lower parts of converter building at 15 years' growth. The upper parts of the Greenlink converter station are however likely to remain visible from this location, such that built development of this scale would be an influential component of the possible future baseline character of the view. The Proposed Development would add further built development within the same context of the view west along this road to the south of an already developed skyline, adding to the developed nature of the view on the opposite side of the road with a similar form of development.

21.11.2.22 Taking these factors into account, the cumulative magnitude of change is considered to be medium-low during construction and year 1 reducing to low in year 15.

21.11.2.23 This results in a cumulative effect of **moderate** and not significant for construction and year 1, reducing to **moderate-minor** and not significant in year 15. Cumulative effects are adverse, long term and reversible.

Application Scenario

21.11.2.24 The turbine application at Rhoscrowther would not be visible from this location due to the screening effect of localised landform and intervening hedgerow. As a result, there is no cumulative change or cumulative effect.

Viewpoint 3: Goldborough Road, near Moreston

Baseline

21.11.2.25 From the viewpoint location on Goldborough Road there is a clear view towards the onshore substation site. The viewpoint represents road users on this minor road but is also representative of nearby properties at Moreston, Moreston Cottage and Goldborough. It should be noted that these properties are either slightly lower elevated or are set further back from the road to the south and therefore the viewpoint location should be regarded as a worst case view.

21.11.2.26 The view towards the site is across the riparian trees of the stream that runs into Goldborough Pill and the agricultural fields found to the north and south of this stream (including the site). Beyond these fields, the skyline includes a mix of development including the large scale industrial developments at Pembroke Power Station, Valero Oil Refinery, Waterston Oil Refinery and Robeston Oil Refinery in the distance beyond the settlement of Milford Haven. There are also several wind turbines in the view including the single turbine on the site and the wind farms on Milford Haven at Wear Point, Castle Pill and Lodge Farm. The electricity overhead lines cross the horizon and overhead line towers appear large in scale on the skyline.

Sensitivity

21.11.2.27 This viewpoint is not located within or close to any national, regional or local scenic designations or recognised scenic views, value is considered to be medium-low. The view towards the site is at an oblique angle to the road. This is a minor road that whilst providing a connection between Wallaston Cross and Hundelton and nearby properties, is narrow, winding with some steep and bumpy sections and grass in the centre of the road indicating its infrequent use. Susceptibility is considered to be low for road users. Susceptibility is increased for residential properties as they have a greater appreciation of the surrounding landscape in views that include towards the site. Susceptibility for residential receptors is considered to be medium-high as it is moderated due to the industrial context of the existing view in this direction.

21.11.2.28 The combination of value and susceptibility results in a sensitivity of medium-low for road users and medium-high for residential.

Magnitude of Change

Onshore substation (construction and operational)

21.11.2.29 As can be seen in the visualisations for this viewpoint in Volume 2 Figure 21.20, the onshore substation would appear in the middle distance beyond the riparian trees of the stream that runs into Goldborough Pill next to the single turbine and overhead line towers found on the site. The onshore substation would introduce further development to a skyline that includes the existing industrial development as described in the baseline. The onshore substation would appear smaller in height than the large overhead transmission line towers and single turbine found on the site. However, the onshore substation is closer to the viewpoint and would have a larger form and appear higher than the various stacks and chimneys of the nearby Pembroke Power Station and Valero Oil Refinery seen partially above the skyline. It would introduce industrial type development further south within this landscape; however, it would be seen within a part of the view that has existing development characteristics. Operational lighting at the onshore substation would be visible from this location following completion of construction activities and this as well as other lower lying parts of the onshore substation would be mostly screened from view once planting matures at year 15.

21.11.2.30 The construction activities associated with the building of the onshore substation would be visible from this location, including much of the ground based construction activity, vehicle movements and construction lighting. From this location, the construction activities would combine to appear relatively prominent and would tend to catch the eye of road users, even at an oblique angle of view. Construction lighting would only be visible in winter months when working days would extend into hours of darkness.

21.11.2.31 Taking these factors into account, the magnitude of change as a result of the onshore substation is considered to be medium-high during construction reducing to medium in year 1 once construction activity is completed. Once mitigation woodland planting around the onshore substation establishes at year 15 the magnitude of change would further reduce to medium-low.

Cable Route effects (construction)

21.11.2.32 The construction activities associated with the onshore export cable route would be seen in conjunction with the construction activities associated with the onshore substation. The onshore export cable construction would be visible as far as Lambeeth Farm to the east and Wallaston Cross to the west of the onshore substation. All other parts of the onshore export cable construction would not be visible from this location due to screening from hedgerows and localised topography. The magnitude of change as a result of the onshore export cable construction is considered to **be medium-low.**

Significance of Effect

21.11.2.33 For road users, the effect at this viewpoint resulting from the introduction of the onshore substation is considered to be **moderate** and significant during construction. Whilst only at a moderate level, the construction effect is significant due to the activities appearing to catch the eye, even at an oblique angle of view. The effect would reduce to **moderate-minor** and not significant in year 1 once construction activity is completed further reducing to **minor** and not significant in year 15 once proposed planting matures. The construction effect of the onshore export cable for road users is considered to be **minor** and not significant.

21.11.2.34 For residential receptors, the effect at this viewpoint resulting from the introduction of the substation is considered to be **moderate-major** and significant during construction. The effect would reduce to **moderate** but would remain significant in year 1 once construction activity is completed. In year 15 once proposed planting establishes, the effect is considered to be **moderate** and given the reduction in magnitude, is not significant. The construction effect of the onshore export cable for residential receptors is considered to be **moderate** and not significant.

21.11.2.35 Construction effects are adverse, short term and reversible. Operational effects are adverse long term and reversible.

Cumulative Effect

Consented Scenario

21.11.2.36 The consented Greenlink Converter Station will sit immediately to the north of the onshore substation site with the same developed and industrial backdrop to the view as the onshore substation would have. The Converter Station is a large building and in itself would alter the baseline view by introducing closer development to the view. Based on the information available, it is predicted that the planting proposed for the Greenlink development would screen the lower parts of the Converter building at 15 years' growth. The upper parts of the Greenlink Converter building are however likely to remain visible from this location, such that it would be a substantially influential component of the baseline character of the view.

21.11.2.37 Should the onshore substation be added to this situation an intensification of similar development would occur as a result of these developments being located within the same part of the view. The Greenlink Converter building would appear larger in scale than the onshore substation despite being located further away. However, as a result of the introduction of the consented Greenlink development, the onshore substation would not be introducing large scale industrial development to this part of the view but would be adding a similar type of development to it, which would appear immediately in front of it and at a comparative, although taller scale. As such the onshore substation would not be viewed as entirely uncharacteristic in the view and the cumulative magnitude of change is moderated on that basis.

21.11.2.38 Taking these factors into account, the cumulative magnitude of change is considered to be medium during construction reducing to medium-low in year 1 once construction activity is completed. Once the planting matures for both Greenlink and the onshore substation the cumulative magnitude of change would further reduce to low.

21.11.2.39 This results in a cumulative effect for road users of **moderate-minor** and not significant for construction and **minor** and not significant at year 1 and year 15 and for residential receptors **moderate** and significant for construction, **moderate** and not significant at year 1 and **moderate-minor** and not significant at year 15. Cumulative effects are adverse, long term and reversible.

Application Scenario

21.11.2.40 The Rhoscrowther Wind Farm is a 3 turbine scheme proposed in the area immediately to the south of the Oil Refinery. In this view the turbines would be seen on the western horizon alongside the Oil Refinery stacks. They would add to the existing context of other tall structures (including other wind turbines) and industry seen in this view west all of which appear beyond the undulated horizon and in the distant view. The turbines are closer in proximity and larger in scale than other turbines and so would appear to bring taller development slightly closer to this viewpoint than previously experienced.

21.11.2.41 Taking all of this into account, the cumulative interaction between these turbines and the Proposed Development is considered to be minimal, particularly in relation to the differing development type and the distance from the Proposed Development. When considering the introduction of the Proposed Development to this scenario, the level of change is therefore considered to be broadly similar to the assessment against the consented scenario. The cumulative magnitude of change is therefore considered to be medium during construction reducing to medium-low in year 1 once construction activity is completed and further reducing to low in year 15, once mitigation planting matures.

21.11.2.42 This results in a cumulative effect for road users of **moderate-minor** and not significant for construction and **minor** and not significant at year 1 and year 15 and for residential receptors **moderate** and significant for construction, **moderate** and not significant at year 1 and **moderate-minor** and not significant at year 15. Cumulative effects are adverse, long term and reversible.

Viewpoint 4: B4320, near Wogaston

Baseline

21.11.2.43 This viewpoint is located on the B4320 at the junction with the access road to Wogaston, at the edge of the Pembrokeshire Coast National Park, close to the covered reservoir and PRoW SP37/6 that connects Wogaston and Hoplass.

21.11.2.44 The B4320 is a relatively narrow road and along this section has tall hedgerows that restrict open views of the surrounding landscape. The reservoir, and viewpoint location, are on a high point of the road where longer views can be found both to the east towards Pembroke and to the west across the PCNP and the Angle peninsula. To the north the view is dominated by the large industrial structures of Pembroke Power Station and Valero Oil Refinery. Between these structures the narrow strip of land to the north of the Milford Haven Channel can be seen along with the settlement of Milford Haven and the other industry located at the settlement edges and along the channel itself. Whilst the Milford Haven Channel is not visible the turbines at Wear Point are clearly visible above the ridgeline created by the Green Hill Reservoir to the northeast of this viewpoint.

21.11.2.45 The Wogaston and Hoplass solar farms are close to this viewpoint but not evident in the view due to the intervening sloping topography of the neighbouring field. The view to the northeast and towards the site is across this large field with the roofs of Wallaston Green and the large farm buildings at Wallaston Farm sitting immediately in front of the site. Beyond this are the more distant fields and settlement edge of Pennar which creates an intermediate horizon with the landscape north of the Milford Haven channel seen further into the distance beyond.

Sensitivity

21.11.2.46 This viewpoint is located at the edges of the Pembrokeshire Coast National Park. The view northeast towards the site is away from the designated landscape and therefore does not share the same heightened value as other views that are entirely within the designation. On balance, value is considered to be medium.

21.11.2.47 The B4320 is a key route across this area and entrance point to the Angle peninsula and its area of National Park landscape. It is a relatively busy road that has few open views of the surrounding landscape due to tall hedgerows. Whilst the viewpoint location represents an exception to this limited visibility, road users only experience this view for a very short duration, reducing susceptibility however, users of the PRoW have a higher susceptibility. Taking this into account, susceptibility is considered to be medium-high.

21.11.2.48 The combination of value and susceptibility results in a sensitivity of medium-high.

Magnitude of Change

Onshore substation (construction and operational)

21.11.2.49 As can be seen in the visualisations for this viewpoint Volume 2 Figure 21.21, the onshore substation would appear in the distance beyond Wallaston Farm.

21.11.2.50 The large farm building and woodland in this distant view would obscure part of the onshore substation whilst the existing pylons already introduce electrical infrastructure to the part of the view affected. the lower parts of the onshore substation would be screened and obscured by existing features. This includes the lower parts of the GIS Building which would be screened by the intervening Wallaston farm building. The two overhead line towers that sit immediately behind Wallaston Farm provide a well-defined scale indicator at the same distance as the onshore substation. The visible parts of the onshore substation are much smaller in height compared with the existing overhead line towers and would appear to be of a similar scale to the farm buildings and other properties that intervene, as a result of perspective and distance between Wallaston and the site.

21.11.2.51 The planting mitigation would reinforce the woodland character found within this part of the view and would reduce the visibility of the components of the onshore substation located within the mid-height and lower lying parts. Operational lighting at the onshore substation would be mostly screened from view from this location at both year 1 and at year 15.

21.11.2.52 The construction activities associated with the building of the onshore substation would be limited to the building of the onshore substation itself and the ground based activities would not be apparent in this view. Construction lighting would only be visible in winter months when working days would extend into hours of darkness and the majority of this lighting would be screened from view.

21.11.2.53 Taking these factors into account, the magnitude of change as a result of the onshore substation is considered to be low during construction, in year 1 and year 15.

Cable Route effects (construction)

21.11.2.54 A section of onshore cable corridor would be located close to the north of this viewpoint, however, it would not be visible due to its lower elevation in relation to the intervening sloping land of the foreground field. The section of onshore cable corridor that crosses open fields to the south of Wallaston Cross would be visible in the distance and construction activities would be seen in the distance for this short section. The magnitude of change as a result of the onshore export cable construction is considered to be negligible.

Significance of Effect

21.11.2.55 The effect at this viewpoint resulting from the introduction of the onshore substation is considered to be **moderate-minor** and not significant during construction, in year 1 and in year 15. The onshore export cable construction effects at this viewpoint are considered to be **minor** and not significant. Construction effects are adverse, short term and reversible. Operational effects are adverse long term and reversible.

Cumulative Effect

Consented Scenario

21.11.2.56 The consented Greenlink Converter Station will sit immediately to the north of the onshore substation site and from this viewpoint would be almost entirely screened by the intervening topography of the ridgeline that follows the slopes of Greenhill. Taking this into account it is considered that there is no cumulative interaction and therefore no cumulative effect at this viewpoint.

Application Scenario

21.11.2.57 The turbine application at Rhoscrowther would not be visible from this location due to the screening effect of localised landform and intervening hedgerows that are close to the viewpoint. As a result, there is no cumulative change and no cumulative effect.

<u>Viewpoint 5: Pennar – Onshore substation (construction and operational)</u>

21.11.2.58 This viewpoint is located near the western edges of the Pennar settlement on Military Road that leads to the new development at Pennar Park. The viewpoint location is at an elevated position on this road and represents worst case views from the settlement edge.

21.11.2.59 To the northern side of the road the view is entirely obscured by the tall roadside / golf course boundary hedgerow. To the south the view is wide and includes open views along the valley of the Pembroke River, albeit that the river itself is largely obscured by the foreground field that slopes towards it. To the west, in line with the road direction, Pembroke Power Station and the Valero Oil Refinery dominate the view and parts of the Milford Haven channel can be seen in the distance including the jetties of the Valero Oil Refinery.

21.11.2.60 The land to the south of the Pembroke River (on which the site is located) appears as a strip of land consisting of a mix of agricultural fields separated by hedgerows, with scattered properties / farms and punctuated by occasional woodlands in valleys or along the coast. Hundelton is the only settlement visible, the edges of which can only just be seen beyond the foreground hedgerow. Two rows of overhead electricity lines follow the horizon along this strip of land connecting to Pembroke Power Station. The overhead line towers are notable feature in the view that often break the skyline. The mast at Green Hill reservoir and the single turbine on the site can also be seen in this view. Lambeeth Farm can be clearly seen from this viewpoint, nestled into the locally surrounding trees and hedgerows that surround it to the south, west and east. The grain stores at Lambeeth Farm are hidden in this surrounding vegetation.

Sensitivity

21.11.2.61 This viewpoint is not located within or close to any national, regional or local scenic designations or recognised scenic views, however, views from this area have an informal value for nearby residents and value is considered to be medium. Residential receptors in Pennar will have an appreciation of the surrounding landscape, including across the Pembroke River which the majority of the southern edge of the settlement is oriented towards, albeit as part of a wide and distant panorama. Susceptibility to change is considered to be medium.

21.11.2.62 The combination of value and susceptibility results in a sensitivity of medium.

Magnitude of Change

Onshore substation (construction and operational)

21.11.2.63 As can be seen in the visualisation for this viewpoint in Volume 2 Figure 21.22, the onshore substation would appear in the distance beside the single turbine and two of the overhead line towers. The two overhead line towers and single turbine that sit on and close to the site provide a well-defined scale indicator for the onshore substation. It is considered that from this location and at this distance a GIS onshore substation would appear similar in scale and form to a large agricultural building.

21.11.2.64 The planting mitigation would not entirely screen the onshore substation from view but would screen the lower parts, helping to settle it into the surrounding landscape. The proposed woodland itself would complement the existing woodland structure evident in this view. Operational lighting at the onshore substation would be visible from this location but would be barely discernible at this distance and would be mostly screened from view once planting matures at year 15.

21.11.2.65 The construction activities associated with the building of the onshore substation would be visible from this location, including much of the ground based construction activity, vehicle movements and construction lighting. Construction lighting would only be visible in winter months when working days would extend into hours of darkness.

21.11.2.66 Taking all of this into account, the magnitude of change as a result of the onshore substation is considered to be medium-low during construction and in year 1 reducing to negligible in year 15 once mitigation woodland planting around the onshore substation matures.

Cable Route effects (construction)

21.11.2.67 A small section of the onshore cable corridor that connects to Pembroke Power Station would be visible and construction activities would be seen in the distance for this short section. The magnitude of change as a result of the onshore export cable construction is considered to be negligible.

Significance of Effect

21.11.2.68 The effect at this viewpoint resulting from the introduction of the substation is considered to be **moderate-minor** and not significant during construction and in year 1 reducing to **minor** and not significant once planting mitigation matures. The onshore export cable construction effects at this viewpoint are considered to be **minor** and not significant. Construction effects are adverse, short term and reversible. Operational effects are adverse long term and reversible.

Cumulative Effect

Consented Scenario

21.11.2.69 The consented Greenlink development will be located immediately to the north of the substation site and in this view would therefore be visible within the same part of the view as the onshore substation. Built development of this scale would be an influential component of the baseline character of the view and the onshore substation would add further built development within this same context. Based on the information available, it is predicted that the planting proposed for the Greenlink development would screen the lower parts of the Greenlink converter building at 15 years growth.

21.11.2.70 As a result of the introduction of the consented Greenlink development, the onshore substation would not be introducing built development to this part of the view but would be adding a similar type of development to it, which would be comparatively smaller in scale. Whilst a slight intensification and increased geographical spread of similar development would occur, the onshore substation would not be viewed as entirely uncharacteristic in the view and the cumulative magnitude of change is moderated on that basis.

21.11.2.71 Taking this into account, the cumulative magnitude of change is considered to be low during construction and in year 1, reducing to negligible in year 15. The proposed planting for both Greenlink and the onshore substation has been taken into consideration at year 15.

21.11.2.72 This results in a cumulative effect of **minor** and not significant for construction, year 1 and year 15. Cumulative effects are adverse, long term and reversible.

Application Scenario

21.11.2.73 The Rhoscrowther Wind Farm is a 3 turbine scheme proposed in the area immediately to the south of the Oil Refinery. In this view the turbines would be seen on the horizon to the southwest alongside the Oil Refinery. They would add to the existing context of other industry seen in the view southwest and would appear similar in height (to blade tip) to the existing Oil Refinery stacks in this view when considered against the horizon to the southwest.

21.11.2.74 The Proposed Development is nestled into the landscape rather than sitting above the horizon, it is considerably smaller in scale and is of a differing development type. The introduction of these wind turbines would increase the spread of development further along the horizon towards the Proposed Development and therefore the perception of the developed landscape described in the baseline is increased, for which the Proposed Development would be a contributor. Taking this into account, the magnitude of change in this scenario is considered to slightly increase when considering the addition of the Proposed Development.

21.11.2.75 The cumulative magnitude of change is therefore considered to be medium-low during construction and in year 1, reducing to low in year 15.

21.11.2.76 This results in a cumulative effect of **moderate-minor** and not significant for construction, year 1 and **minor** and not significant in year 15. Cumulative effects are adverse, long term and reversible.

Viewpoint 6: B4319, near Junction with B4320 - Cable Route effects (construction)

Baseline

21.11.2.77 This viewpoint is located on the B4319 which leads to Freshwater West, and Castlemartin further to the southeast. Volume 2 Figure 21.5 shows the location and baseline photography is included in Volume 2 Figure 21.23. The road is very narrow and lined with high hedgerows. It can be a busy road with visitors to Freshwater West particularly in summer months. The nearby property at The Burrows is a two storey property with elevated views to the south from its upper, predominantly glazed, south facing gable end. The B4320 junction marks one of the high points on the Angle Peninsula and sits on the ridge, which the B4320 loosely follows. As a result, there are clear views north to the industrial context at Valero Oil Refinery and Pembroke Power Station and also more distant views across the Milford Haven channel further to the north. It should be noted however, that these views are not seen from the viewpoint itself as it is located just below the ridgeline so as to gain an appreciation of the onshore cable corridor.

Sensitivity

21.11.2.78 Value is considered to be high. This viewpoint is located within the PCNP and views from this area also have an informal local value for nearby residents.

21.11.2.79 Residential receptors have elevated views across the landscape and coast. Receptors visiting the Freshwater Bay area would have an appreciation of the landscape of the coast on arrival at Freshwater Bay or in the view towards it, however, the view of the immediately surrounding agricultural landscape from this location is relatively contained by high hedgerows. On balance, susceptibility to change is considered to be medium.

21.11.2.80 The combination of value and susceptibility results in a sensitivity of medium-high.

Magnitude of Change

21.11.2.81 Potential visual effects would occur at this location due the construction of the section of the onshore export cable that crosses the B4319 and the two construction compounds located in nearby fields. Sections of hedgerow would be removed local to the B4319 crossing point, which in itself would increase the awareness of wider construction activities along the onshore cable corridor to the east and west when looking across the fields through gaps created in the hedgerows. The effect would be experienced for a short duration and key changes to views are largely limited to the construction activities closest to the road crossing. On balance, the magnitude of change is considered to be medium-low for road users.

21.11.2.82 From The Burrows property the view to the south is panoramic and the onshore export cable construction along with the two construction compounds located in the fields to the east and west of the property would be more clearly visible due to the elevated views available from the upper floors. The construction magnitude of change is considered to be medium-high for residential receptors.

Significance of Effect

21.11.2.83 The effect for road users is considered to be **moderate** and not significant. The effect for residential receptors at The Burrows is considered to be **moderate-major** and significant. Construction effects are adverse, short term and reversible.

Viewpoint 7: Minor Road, North Studdock - Cable Route effects (construction)

Baseline

21.11.2.84 This viewpoint is located on a very minor road that leads to the North and South Studdock Farms and provides an informal connection to the headland at Lowrey's Rock, which contains the southern edges of West Angle Bay. Volume 2 Figure 21.5 shows the location and baseline photography is included in Volume 2 Figure 21.24. The road is lined with high hedgerows and there are few gaps in which to obtain an appreciation of the surrounding landscape. The viewpoint location is located at the turn off to South Studdock, where a view southeast across the nearby fields and access road is seen between these longer sections of hedgerows. The view is across grazed fields with further sections of hedgerows cutting across the horizon limiting the distance available in the view. There is no view to the coast from this location.

Sensitivity

21.11.2.85 Value is considered to be medium. Whilst this viewpoint is located within the PCNP views from this location are not particularly scenic. Road users in this location have a limited appreciation of the surrounding landscape and no views across the designated coastal aspects of the landscape and sea. Susceptibility to change is considered to be medium-low.

21.11.2.86 The combination of value and susceptibility results in a sensitivity of medium.

Magnitude of Change

21.11.2.87 Potential visual effects would occur at this location due the construction of the section of onshore cable corridor that crosses this area from the HDD location above the cliffs to the south of West Angle Bay. The other landfall option at West Angle Bay would result in an onshore cable corridor that would pass further to the east of this location and would not be visible.

21.11.2.88 Sections of hedgerow would be removed local to the minor road and distant sections close to the horizon would also be affected. The effect would be experienced in a localised area, and not experienced by many receptors. Key changes to views are largely limited to the construction activities closest to the minor road and limited to gaps in surrounding hedgerows such as found at the viewpoint or created by the Proposed Development during construction. On balance, the magnitude of change is considered to be low.

Significance of Effect

21.11.2.89 The effect at this viewpoint is considered to be **minor** and not significant. Construction effects are adverse, short term and reversible.

Viewpoint 8: West Angle Bay - Cable Route and landfall effects (construction)

Baseline

21.11.2.90 This viewpoint is located at the northern end of West Angle Bay, overlooking the beach and car park. Volume 2 Figure 21.5 shows the location and baseline photography is included in Volume 2 Figure 21.25. West Angle Bay is a popular beach for visitors with its own car park, toilets and a small café. The viewpoint is on the coastal paths and has views out across the bay and the western reaches of outer Milford Haven. The seaward view from the bay includes Thorn Island to the northwest and Lowrey's Rock to the southwest, both of which contain the outer reaches of the bay. More distant views include views west to St Ann's Head and beyond across the Irish Sea.

21.11.2.91 The view inland to the east is across the beach car park and adjacent field towards the western edges of Angle which sits in the distance at a similar elevation to the viewpoint. The land rises up to the north and south of the viewpoint providing visual containment to the context of West Angle Bay, surrounding fields on these slopes are a mix of arable and pasture separated by hedgerows.

Sensitivity

21.11.2.92 This viewpoint is within the PCNP, heightening its value, West Angle Bay is popular with visitors and recreational walkers and is on the Wales Cast Path / Pembrokeshire Coastal Path. Value is considered to be high.

21.11.2.93 When considering either of the options at landfall, (open trench or HDD) reinstatement of the disrupted landscape can be achieved with relative ease. Views of construction activities would be experienced at close proximity within a key part of the view. Susceptibility is therefore considered to be medium-high.

21.11.2.94 Taking this into account the sensitivity of visitors / recreational receptors at this viewpoint is considered to be high.

Magnitude of Change

21.11.2.95 The construction activities associated with the various landfall options would have varying degrees of visual magnitude. The disturbance is of a temporary nature and disturbed areas and open trenches would be returned to existing conditions following the completion of the construction activity. The construction compound to the west of Angle is only applicable for options 1 & 3.

21.11.2.96 1 - HDD at the beach: this option would result in construction activities in the intertidal area of the beach and then in the field to the east of the car park. The magnitude of change for this option is considered to be medium-low.

21.11.2.97 2 - HDD to above the cliff south of West Angle Bay: this option would result in distant views of construction activity on the top of the cliff to the south of the beach. The magnitude of change for this option is considered to be low.

21.11.2.98 3 - open trench across the beach area: this option would result in construction activities spanning across the beach from the intertidal area, through the car park and the adjacent field to the east. The magnitude of change for this option is considered to be medium.

Significance of Effect

21.11.2.99 The effect at this viewpoint is considered to be **moderate-major** and significant for option 3; **moderate** and not significant for option 1; and **moderate-minor** and not significant for option 2. Construction effects are adverse, short term and reversible.

Individual Properties at Wallaston Green, Neath Farm and Beach House - Cable Route effects (construction)

Baseline

21.11.2.100 Whilst these properties would be affected by different sections of the onshore export cable construction works, they are similar in distance from the onshore cable corridor and each of them have views across towards it that are relatively unobstructed.

21.11.2.101 Wallaston Green is a cluster of 1-2 storey to the west of Wallaston Farm and south of Wallaston Cross. The properties are surrounded by open fields to the west and whilst garden / field boundary vegetation slightly restricts views, the properties nevertheless have views across the agricultural landscape (and towards the onshore cable corridor) albeit as filtered through trees and hedgerows.

21.11.2.102 Neath Farm is located to the south of Rhoscrowther. It has an elevated position in the local landscape on a small undulation to the south of Neath Bridge and as such has views both to the north and south across the immediate agricultural context. More distant views to the north and south are restricted by further ridges and undulations unlike the view west, which is more open towards Angle Bay.

21.11.2.103 Beach House is located close to the car park at West Angle Bay. It is two storeys and is orientated north to south with the front of the house facing north. The view north is across the open fields to the east of the beach car park. Trees on the western boundary of the property restrict views from the property to the beach area of West Angle Bay.

Sensitivity

21.11.2.104 Value is considered to be high, Neath Farm and Beach House are located within the PCNP and views have an informal value for residential receptors. Whilst in different locations along the onshore cable corridor, residential receptors at these properties have an appreciation of the surrounding landscape, particularly the immediate landscape context in which they are set. Susceptibility to change is considered to be medium-high.

21.11.2.105 The combination of value and susceptibility results in a sensitivity **of high.**

Magnitude of Change

21.11.2.106 Potential visual effects would occur at these properties due the construction of the sections of onshore export cable that occur in close proximity. For each property, potential visual effects would also occur as a result of proposed construction compounds located in relatively close proximity to the properties (albeit that these construction compounds are either set back or partially screened from view). The effect would be experienced for a short duration and key changes to views are largely limited to the construction activities closest to the properties rather than as a result of construction activities visible in longer views. The magnitude of change for these properties as a result of construction activities is therefore considered to be medium.

Significance of Effect

21.11.2.107 The effect at these properties is considered to be **moderate-major** and significant. Construction effects are adverse, short term and reversible.

Angle settlement - Cable Route effects (construction)

Baseline

21.11.2.108 The small settlement of Angle is nestled into the western shores of the horseshoe shaped Angle Bay on the northwest corner of the Angle peninsula. The settlement is largely strung out along a west to east running road and oriented east towards Angle Bay. For the vast majority of the settlement, views west towards the onshore cable corridor and landfall are limited. Trees and hedgerows at the edges of the settlement also combine to further reduce potential visibility to the west. Properties within the new housing development at the western edges of the settlement, however, do have views to the west along the shallow valley (and minor road corridor) that connects Angle Bay to West Angle Bay (particularly from upper floors). The industrial buildings and structures at the Valero Oil Refinery is a key feature of views within Angle and from much of the surrounding settlement context. The view east along the main street (Angle Village) is dominated by the stacks and chimneys, which are aligned with its orientation.

Sensitivity

21.11.2.109 Value is considered to be medium-high, the settlement is located within the PCNP and views have an informal value for residential receptors. Residential receptors at the western edges of Angle have some appreciation of the landscape context of West Angle Bay and the area in which the onshore cable corridor is located, however, much of the settlement has a limited view to the west. Susceptibility to change is considered to be medium.

21.11.2.110 The combination of value and susceptibility results in a sensitivity of medium-high.

Magnitude of Change

21.11.2.111 Potential visual effects would occur within the settlement due the construction of the sections of onshore export cable and introduction of a construction compound that would occur to the west of the settlement in the area between the West Angle Bay and the edges of the settlement. Key changes to views are likely to focus on activities related to the construction compound as the onshore export cable construction is of limited duration. Taking this into account, the magnitude of change for properties at the western edges of Angle, as a result of construction activities is considered to be medium-high.

Significance of Effect

21.11.2.112 The effect at this settlement is considered to be **moderate-major** and significant. The significant visual effect is largely due to the introduction of the construction compound within close proximity to the settlement edge in an area that is overlooked by the new properties found at the southwest edges of Angle. Construction effects are adverse, short term and reversible.

21.12 Inter-Related Effects

Table 21.14 – Inter-relationships between the LVIA and other chapters

Chapter / topic	Inter-relationship
Chapter 20: Terrestrial and Coastal Ecology	Both chapters consider the potential effects of hedgerow and tree removals, the LVIA considering the impact on hedgerows and trees as landscape elements, and the Onshore Ecology assessment considering the impact on hedgerows and trees as ecological assets. Both chapters consider the mitigation of hedgerow and tree loss in respect of planting proposed as outline landscape mitigation principles.
Chapter 24: Onshore Archaeology and Cultural Heritage	Both chapters consider the potential effects of the Proposed Development on designated Registered Historic Parks and Gardens and their setting within the landscape.
Chapter 28: Socio-economics, Tourism and Recreation	Both chapters consider the potential effects of the Proposed Development on the visual amenity of recreational users in the local area.
Chapter 13 SLVIA	Both chapters consider the effect on landscape / seascape character within the Angle Peninsula and the effect on the PCNP. However, the LVIA only assesses onshore elements and the SLVIA only assesses offshore elements.

21.12.1 Effects on Human Health and Population

21.12.1.1 There will be no effects on population or human health in relation to landscape and visual.

21.13 Transboundary

21.13.1.1 In relation to this chapter, it is considered that no transboundary effects will arise.

21.14 Summary

Landscape

21.14.1.1 The landscape would be directly affected by the onshore elements of the Proposed Development. The onshore substation site is not located within a designated landscape and lies within a LANDMAP aspect area that has a moderate visual and sensory evaluation and which neighbours the low visual and sensory evaluation aspect area of the industrial parts of the landscape to the west of the site. The siting and design of the Proposed Development has sought to minimise the removal of landscape elements across the Study Area and physical landscape effects would be kept to a minimum to ensure that the character of the area is retained for future benefit. The LVIA found no significant effects on physical landscape elements.

21.14.1.2 Landscape and seascape character effects as a result of the Proposed Development would be experienced as a result of the onshore substation. Due to surrounding topography, character effects are contained within a very localised area, immediately surrounding the onshore substation site. The LVIA did not find any significant landscape or seascape character effects as a result of the Proposed Development, either during construction, operation or decommissioning. The LVIA also found no significant effects for LANDMAP aspect areas assessed in Volume 3 Technical Appendix 21.1, as a result of the Proposed Development.

Visual

21.14.1.3 The Proposed Development may intrude into existing views experienced by users of the onshore LVIA Study Area, changing their views. The topographical context in which the onshore substation is located and the successive layers of hedgerows in the wider Study Area, combine to provide a degree of existing containment that helps to minimise the potential visual effect that might be experienced for receptors within the Study Area.

21.14.1.4 Likely significant visual effects as a result of the construction activities associated with the onshore export cable and landfall are found for those receptors within close proximity to the onshore cable corridor but largely as a result of combination of construction compound visibility with the onshore export cable or landfall options. These significant effects would be experienced at - Viewpoint 1 due to close proximity; viewpoint 6 from residential receptors; viewpoint 8 as a result of landfall option 3 – open trench across at West Angle Bay; individual properties at Wallaston Green, Neath Farm and Beach House; and from the western end of the Angle settlement.

21.14.1.5 Likely significant visual effects as a result of the construction activities associated with the onshore substation are found for viewpoints 2 and 3 (road users and residential). Likely significant visual effects as a result of the onshore substation are also found during operation in year 1 once construction activity is completed, for viewpoints 2 and 3 (residential only). In year 15 once mitigation planting has matured, residual visual effects are not found to be significant for any of the viewpoints assessed.

Cumulative

21.14.1.6 Of the cumulative developments noted in the long list that lie within the cumulative Study Area, only the consented Greenlink project has been considered in detail in the cumulative assessment. The other cumulative developments in the Study Area are not considered to have the potential to contribute to significant cumulative landscape or visual effects. This is largely due to distance or separation between the Proposed Development and the cumulative development or due to landscape elements / built structures that limit the level of intervisibility and therefore cumulative effect.

21.14.1.7 Significant cumulative effects are restricted to residential receptors near viewpoint 3 and it should be noted that these are limited to the construction phase of the onshore substation and would reduce to a lower and not significant level following completion of construction activities.

Conclusion

21.14.1.8 This LVIA has considered the potential effects that the Proposed Development may have on the existing landscape resource of the onshore LVIA Study Area and the visual amenity of its receptors.

21.14.1.9 The Proposed Development will give rise to significant construction effects. For the onshore cable corridor these significant construction effects are localised and are limited to close proximity visual effects of high sensitivity receptors. For the onshore substation these also occur for visual receptors at close proximity.

21.14.1.10 The LVIA has assessed that there would be no residual significant effects to the landscape and visual resource as a result of the onshore cable corridor. Whilst the LVIA has found there would be no significant landscape character effects as a result of the Proposed Development it found that the onshore substation would give rise to very localised significant residual visual effects. All developments of this scale are likely to give rise to some effects on landscape character and visual amenity and it is considered that for the Proposed Development all of the effects experienced would be localised and that significant effects would be limited in both extent and number.

Table 21.15 – Summary of Construction Effects

Receptor	Sensitivity	Magnitude of change	Effect
PHYSICAL LANDSCAPE EFFECTS			
Agricultural Land	medium – low	medium – low	**minor and not significant**
Hedgerows and hedgerow trees	medium - high	medium – low	**moderate and not significant**
Coastal Landscape	medium	medium	**moderate-minor and not significant**
LANDSCAPE CHARACTER EFFECTS (onshore substation)			
cLCA 25 – Hundelton and Lamphey	medium	medium	**moderate and not significant**
SCA 32 – Inner Milford Haven	Medium-low	low	**minor and not significant**
VISUAL EFFECTS (onshore export cable and landfall)			
Viewpoint 1: Goldborough Road, east of Wallaston Cross	medium	Medium	**Moderate and significant**
Viewpoint 2: Wales Coast Path, Lambeeth Farm	Medium-high	low	**Moderate-minor and not significant**
Viewpoint 3: Goldborough Road, near Moreston	Road users: Medium low	Medium-low	**Minor and not significant**
	Residential: medium-high	Medium-low	**Moderate and not significant**
Viewpoint 4: B4320, near Wogaston	Medium-high	negligible	**Minor and not significant**

Receptor	Sensitivity	Magnitude of change	Effect
Viewpoint 5: Pennar	medium	negligible	**Minor and not significant**
Viewpoint 6: B4319, near Junction with B4320	Road users: Medium-high	Medium-low	**Moderate and not significant**
	Residential: medium-high	Medium-high	**Moderate-major and significant**
Viewpoint 7: Minor Road, North Studdock	medium	low	**Minor and not significant**
Viewpoint 8: West Angle Bay	high	Landfall Option 1: medium-low	**Moderate and not significant**
		Landfall Option 2: low	**Moderate-minor and not significant**
		Landfall Option 3: medium	**Moderate-major and significant**
Individual Properties at Wallaston Green, Neath Farm and Beach House	High	Medium	**Moderate-major and significant**
Angle settlement	Medium-high	Medium-high	**Moderate-major and significant**
VISUAL EFFECTS (onshore substation)			
Viewpoint 1: Goldborough Road, east of Wallaston Cross	medium	medium-low	**Moderate-minor and not significant**
Viewpoint 2: Wales Coast Path, Lambeeth Farm	Medium-high	medium	**Moderate and significant**
Viewpoint 3: Goldborough Road, near Moreston	Road users: Medium low	Medium-high	**Moderate and significant**
	Residential: medium-high	Medium-high	**Moderate-major and significant**

Receptor	Sensitivity	Magnitude of change	Effect
Viewpoint 4: B4320, near Wogaston	Medium-high	low	**Moderate-minor and not significant**
Viewpoint 5: Pennar	medium	Medium-low	**Moderate-minor and not significant**

Table 21.16 – Summary of Operational Effects.

Receptor	Sensitivity	Magnitude of change	Effect	Magnitude of change	Residual Effect
		Year 1	**Year 1**	**Year 15**	**Year 15**
LANDSCAPE CHARACTER EFFECTS (onshore substation)					
cLCA 25 – Hundelton and Lamphey	medium	medium	**moderate and not significant**	Medium-low	**Moderate-minor and not significant**
SCA 32 – Inner Milfor Haven	Medium-low	low	**minor and not significant**	negligible	**Minor and not significant**
VISUAL EFFECTS (onshore substation)					
Viewpoint 1: Goldborough Road, east of Wallaston Cross	medium	medium-low	**Moderate-minor and not significant**	medium-low	**Moderate-minor and not significant**
Viewpoint 2: Wales Coast Path, Lambeeth Farm	Medium-high	medium	**Moderate and significant**	Medium-low	**Moderate and not significant**

Receptor	Sensitivity	Magnitude of change	Effect	Magnitude of change	Residual Effect
		Year 1	**Year 1**	**Year 15**	**Year 15**
Viewpoint 3: Goldborough Road, near Moreston	Road users: Medium low	Medium	**Moderate-minor and not significant**	Medium-low	**Minor and not significant**
	Residential: medium-high	Medium	**Moderate and significant**	Medium-low	**Moderate and not significant**
Viewpoint 4: B4320, near Wogaston	Medium-high	low	**Moderate-minor and not significant**	low	**Moderate-minor and not significant**
Viewpoint 5: Pennar	medium	Medium-low	**Moderate-minor and not significant**	negligible	**Minor and not significant**

Table 21.17 – Summary of Cumulative Effects.

Receptor	Sensitivity	Cumulative Scenario	Cumulative Effect (construction)	Cumulative Effect (year 1)	Cumulative Effect (year 15)
LANDSCAPE CHARACTER EFFECTS (onshore substation)					
cLCA 25 – Hundelton and Lamphey	medium	Consented	**moderate-minor and not significant**	**moderate-minor and not significant**	**minor and not significant**
		Application	**moderate-minor and not significant**	**moderate-minor and not significant**	**minor and not significant**
SCA 32 – Inner Milfor Haven	medium	Consented	**minor and not significant**	**minor and not significant**	**minor and not significant**
		Application	**minor and not significant**	**minor and not significant**	**minor and not significant**
VISUAL EFFECTS (onshore substation)					
Viewpoint 1: Goldborough Road, east of Wallaston Cross	medium	Consented	**No effect**	**No effect**	**No effect**
		Application	**No effect**	**No effect**	**No effect**
Viewpoint 2: Wales Coast Path, Lambeeth Farm	Medium-high	Consented	**moderate and not significant**	**moderate and not significant**	**moderate-minor and not significant**
		Application	**No effect**	**No effect**	**No effect**
	Road users: Medium low	Consented	**moderate-minor and not significant**	**minor and not significant**	**minor and not significant**

Receptor	Sensitivity	Cumulative Scenario	Cumulative Effect (construction)	Cumulative Effect (year 1)	Cumulative Effect (year 15)
Viewpoint 3: Goldborough Road, near Moreston	Residential: medium-high	Application	**moderate-minor and not significant**	**minor and not significant**	**minor and not significant**
		Consented	**Moderate and significant**	**moderate and not significant**	**moderate-minor and not significant**
		Application	**Moderate and significant**	**moderate and not significant**	**moderate-minor and not significant**
Viewpoint 4: B4320, near Wogaston	Medium-high	Consented	**No effect**	**No effect**	**No effect**
		Application	**No effect**	**No effect**	**No effect**
Viewpoint 5: Pennar	medium	Consented	**minor and not significant**	**minor and not significant**	**minor and not significant**
		Application	**moderate-minor and not significant**	**moderate-minor and not significant**	**minor and not significant**

21.15 References

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