

## Chapter 5 - Landscape, Seascape & Visual Amenity

### Introduction

- 5.1. This chapter presents the findings of a landscape, seascape and visual impact assessment (LSVIA) that has assessed the likely significant effects of the proposed Rhoscrowther Wind Farm (“the Development”) on the landscape, seascape and visual amenity of the site, immediate surroundings and study areas up to 11km from the proposed wind turbines (see ES Figure 5.1).
- 5.2. The Development is for three wind turbines (135m to tip) and associated infrastructure, as described in Section 5.7. The Development “site”, as referred to in this Chapter, is the land within ES Figure 1.1, and the “immediate surroundings” refer to an area up to approximately 1.5km from the proposed wind turbines. Several different study areas have been considered, extending to 1.5km (residential), 3km (local rights of way), 6km (landscape) and 11km (visual) from the proposed wind turbines, as explained below (see paras 5.6 and 5.15). All distances quoted in this chapter are from the nearest proposed wind turbine, unless specified otherwise.
- 5.3. The LSVIA has been informed by supporting information provided in ES Appendices 5.1 – 5.7 (ES Volume III) and is illustrated by baseline plans, computer-generated visibility analyses and visualisations in Figures 5.1 – 5.57 (ES Volume II).
- 5.4. This LSVIA has been undertaken by Ms Kay Hawkins, Chartered Landscape Architect (CMLI) and Director of H:B:A Environment (“the assessor”). Additional photography has been taken by Ben Osborne Photography and the accompanying graphics have been produced by John Wood Group plc.

### Scoping & Consultations

- 5.5. A 5-turbine wind farm was previously proposed on this site (“the previous wind farm proposal”). An LSVIA for this scheme was undertaken in 2013-14 and formed part of an

environmental statement (2014 ES) which accompanied a planning application that was submitted to Pembrokeshire County Council (PCC) in 2014. Additional information was submitted to PCC in 2015 in the form of an ES Addendum (2015 ES Addendum). This application was subsequently refused, appealed and considered at public inquiries in 2015 and 2017.

- 5.6. The consultations and scoping opinion for the previous wind farm proposal (PCC 2013) identified the key landscape, seascape and visual issues for a wind farm on this site. The extents of these issues were refined during the planning application and the 2015 and 2017 public inquiries to the following:
- i. Impacts on the purposes of the Pembrokeshire Coast National Park.
  - ii. Impacts on landscape character up to 6km from the wind turbines.
  - iii. Impacts on seascape character of Milford Haven.
  - iv. Impacts on visual amenity up to 10km from the wind turbines.
  - v. Impacts on residential visual amenity of residents in properties up to 1.5km from the wind turbines.
- 5.7. Further consultations were undertaken in late 2020 on an amended five turbine scheme and, although the scheme has now been reduced to three turbines, it is considered that the issues listed above are also the key landscape, seascape and visual issues to be assessed in this LSVIA for the Development.
- 5.8. The purpose of this LSVIA is to provide an assessment of the landscape, seascape and visual issues associated with the design, construction, operation and decommissioning of the Development, and to form part of the submission of an application to the Welsh Government for a Development of National Significance (DNS).

**Legislation, Guidance and Baseline Data**

- 5.9. This LSVIA is based on current legislation and guidance, including:
- i. The Town & Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017.
  - ii. Guidelines for Landscape and Visual Impact Assessment, Third Edition (GLVIA3) (LI & IEMA 2013).
  - iii. Designing Wind Farms in Wales (ARUP October 2012).
  - iv. *LANDMAP* Information Guidance Note 3: Using *LANDMAP* for Landscape and Visual Impact Assessment for Onshore Wind Turbines (NRW May 2013).
  - v. Technical Guidance Note 06/19: Visual Representation of Development Proposals (LI September 2019).
  - vi. Technical Guidance Note 02/19: Residential Visual Amenity Assessment (RVAA) (LI March 2019).
- 5.10. It has also drawn on advice in Planning Policy Wales (PPW11) (WG February 2021) and Future Wales: The National Plan 2040 (WG 2021). All guidance and sources of baseline data are referenced within the relevant sections of this chapter and accompanying ES appendices and in the list of references at the end of the chapter.

**Scope of Assessment**

- 5.11. In accordance with the above legislation and guidance, this LSVIA has involved information review, fieldwork observations and photography (see paras 5.27 - 5.29 below), and computer-based data processing, analysis and visualisations. It has been undertaken in several stages, as presented in the following sections of this report:

- i. Section 5.5: Method of Assessment – a description of the assessment process, parameters and forecasting criteria, plus any difficulties and uncertainties encountered.
- ii. Section 5.6: Landscape, Seascape & Visual Context – a description of the relevant aspects of the landscape, seascape and visual baselines and an outline of the likely evolution of these baselines due to natural changes that could occur during the lifetime of the Development.
- iii. Section 5.7: Siting, Design, Mitigation & Residual Effects – a description of the siting and design of the development and the mitigation measures incorporated into the design to prevent, reduce or offset likely significant adverse effects on landscape, seascape and visual amenity.
- iv. Section 5.8: Visual Analysis – analyses of the extent and degree of visibility of the Development using computer-generated zones of theoretical visibility (ZTVs) and a viewpoint analysis (in ES Appendix 5.5) to identify the likely changes in views from 25 viewpoint locations within the study area.
- v. Section 5.9: Assessment of Effects on Landscape and Seascape – an assessment of the likely significant effects of the Development on landscape fabric, landscape character, seascape character and landscape and seascape designations.
- vi. Section 5.10: Assessment of Effects on Visual Amenity – an assessment of the likely significant effects of the Development on the visual amenity of receptors in settlements, at visitor attractions, on recreational routes and on the local road network within the study area.
- vii. Section 5.11: Summary & Conclusions – a summary of the findings of the various assessments and conclusions on the ability of this location to accommodate the Development.

- 5.12. A Residential Visual Amenity Assessment has also been undertaken and is presented in ES Appendix 5.6. This has assessed the likely significant effects of the Development on views from within the boundaries of properties local to the site (within approximately 1.5km of the nearest proposed wind turbine), plus a further stage which makes a Residential Visual Amenity Threshold judgement for each property, taking into account views “in the round” from each property.

### **Method of Assessment**

#### **Introduction**

- 5.13. The assessment process, parameters and forecasting criteria, plus any difficulties and uncertainties encountered are described below.

#### **Assessment Process**

- 5.14. This LSVIA has been an iterative assessment process that has informed, and been informed by, the evolution of the Development design on this site. It has involved:
- i. An evaluation of the landscape, seascape and visual baselines to identify the key characteristics that could be significantly affected by a wind farm development and their sensitivity to a development of this type, and any natural changes that could occur to these baselines during the lifetime of the Development (see Section 5.6).
  - ii. Evaluations of several development proposals to identify likely significant effects (in the 2014 ES, the 2015 ES Addendum, in the LSVIA evidence for the 2015 and 2017 public inquiries and in the 2020 draft ES).
  - iii. The identification of mitigation measures to minimise the effects of the Development on landscape, seascape and visual amenity, and the incorporation of these into the site design (see Section 5.7).

- iv. Once the site design was formalised, an assessment of the residual effects on landscape, seascape, visual amenity and residential visual amenity (see Sections 5.8 – 5.12).

### **Assessment Parameters**

#### **Study Areas**

- 5.15. The LSVIA has focussed on the identification of likely significant effects and, hence, the following study areas, as these encompass all the locations and resources where there is the potential for significant additional residual effects:
- i. Landscape study area – 6km radius from the proposed wind turbines.
  - ii. Seascape study area - Seascape Character Areas in Milford Haven, SCA31: Outer Milford Haven and SCA32: Inner Milford Haven.
  - iii. Visual study area – 11km radius, centred on the site.
  - iv. Residential study area – 1.5km radius from the proposed wind turbines.

#### **Baselines**

- 5.16. The assessment considers the likely significant effects of the Development in the context of the existing landscape, seascape and visual baselines, including existing built and under-construction development, as described in Section 5.6.
- 5.17. For the purposes of this assessment, it has been assumed that all these other developments would be part of the existing baselines for the duration of the operational life of the Development.

**Resources and Receptors**

5.18. These are the landscape and seascape resources and visual receptors in the baselines that could be significantly affected by the Development, as described in Section 5.6.

**Viewpoints**

5.19. The viewpoints assessed and illustrated in this LSVIA include all viewpoints within the 11km study area that were assessed and illustrated in the 2014 ES, the 2015 ES Addendum and the LSVIA evidence presented at the 2015 and 2017 public inquiries, plus two additional viewpoints (Vp 02 and Vp 11).

5.20. These viewpoints were re-numbered in increasing distance from the proposed five wind turbines in the 2020 draft ES and so the viewpoint numbers are not the same as in the 2014 ES, the 2015 ES Addendum and the evidence at the 2015 and 2017 public inquiries.

**Aspects of the Proposed Development**

5.21. The assessment focusses on those aspects of the Development (elements and activities) that have the potential to give rise to significant effects on landscape, seascape and/or visual amenity, and takes into account both the embedded and good practice mitigation incorporated into the Development, as described in Section 5.7.

**Type and Nature of Effects**

5.22. The EIA Regulations (Wales) 2017 require the predicted significant effects to be characterised in terms of whether they would be direct/indirect, secondary, cumulative, transboundary, short/medium/long-term, permanent/temporary, and positive/negative effects. In this case, the site is not sufficiently close to any other country or territory for there to be any transboundary effects. Therefore, the predicted significant additional residual effects have been characterised in terms of whether they are direct or indirect,

discrete or cumulative, short, medium or long-term, permanent or temporary and beneficial (positive) or adverse (negative).

- 5.23. As the assessments of effects take into account the embedded and good practice mitigation incorporated into the Development, the predicted significant effects are “residual effects” (ie the effects remaining after mitigation). Also, as there are existing wind farms in the baseline but no other proposed wind farms, the effects are “additional effects” on the existing baseline (ie in addition to any effects the existing wind farms may have had on the previous baseline) and not “combined effects” (ie not the combined effects of the existing wind farms and proposed Development on the previous baseline).

#### **Timescales**

- 5.24. The Development would be implemented in three phases – a short-term (10 months) construction phase, a long-term (35 years) operational phase and a short-term (10 months) decommissioning phase. Each phase of the wind farm has been assessed and the duration of the effects of each phase taken into account in the prediction of likely significant effects.

#### **Cumulative Scenarios**

- 5.25. There is one permitted (but not yet built) renewable energy scheme (Blackberry Lane Solar Farm) which will be located to the east of Cosheston on the far east of the 11km study area. It will be located on the edge of the National Park and in the same landscape character area (LCA25) as the Development but will have a low-profile (maximum 3m above ground levels) and will be over 10km east of the Development so there are unlikely to be any significant cumulative effects as a consequence of the two developments. There are no permitted (but not yet built) or other proposed wind farms in the study area, so it has not been necessary to consider cumulative scenarios.

### **Assessment Criteria**

- 5.26. The assessment criteria for the viewpoint analysis and assessments of effects on landscape (fabric, character and designations), seascape character and visual amenity are described in detail in ES Appendix 5.1. The assessment criteria for the residential visual amenity assessment are described in detail in ES Appendix 5.6.

### **Fieldwork and Photography**

- 5.27. The assessor has relied upon fieldwork observations undertaken in preparation for the 2017 public inquiry for the previous wind farm proposal on this site and fieldwork undertaken in 2020.
- 5.28. Additional viewpoint photography has been undertaken by a professional photographer for the two additional viewpoints (Vp 02 and Vp 11) and for two of the other closest viewpoints (Vp 01 and Vp 03), with the remaining viewpoint figures using photography taken for the 2013 ES, 2015 ES Addendum and 2015 public inquiry, which are considered to be an acceptable illustration of the baseline in 2021.
- 5.29. Where there are minor changes to the landscape and visual baseline which are not illustrated in the viewpoint photographs, these are noted and taken into account in this assessment.

### **Landscape, Seascape & Visual Context**

#### **Introduction**

- 5.30. This section provides a description of the relevant aspects of the current landscape, seascape and visual baselines, together with the likely evolution of these baselines due to natural changes that could occur during the lifetime of the Development. In terms of “relevant aspects”, these are the key characteristics that could be significantly affected by the proposed development.

- 5.31. The baseline resources and receptors considered are landscape fabric, landscape designations, landscape character, seascape character and the visual amenity of residents in settlements and individual residential properties, visitors to beaches and other attractions, users of the recreational routes through the study area and motorists on the local road network.

### **Landscape Fabric**

#### **The Site**

- 5.32. The site is located on the slopes of a shallow valley between two gently rolling, low ridgelines that run east/west and are part of a sequence of east/west ridgelines on the peninsula (see ES Figure 5.1). The ridgeline to the north rises to approximately 63m along the northern boundary of the site whilst the ridgeline to the south rises to approximately 59m.
- 5.33. A stream in the base of the valley flows westwards and drains into the sea in Angle Bay. Where it passes through the site, its course runs through a series of small ponds and there are small patches of riparian broadleaved woodland and some marshy areas on the site.
- 5.34. The rest of the site is a mix of improved grassland and arable, within a semi-regular pattern of small and medium sized fields, bounded mainly by hedgerows. These hedgerows are predominantly hawthorn with some gorse, and some are on the top of banks so are substantial and characteristic landscape features. In places these hedgerows have been lost and replaced by post and wire fencing. There are very few hedgerow trees on the site or in the surrounding area.
- 5.35. There are no buildings on the site. The former Cheveralton Landfill Site, which closed in 1995, is located within the eastern half of the site itself and has since reverted to agricultural use.

- 5.36. The site is bounded to the north by a minor road that follows the ridgeline to the north, to the south by another minor road that follows the ridgeline to the south of the site and to the west by a minor road that crosses the valley and passes through the village of Rhoscrowther. The eastern boundary of the site is defined by existing field boundaries.

### **The Immediate Surroundings**

- 5.37. The immediate area to the east, west and south of the site has a similar landscape pattern of undulating ridgelines and valleys with streams, a mix of improved grassland and arable within semi-regular small to medium scale fields with hedgerows and hedge banks and few trees, patches of small woodland and minor roads that follow the ridgelines and link across the valleys. However, there is also a mix of small scale rural and very large scale industrial built development in the immediate surroundings.
- 5.38. An agricultural shed and storage areas, connected by a track to the public highway to the north, are all that remain of the former Cheveralton Farm, which is excluded from the site (see ES Figure 5.46). As at Cheveralton, some of the other residential properties in the surrounding area are abandoned or demolished, such as Vine Cottage, Hoplass Cottages, Rose Villa and most of the properties in the nearby village of Rhoscrowther. Within Rhoscrowther village only the Church of St Decumanus, the village hall, two pairs of unoccupied semi-detached houses, a derelict farmhouse with outbuildings and one occupied property, Pleasant View (H10), remain (see ES Figure 5.46).
- 5.39. There are other occupied residential properties in the immediate surroundings, and these include Greenhill Farm (H1), Westwinds and Sunnyridge (H2), Wallaston Farm (H3), eight properties in Wallaston Green (H4), Wogaston Farm (H5), Hoplass Farm (H6), Harry Standup (H7), Newton Farm and Newton Cottage (H8), Neath Farm (including Little Neath Barn and Barn y Cel) (H9) and Eastington Manor (H11) (see ES Figure 5.46).
- 5.40. To the immediate north of the site is the adjacent Valero Oil Refinery which is located between the minor road on the northern boundary of the site and Milford Haven. This is

an exceptionally large industrial complex which includes six tall chimneys (up to 169m high), three flare stacks and a multitude of buildings, tanks, pipework, gantries and other structures. In recent years, a large car park with pole mounted lighting has been built within the refinery site to the east of the main complex. An application to build a Cogeneration Heat and Power Plant (CHP plant) on the south side of the main complex was permitted in 2018 and is currently being built so is not visible on the viewpoint photographs. However, it is expected to be constructed and operational for the duration of the proposed development, so has been modelled into the wireframe views for each viewpoint figure (shown in yellow on the wireframes).

- 5.41. To the northeast of the site is the Pembroke CCGT Power Station, located to the east of the Valero Oil Refinery. This includes five chimneys (~75m high and ~7m in diameter).
- 5.42. On the south-facing slopes of the ridgelines and valleys to the south and southeast of the site are two solar farms, around Hoplass and Wogaston Farms (see ES Figure 5.11). The solar panel arrays have a low profile (typically 3m above ground level) and are contained within and so do not disrupt the existing field pattern. However, they are a visible element in the landscape, particularly from the ridgeline roads.
- 5.43. To the west of the site, in the southeastern corner of Angle Bay, are the remains of the former BP Oil Storage site. The tanks have been removed and the site has “greened over” but the perimeter fencing and modified landforms are still clearly visible from the Wales Coast Path.

## **Landscape and Other Designations**

### **Introduction**

- 5.44. The site is located outside any landscape designations but there are two national landscape designations within the study area – the Pembrokeshire Coast National Park and the South

Pembrokeshire Heritage Coast. The site is also within the Haven Waterway Enterprise Zone (HWEZ).

### **Pembrokeshire Coast National Park**

- 5.45. The Pembrokeshire Coast National Park (PCNP or the National Park) covers an area of 629km<sup>2</sup> (Wikipedia) and the southern most part wraps around the south and west of the study area, coming within 1.5km south and 0.7km west of the proposed wind turbines (see ES Figure 5.2).
- 5.46. The statutory purposes of National Parks were originally defined in Part II, Section 5 of the National Parks and Access to the Countryside Act 1949 and subsequently amended by the Environment Act 1995. These purposes are:
- i. To conserve and enhance the natural beauty, wildlife and cultural heritage of the National Park; and
  - ii. To promote opportunities for public enjoyment and understanding of the special qualities of the National Park.
- 5.47. The special qualities of the Pembrokeshire Coast National Park are listed and described in section 6.3 of the PCNP SPG: *Landscape Character Assessment* (PCNP June 2011). This states that the special qualities were identified by the Landscape Character Study in conjunction with a survey of visitors and residents previously undertaken by the PCNPA during 2006 and are as follows:
- i. Coastal splendour
  - ii. Diverse Geology
  - iii. Diversity of Landscape
  - iv. Distinctive Settlement Character

- v. Rich Archaeology
- vi. Cultural Heritage
- vii. Richness of Habitats and Biodiversity
- viii. Islands
- ix. Accessing the Park
- x. Space to Breathe
- xi. Remoteness, Tranquillity and Wilderness
- xii. Diversity and Combination of Special Qualities.

#### **South Pembrokeshire Heritage Coast**

- 5.48. The South Pembrokeshire Heritage Coast is over 3km from the Development site at its closest point in Angle Bay (see ES Figure 5.2). It follows the coastline around the National Park and the section from Linney Head to Angle Bay is within the landscape study area. It has a defined lateral/coastal extent but does not have an inland component.
- 5.49. Heritage Coasts are found around the coastlines of Wales (and England) and most are within the boundaries of National Parks or Areas of Outstanding Natural Beauty (AONBs). They are “defined” rather than designated as there is no statutory designation process like that associated with National Parks and AONBs. Definition is formalised by agreement between the relevant maritime local authorities and Natural Resources Wales (NRW) in Wales (or Natural England in England).

- 5.50. Heritage Coasts were established to conserve the best stretches of undeveloped coast in England and Wales and the purposes of Heritage Coasts are described on the Natural England website<sup>1</sup> as:
- i. To conserve, protect and enhance the natural beauty of the coastline, their terrestrial, coastal and marine flora and fauna, and their heritage features.
  - ii. To encourage and help the public to enjoy, understand and appreciate these areas.
  - iii. To maintain and improve the health of inshore waters affecting Heritage Coasts and their beaches through appropriate environmental management measures.
  - iv. To take account of the needs of agriculture, forestry and fishing and the economic and social needs of the small communities on these coasts.

#### **Haven Waterway Enterprise Zone (HWEZ)**

- 5.51. Seven Enterprise Zones were launched across Wales by the Welsh Government in 2012. One of these is the Haven Waterway Enterprise Zone (HWEZ) which is located on and around Milford Haven (see ES Figure 5.9). Enterprise Zones are *“designated geographical areas that support new and expanding businesses by providing first class business infrastructure and support and each has a focus on one or more key business sectors. The Haven Waterway Enterprise Zone focuses primarily on the energy & environment sector”* (WG October 2018).
- 5.52. The vision for the HWEZ is to *“create an economic environment to grow existing businesses, attract new investment and broadening the employment opportunities through developing and maximising the potential of the area’s USPs”* (WG October 2018).

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<sup>1</sup> <https://www.gov.uk/government/publications/heritage-coasts-protecting-undeveloped-coast/heritage-coasts-definition-purpose-and-natural-englands-role>

- 5.53. As illustrated on ES Figure 5.9, the HWEZ includes the Inner Milford Haven and land on both the north and south sides of the Haven. On the north side of the Haven, the HWEZ boundary encompasses various oil storage sites and several operational wind turbines, including the Wear Point Wind Farm (4 x MM82 wind turbines, 100m to tip, permitted by Pembrokeshire County Council in May 2010 and operational since July 2014), one of the Castle Pill wind turbines (at Lodge Farm, 53.5m to tip) and the Crican Farm wind turbine (76m to tip).
- 5.54. On the south side of the Haven, the HWEZ boundary encompasses a large area of land that includes the former BP Oil Storage site, the Valero Oil Refinery and the Pembroke CCGT Power Station, plus the east side of Angle Bay and land that is between and around these three industrial sites, including land to the south of the Valero Oil Refinery within which the Development would be located. As illustrated on ES Figure 5.9, the HWEZ includes two small areas of the National Park, one on the north side of the Haven and one on the south side of the Haven which includes the east side of Angle Bay.
- 5.55. The HWEZ is not a landscape designation, nor is it a spatial planning policy (i.e. it is not an allocation of land for development in the Local Development Plan). However, it is a geographical area defined by the Welsh Government to support new and expanding businesses, with a focus on the energy and environmental sectors. It is in place to stimulate development and, by so doing, would inevitably lead to a degree of landscape change within the Zone which would also have an effect on landscape and seascape character and views both within the Zone and in the surrounding area.
- 5.56. For the purposes of this assessment, the HWEZ has not influenced the assessment of effects on landscape, seascape and visual amenity (ie the sensitivity of the resources and receptors has not been varied to reflect their location inside or outside the HWEZ). However, the presence of the HWEZ has been noted in relation to the various landscape and seascape units and viewpoint locations, to enable the Welsh Government's objectives and vision for the HWEZ to be taken into consideration when determining the weight to be given to the

predicted effects on landscape, seascape and visual amenity in the decision-making process.

## **Landscape Character**

### **Introduction**

- 5.57. As illustrated on ES Figures 5.3 - 5.8, the landscapes in the landscape study area have been characterised and evaluated by *LANDMAP* data in terms of the five aspect layers – visual and sensory (VSAAs), geological landscape (GLAAs), historic landscape (HLAAs), cultural landscape (CLAAs) and landscape habitats (LHAAs).
- 5.58. One of the original purposes of *LANDMAP* was to provide a consistent suite of baseline data to enable Local Planning Authorities in Wales to produce landscape character assessments. Where these have not yet been produced, the VSAAs form suitable baseline landscape units for LVIAAs with the other aspect layers informing the baseline for each VSAA.
- 5.59. In Pembrokeshire, the *LANDMAP* data has now been used to identify landscape character areas (LCAs) both inside and outside the PCNP (see paras 5.74 - 5.84 below). However, the landscape character assessment for land outside the PCNP is still in draft and so, for the purposes of this LSVIA, both the *LANDMAP* data and the LCA descriptions have been examined in order to inform the assessments of character and sensitivity of the LCAs in Tables 5.1 – 5.5 below.
- 5.60. A development is unlikely to have a significant effect on the character of a landscape unit that is not the host unit where the development would not be visible, so this assessment focusses on those *LANDMAP* VSAAs and LCAs where the tip height ZTV suggests that there could be views of at least the tips of the three wind turbines and those VSAAs and LCAs where views would be largely screened have been excluded.

5.61. Also excluded from consideration are those *LANDMAP* VSAs and LCAs that are exclusively urban or industrial in nature as these are unlikely to be significantly affected by the Development.

### **LANDMAP Data**

#### **The Site**

5.62. As illustrated on ES Figures 5.3 – 5.8, the site is located within the following *LANDMAP* Aspect Areas:

- i. Visual & Sensory Aspect Area (VSAA): Castlemartin (PMBRKVS061)  
VS061 - Overall Evaluation: moderate (see ES Figures 5.3 and 5.4).
- ii. Geological Landscape Aspect Area (GLAA): Hundleton (PMBRKGL234)  
GL234 - Overall Evaluation: moderate (see ES Figure 5.5).
- iii. Historic Landscape Aspect Area (HLAA): Rhoscrowther (PMBRKHL43920)  
HL43920 - Overall Evaluation: high (see ES Figure 5.6).
- iv. Cultural Landscape Aspect Area (CLAA): Lowlands (PMBRKCL196)  
CL196 - Overall Evaluation: high (see ES Figure 5.7).
- v. Landscape Habitat Aspect Areas (LHAA): N of Castlemartin (PMBRKLH608)  
LH608 - Overall Evaluation: moderate (see ES Figure 5.8).

5.63. VS061 is a large area of Mosaic Rolling Lowland landscape type on the South Pembroke Peninsula. As described in the *LANDMAP* data (ES Appendix 5.2), VS061 is a rolling landscape with a mosaic field pattern, medium in scale, open, simple, smooth in texture, with angular lines, muted in colour, balanced, unified, regular in pattern, with mixed seasonal interest and with frequent human access. There is a strong coastal influence in places.

- 5.64. Night-time light pollution is slight (with localised light pollution around the town of Pembroke and the industrial complexes, including the Valero Oil Refinery). It has attractive views across the open rural landscape and, from the more elevated locations, towards Milford Haven to the north and southwards and westwards towards the National Park. It also has detractive views of the 400kV pylons, the Pembroke CCGT Power Station, the Valero Oil Refinery and the various industrial installations on the north side of the Haven.
- 5.65. The perceptual and other sensory qualities are described as being both attractive and detractive. It is exposed, remote, settled and wild in places with a moderate sense of place. The value is considered to be moderate, its condition fair, with both of these declining as a consequence of the gradually increasing visual intrusion of the industrial developments around the Haven.
- 5.66. Its scenic quality is described as moderate (as a consequence of the attractive and detractive views), integrity is moderate (as the pylons, which are inside this VSAA, and industrial plants, which are outside the VSAA, do not significantly affect the nature of this rural area), character is moderate (as the area is characterised by pleasant farmland with minor lanes, small villages and borrowed estuarine views with a windswept coastal feel) and rarity is moderate (as the area is characteristic of the rural landscapes in the majority of Pembrokeshire but has an undeveloped nature and coastal aspect). Consequently, the overall evaluation for VS061 in the *LANDMAP* data is *moderate*.
- 5.67. However, VS061 is a large area and fieldwork observations suggest that there are pockets where the evaluation is towards the high side of moderate (for example, where the coastal influence is greatest, most views are attractive, the condition is good and there is a sense of wildness, eg within the National Park) and pockets where the evaluation is towards the low side of moderate (for example, adjacent to the pylon lines and, in particular, adjacent to the industrial complexes).

- 5.68. In most aspects, the site landscape is fairly typical of this VSAA. It is sloping with a semi-regular field pattern, is medium scale, open, simple, smooth in texture, with the angular lines of the hedgerows, muted in colour, balanced and unified, with some seasonal interest. It has attractive views east/west along the valley and southwards from the upper slopes, and detractive views northwards towards the adjacent oil refinery so it is also both attractive and detractive, in fair condition and has a moderate sense of place.
- 5.69. However, being within a valley between two ridgelines, it is less exposed and open, it does not provide views out to Milford Haven, the coastal influence is less evident, and it does not have the feel of wildness. There is also no public access and, in all views of and from the site landscape, the tall chimneys and stacks and, from most locations, the buildings, tanks, pipework, gantries and other structures of the Valero Oil Refinery are also visible, audible and, depending on the wind direction, odorous. This also results in greater night-time light pollution than would be experienced over the remainder of VS061. As a consequence, the site landscape is already heavily characterised by views of the adjacent industrial complex and is one of those pockets of landscape within VS061 where the evaluation should be on the low side of moderate.

### **Landscape Study Area**

- 5.70. ES Figure 5.16a suggests that there could be views of at least the tips of the three wind turbines from the following VSAs in the landscape study area on the south side of Milford Haven:
- i. VS061: Castlemartin (PMBRKVS061) - Overall Evaluation: moderate.
  - ii. VS063: Merrion Ranges (PMBRKVS063) - Overall Evaluation: low.
  - iii. VS065: Angle (PMBRKVS065) - Overall Evaluation: moderate.
  - iv. VS079: Kilpaison Burrows (PMBRKVS079) – Overall Evaluation: high.

- v. VS098: Estuarine Mud (PMBRKVS098) – Overall Evaluation: high.
  - vi. VS117: Angle Bay (PMBRKVS117) - Overall Evaluation: high.
- 5.71. The *LANDMAP* datasheets for VS061, VS063, VS065, VS079, VS098 and VS117 are provided in ES Appendix 5.2.
- 5.72. As illustrated on ES Figure 5.4, VS090: Industry/Milford Haven and VS067: Pembroke Dock are also south of the Haven and in the study area. However, these are entirely occupied by industrial and urban development, so have not been considered in this assessment.
- 5.73. The ZTV in ES Figure 5.16a suggests some visibility within VS068 on the north shore of Milford Haven. However, these are relatively small areas between existing industrial and urban areas, which include the existing wind turbines (Wear Point, Castle Pill, Lower Scoveston Farm, Crican Farm and Scoveston Park) and views from this VSAA southwards towards the Development are already characterised by the Valero Oil Refinery (see Viewpoint 10, ES Figure 5.30a-c and Viewpoint 23, ES Figure 5.43a-c). Consequently, the Development is unlikely to result in significant additional effects on the character of the landscapes within VS068.

#### **PCNPA and PCC Landscape Character Assessments**

- 5.74. As noted in para 5.59 above, in Pembrokeshire the *LANDMAP* data has now been used to identify landscape character areas (LCAs) both inside and outside the PCNP, in two publications:
- i. Supplementary Planning Guidance to the Local Development Plan for the Pembrokeshire Coast National Park: *Landscape Character Assessment* (PCNP June 2011) (the “PCNP LCA”).
  - ii. *Landscape Character Assessment* (Consultation Draft) (PCC July 2019) (the “PCC draft LCA”).

- 5.75. The PCNPA LCA identifies 28 LCAs within the National Park, four of which are within the landscape study area (see ES Figure 5.9).
- 5.76. The LCAs that are within the National Park and in the landscape study area to the south of the Haven include:
- i. LCA 6: Castlemartin/Merrion Ranges
  - ii. LCA 7: Angle Peninsula
  - iii. LCA 8: Freshwater West/Brownslade Burrows
- 5.77. The datasheets for LCA 6, LCA 7 and LCA 8 are provided in ES Appendix 5.3.
- 5.78. There is one LCA that is within the National Park and extends into the far northwest of the landscape study area to the north of the Haven (LCA 11: Herbrandston Refinery Fringe). However, the part that is within the study area is entirely industrial, so has not been considered in this assessment.
- 5.79. The PCC draft LCA identifies landscape units for Pembrokeshire outside of the National Park. This was subject to public consultation (ending September 2019) and, once adopted, its purpose is to form supplementary planning guidance to the Local Development Plan and evidence base to the Local Development Plan review (p4, PCC July 2019).
- 5.80. Its aims are to provide a neutral interpretation of the landscape which encompasses physical landscape features and sensory qualities identified through desktop and field studies and to increase the understanding of the qualities, key characteristics and sensitivities of the landscape (p4, PCC July 2019). In total, it identifies 29 landscape character areas (LCAs) following an initial assessment of the five *LANDMAP* aspect layers, and amendments by members of the steering group (p4, PCC July 2019).
- 5.81. As illustrated on ES Figure 5.9, two of the LCAs are within the landscape study area and to the south of the Haven:

- i. LCA 24: Southern Haven Mudflats – the mudflats within the Pembroke River estuary, between the Pembroke Power Station and Pembroke Docks.
- ii. LCA 25: Hundleton and Lamphey - a very extensive area that covers almost all the land south of the Haven and outside the PCNP, from the site in the west to Milton in the east.

5.82. The datasheets for LCA 24 and LCA 25 are provided in ES Appendix 5.3.

5.83. As illustrated on ES Figure 5.9, LCA 16: Southern Haven Developed and LCA 23: Southern Haven Industrial Fringe are also south of the Haven. However, LCA 16 is occupied by Pembroke and Pembroke Docks and LCA 23 is occupied by part of the Valero Oil Refinery site (the main complex) and the Pembroke Power Station, so these have not been considered in this assessment.

5.84. There are also two LCAs to the north of the Haven that are within the study area and outside the National Park. LCA 10: The Haven North is a relatively large area that wraps around the town of Milford Haven and includes some of the existing industrial areas on the north of the Haven and the existing wind turbines (Wear Point, Castle Pill, Lower Scoveston Farm, Crican Farm and Scoveston Park). Views from LCA 10 southwards towards the Development are already characterised by the Valero Oil Refinery (see Viewpoint 10, ES Figure 5.30a-c and Viewpoint 23, ES Figure 5.43a-c). LCA 22: Milford Haven is entirely occupied by the town of Milford Haven. The Development is unlikely to result in significant additional effects on the character of the landscapes within LCA 10 or LCA 23, so these have not been considered in this assessment.

#### **Assessment of Landscape Character and Sensitivity**

5.85. The *LANDMAP* data (ES Appendix 5.2) includes an assessment of value (as well as the evaluation) but does not consider the sensitivity of these landscapes to any particular development type. The PCNP LCA datasheets note the overall evaluations for the

constituent VSAs, GLAAs, LHAAs, HLAAs and CLAAs for each LCA but do not assess the sensitivity of these LCAs to any development types and the PCC draft LCA datasheets discuss the key sensitivities of each LCA but do not assess sensitivity to any development types.

- 5.86. Therefore, an assessment of the character and sensitivity of the five LCAs to the type and scale of development proposed has been undertaken and is provided in Tables 5.1 – 5.5 below. This has been undertaken in accordance with the assessment criteria in ES Appendix 5.1 and draws on fieldwork observations, the *LANDMAP* datasheets for each VSA (see ES Appendix 5.2) and the datasheets for LCA 6, LCA 7, LCA 8, LCA 24 and LCA 25 (see ES Appendix 5.3).
- 5.87. With regards to the following judgements on susceptibility and sensitivity, it is important to note that those for the host unit (LCA 25 in Table 5.5 below) are based on the introduction of the Development into this unit, whereas those for the other landscape units (LCA 6, LCA 7, LCA 8 and LCA 24 in Tables 5.1 – 5.4 below) are based on the introduction of the Development into views towards the site from these units.

Table 5.1: LCA 6: Castlemartin/Merrion Ranges

Location:	South of Castlemartin in south of study area.
Key characteristics	<p>Landform and geology: a large tract of gently undulating, coastal plateau averaging 50m asl on Carboniferous limestone. High limestone sea cliffs with a range of geomorphological features including caves, stacks and arches. Very little foreshore.</p> <p>Land cover: coastal grassland consisting of a mix of dry heathland, sea cliff grassland, neutral grassland, lowland heathland, cliffs, rocky and sandy shores. Few hedgerows and trees.</p> <p>Land use: large part to south of Castlemartin is Castlemartin Artillery Range, used for live fire and dry military training. Low level of management gives a rather neglected appearance.</p> <p>Built development and access: low level of built development but with evidence of former quarries and scattered villages. Prominent church tower of St Twynnells on ridgeline. Accessed via a few minor roads and footpaths (some accessible during non-firing times only).</p> <p>Historical and cultural: prehistoric monuments, Iron Age hillforts, medieval and post-medieval buildings and sites, all of national significance. Castlemartin Range in use since 1938.</p> <p>Aesthetic and perceptual characteristics: a medium scale, undulating, open, exposed and simple landscape with muted colours, with periodic noise of heavy gunfire, otherwise wild and tranquil, with poor scenic quality but robust and with a strong coastal feel.</p>
Views	Extensive views of the open sea to the south from much of the higher ground and along the coast from the coastal path. Views northwards are a minor contribution to landscape character and already contain vertical elements.
Landscape designations	In PCNP
Recreational routes	Sections of Pembrokeshire and Wales Coast Path
HWEZ	Outside HWEZ

<p><i>LANDMAP</i> overall evaluations:</p>	<p>Visual and sensory (ES Figure 5.4): VS080 (outstanding), VS061 (moderate), VS063 and VS064 (low)</p> <p>Geological landscape (ES Figure 5.5): GL238 (outstanding), GL038 and GL239 (high), GL234 (moderate)</p> <p>Historic landscape (ES Figure 5.6): HL46185 and HL46187 (outstanding), HL46188, HL46189 and HL46190 (high), HL46186 (moderate)</p> <p>Cultural landscape (ES Figure 5.7): CL003 (outstanding), CL819 (high)</p> <p>Landscape habitat (ES Figure 5.8): LH146, LH359, LH765 (outstanding), LH608 (moderate)</p>
<p>Value</p> <p>Susceptibility</p> <p>Sensitivity</p>	<p>National value (PCNP)</p> <p>Moderate susceptibility (key characteristics are clearly expressed and robust, views to the north are a minor contribution to landscape character and further changes in those views that could be brought about by a development of the type, scale and location proposed would have a limited degree of compatibility with these factors)</p> <p>Medium sensitivity</p>

Table 5.2: LCA 7: Angle Peninsula

Location:	West of site and Valero Oil Refinery, in west of study area.
Key characteristics	<p>Landform and geology: a peninsula of rolling lowland and associated coastal land with low sea cliffs, small wooded valleys and a low estuarine semi-circular bay (Angle Bay).</p> <p>Land cover: a mix of semi-natural habitats including inter-tidal mudflats in Angle Bay, exposed cliffs, sand and rocky shores on the south and west facing coastlines, several areas of lowland mixed deciduous woodland (some planted, some semi-natural).</p> <p>Land use: mixed agriculture within a rectangular field pattern, with hedges and hedge banks, a disused airfield and the former BP Oil Storage site.</p> <p>Built development and access: village of Angle and scattered farmsteads, accessed via the B4320, minor roads and footpaths.</p> <p>Historical and cultural: Bronze Age standing stones and an Iron Age hillfort of national significance. Angle is a fine example of an Anglo-Norman planned village with several medieval buildings.</p> <p>Aesthetic and perceptual characteristics: a medium scale, undulating, open, exposed (to the west and south), semi-enclosed (in Angle Bay) and varied landscape with muted colours, managed and tranquil, with a pleasant scenic quality and a strong coastal feel.</p>
Views	Extensive views of the open sea to the south and of Angle Bay and Milford Haven to the north from the higher ground and from the coastal path. Views eastwards do contribute to landscape character from Angle Bay and already contain vertical elements.
Landscape designations	In PCNP
Recreational routes	Sections of Pembrokeshire and Wales Coast Path
HWEZ	East side of Angle Bay is within HWEZ

<p><i>LANDMAP</i> overall evaluations:</p>	<p>Visual and sensory (ES Figure 5.4): VS074 (outstanding), VS117 (high), VS065 (moderate)</p> <p>Geological landscape (ES Figure 5.5): GL237 (outstanding), GL233, GL236, GL244 (moderate)</p> <p>Historic landscape (ES Figure 5.6): HL43919 (outstanding), HL43918, HL43920 (high), HL43916 (moderate), HL46917 (low)</p> <p>Cultural landscape (ES Figure 5.7): CL003 (outstanding)</p> <p>Landscape habitat (ES Figure 5.8): LH376 (outstanding), LH401, LH584, LH874 (high), LH605, LH608, LH940 (moderate)</p>
<p>Value</p> <p>Susceptibility</p> <p>Sensitivity</p>	<p>National value (PCNP)</p> <p>Susceptible (key characteristics are clearly expressed and robust, views to the east contribute to landscape character, particularly from Angle Bay, and further changes in those views that could be brought about by a development of the type, scale and location proposed would have a limited degree of compatibility with these factors)</p> <p>High sensitivity</p>

Table 5.3: LCA 8: Freshwater West/Brownslade Burrows

<b>Location:</b>	Southwest of site and Valero Oil Refinery, in west of study area.
<b>Key characteristics</b>	<p>Landform and geology: a broad, shallow, lowland valley (Castlemartin Corse) with associated coastal areas of extensive fixed sand dune system (Broomhill, Kilpaison, Brownslade and Linney Burrows), low sea cliffs and bays with sands and rocky foreshore (Freshwater West and Frainslake Sands).</p> <p>Land cover: a mix of habitats including coastal sand dunes, fens, reed beds, purple moor grass and rush pastures, lowland calcareous grassland, maritime cliffs, littoral and sub-littoral habitats.</p> <p>Land use: Castlemartin Corse is managed for pastoral agriculture on land largely reclaimed from marsh.</p> <p>Built development and access: largely devoid of development, accessed via the B4319 and footpaths.</p> <p>Historical and cultural: abandoned military structures and Iron Age forts of national significance. Physical preservation beneath the burrows and Castlemartin Corse is also of historical significance.</p> <p>Aesthetic and perceptual characteristics: a medium scale, undulating, open, exposed and simple landscape with muted colours, wild and remote, with a strong scenic quality and coastal feel.</p>
<b>Views</b>	Extensive views of the open sea to the west from the dunes and beaches. The tops of the high chimneys and stacks at the Valero Oil Refinery are visible to the northeast. Views northeastwards are a minor contribution to landscape character and already contain vertical elements.
<b>Landscape designations</b>	In PCNP
<b>Recreational routes</b>	Section of Pembrokeshire and Wales Coast Path
<b>HWEZ</b>	Outside HWEZ

<p><b>LANDMAP overall evaluations:</b></p>	<p>Visual and sensory (ES Figure 5.4): VS081 (outstanding), VS079 (high), VS061, VS118 (moderate)</p> <p>Geological landscape (ES Figure 5.5): GL235 (outstanding), GL239 (high)</p> <p>Historic landscape (ES Figure 5.6): HL46188 (outstanding), HL46189 (high)</p> <p>Cultural landscape (ES Figure 5.7): CL003 (outstanding), CL705, CL819 (high)</p> <p>Landscape habitat (ES Figure 5.8): LH142 (outstanding), LH531, LH780, LH865 (high)</p>
<p><b>Value</b></p> <p><b>Susceptibility</b></p> <p><b>Sensitivity</b></p>	<p>National value (PCNP)</p> <p>Susceptible (key characteristics are strongly expressed and robust, views to the northeast make a limited contribution to landscape character from the dunes but further changes in those views that could be brought about by a development of the type, scale and location proposed would have a poor degree of compatibility with these factors)</p> <p>High sensitivity</p>

Table 5.4: LCA 24: Southern Haven Mudflats

<b>Location:</b>	East of site and Valero Oil Refinery, in east of study area.
<b>Key characteristics</b>	<p>Landform and geology: a broad, shallow, enclosed estuary at the mouth of the Pembroke River with a narrow entrance where it joins the Cleddau estuary, and a small tributary stream in a wooded lowland valley to the west. Also fed by several small tributary streams in wooded lowland valleys to the north and south.</p> <p>Land cover: a mix of intertidal mudflats and patches of shingle with some marginal saltmarsh at low tide.</p> <p>Land use: recreational boating and boat mooring.</p> <p>Built development and access: largely devoid of development and with limited access via minor roads and footpaths, eg Ferry Road in Pennar on the north side of the estuary and Bentlass Hill north of Hundleton on the south side of the estuary (likely to have provided access to a ferry crossing point in the past).</p> <p>Historical and cultural: intertidal area is unassessed in relation to the historic environment.</p> <p>Aesthetic and perceptual characteristics: a large scale, low-lying, open, enclosed and simple landscape with muted colours, secluded, with a strong scenic quality and coastal feel.</p>
<b>Views</b>	<p>Low level views across the estuary to rising land to the east, west, south and north. These include natural banks and, above these, the urban areas of Pembroke and Pembroke Dock, the line of pylons to the south, Valerio Oil Refinery and the Pembroke Power Station to the west and the Wear Point wind turbines and oil storage tanks to the north.</p> <p>Views westwards are a minor contribution to landscape character and already contain vertical elements.</p>
<b>Landscape designations</b>	None
<b>Recreational routes</b>	Pembrokeshire and Wales Coast Path crosses the wooded tributary
<b>HWEZ</b>	Outside the HWEZ

<p><b>LANDMAP overall evaluations:</b></p>	<p>Visual and sensory (ES Figure 5.4): VS091, VS098 (high)                      Geological landscape (ES Figure 5.5): GL227 (high)                      Historic landscape (ES Figure 5.6): none                      Cultural landscape (ES Figure 5.7): CL006 (outstanding), CL196 (high)                      Landscape habitat (ES Figure 5.8): LH531, LH549 (high)</p>
<p><b>Value</b> <b>Susceptibility</b>  <b>Sensitivity</b></p>	<p>County value                      Moderate susceptibility (key characteristics are strongly expressed and robust, views to the west make a minor contribution to landscape character and are already characterised by vertical features, and further changes in those views that could be brought about by a development of the type, scale and location proposed would have a limited degree of compatibility with these factors)                      Medium sensitivity</p>

Table 5.5: LCA 25: Hundleton and Lamphey

<p><b>Location:</b></p>	<p>The site and a large area to the south, southeast and east of Valero Oil Refinery, in centre and east of study area.</p>
<p><b>Key characteristics</b></p>	<p>Landform and geology: rolling lowland of low ridges and shallow valleys associated with bands of Old Red Sandstone (Silurian – Devonian), Carboniferous limestone and several narrow belts of Ordovician and Silurian slates and sandstones.</p> <p>Land cover: a mix of improved grasslands and arable crops, mainly hedgerows and stone walls, small riparian woodlands along streams in minor valleys, linear broadleaf and conifer plantations and woodlands associated with small estates (eg Orielson RHPG).</p> <p>Land use: mixed pastoral and arable agriculture within mosaic of small and medium fields.</p> <p>Built development and access: small rural settlements and scattered farmsteads. Most dwellings are stone and render finished with slate roofs of traditional style, both small cottages and substantial farmhouses, many extended. Most farmsteads are nucleated complexes of modern farm buildings alongside traditional buildings. Access (within the study area) is via the B4319, B4320, minor roads, bridleways and footpaths. Large-scale solar park (Hoplass and Wogaston Farms) and large-scale electricity pylons, with industrial development to the immediate north (LCA 23).</p> <p>Historical and cultural: include prehistory and Bronze Age features, and Medieval buildings. Small, nucleated settlements with small parish churches, many with Medieval origins. Orielson RHPG.</p> <p>Aesthetic and perceptual characteristics: medium scale, undulating, open (along ridgelines), semi-enclosed (in valleys), simple landscape with muted colours, managed and peaceful but with light and noise pollution from towns and industrial developments to the north, with a pleasant scenic quality and a strong coastal feel in places.</p>

<b>Views</b>	Extensive views of the surrounding landscape from ridgelines, which include glimpses of the sea to the south and west and Milford Haven to the north. Views northwards and westwards across the area already contain vertical elements.
<b>Landscape designations</b>	None
<b>Recreational routes</b>	Short sections of Pembrokeshire and Wales Coast Path
<b>HWEZ</b>	Northern part (which includes the site) is within HWEZ
<b>LANDMAP overall evaluations:</b>	<p>Visual and sensory (ES Figure 5.4): VS061 (moderate)</p> <p>Geological landscape (ES Figure 5.5): GL239 (outstanding), GL234 (moderate)</p> <p>Historic landscape (ES Figure 5.6): HL46191 (outstanding), HL43920, HL46189, HL46190 (high)</p> <p>Cultural landscape (ES Figure 5.7): CL196 (high)</p> <p>Landscape habitat (ES Figure 5.8): LH723 (high), LH608 (moderate)</p>
<b>Value</b>	Local value (generally), County value for RHPG
<b>Susceptibility</b>	Moderate susceptibility (key characteristics are clearly expressed and moderately robust, views to the north and west make a contribution to landscape character but are already characterised by vertical features, and further changes in views that could be brought about by a development of the type, scale and location proposed would have a degree of compatibility with these factors)
<b>Sensitivity</b>	Medium sensitivity

**Likely Natural Evolution of Landscape Baseline**

5.88. The draft Supplementary Planning Guidance “*Landscape Character Assessment*” for Pembrokeshire outside of the National Park (PCC July 2019) explains (on p15) that, “*uncertainty remains about how much the climate will change, and how quickly. There is however general consensus that the planet is warming and that human activity is*

*responsible and that the speed of change and the frequency of extreme weather is [are] increasing. In the UK, this could result in more and heavier rain days and drier hotter days – potentially leading to episodes of drought, flooding and storms. The seasons may be less distinct and arrive earlier or later than expected and sea levels could rise. Much depends on the influence of natural changes in weather and governments’ ability to cut greenhouse gas emissions<sup>2</sup>.*

- 5.89. It also references the UK Climate Change Risk Assessment 2017 Evidence Report: *Summary for Wales* (CCC 2017)<sup>3</sup> which outlines the risks and opportunities of climate change to Wales. This makes specific reference to changes in landscape character (on p30):

**“Ne14: Risks and opportunities from changes in landscape character.** Landscape character has changed in Wales over the last few decades. Climate change has been a contributing factor, both directly through its effects on land cover and indirectly by influencing some land uses over others in specific locations. Changes in land cover and land use will undoubtedly continue to occur into the future and the magnitude of climate change (and responses to it) will be a key factor in influencing this change. Ancient woodlands and hedgerows are not only important ecosystems but are also historic assets containing evidence for past human use. The potential effects of climate change on forestry, ancient woodland and hedgerows may be gradual but significant. Soil erosion, land-use change and replanting could all damage individual historic assets.”

- 5.90. All 14 risk/opportunities (Ne1 – Ne14) in the Evidence Report are given urgency scores from the highest (more action needed) to the lowest (watching brief) and Ne14 is the only risk/opportunity placed in the lowest category. There are also no suggestions on adaption or recommendations for action for Ne14. This suggests that, whilst there will be changes to landscape character as a result of climate change, the risks and opportunities from

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<sup>2</sup> International Panel on Climate Change (IPCC) reports <https://www.edf.org/blog/2014/03/31/6-key-insights-latest-ipcc-climate-report>

<sup>3</sup> <https://www.theccc.org.uk/uk-climate-change-risk-assessment-2017/national-summaries/wales/>

changes in landscape character arising from climate change in the near future are considered to be low.

- 5.91. Natural changes to landscape character could occur during the lifetime of the Development due to climate change. For example, if climate change results in more extreme weather conditions, these could, in turn, affect the natural succession of any unmanaged vegetation. Consequently, there could be changes in the species composition of the unmanaged grasslands, hedgerows and woodlands on the site and immediate surroundings.
- 5.92. Similarly, the effects of climate change could necessitate changes in the way that the land is farmed and managed, which could result in changes in the relative amounts of land farmed for grassland and arable crops and in the management of field boundary hedgerows and woodlands. Whilst this will change from year to year anyway as crops are rotated, were climate change to necessitate the adoption of large scale mechanised arable farming, this could, in turn, require larger fields and result in the loss of field boundaries.
- 5.93. However, for the purposes of this LSVIA, it has been assumed that there would not be any significant changes in the landscape fabric and character of the site and immediate surroundings during the lifetime of the Development as a result of natural evolution and, therefore, no changes that would affect the sensitivity of the landscape to this type of development or the purposes of the National Park and Heritage Coast.

### **Seascape Character**

- 5.94. The adopted PCNP SPG: *Seascape Character Assessment* (PCNP December 2013) (the "PCNP SCA") identifies 44 seascape character areas (SCAs) around the National Park.
- 5.95. As illustrated on ES Figure 5.9, two SCAs are identified within the Haven, SCA 31: Outer Milford Haven and SCA 32: Inner Milford Haven, which is the closest SCA to the site. The descriptions for SCA 31 and SCA 32 are provided in ES Appendix 5.4.

**Assessment of Seascape Character and Sensitivity**

- 5.96. The datasheets for SCA 31 and SCA 32 (ES Appendix 5.4) discuss the factors which contribute to sensitivity and those which detract from sensitivity but do not conclude on the sensitivity of these seascape units to any development types.
- 5.97. Therefore, an assessment of the character and sensitivity of the two SCAs to the type and scale of development proposed has been undertaken and is provided in Tables 5.6 and 5.7 below. This has been undertaken in accordance with the assessment criteria in ES Appendix 5.1 and draws on fieldwork observations and the datasheets for SCA 31 and SCA 32 (see ES Appendix 5.4).

Table 5.6: SCA 31: Outer Milford Haven

<p><b>Location:</b></p>	<p>From South Hook Point downstream to the mouth of Milford Haven, in the west of the study area.</p>
<p><b>Key characteristics</b></p>	<p>Landform and geology: the seaward end of a coastal inlet formed by the drowning of a river valley (ria) to create a wide L-shaped estuary with a wide southward opening. Incised through east/west bands of Silurian sandstone, Devonian Old Red Sandstone and Carboniferous limestone which result in the tall red cliffs to both the west (St Anne’s Head to Dale Point) and east (East Blockhouse Point, Rat Island and Sheep Island) and cliffs to the north, with intertidal areas of rocks or shingle around headlands and sandy bays. Rolling lowland plateau to the west, east and north, with small, steep-sided valleys cutting through the rolling lowland plateau to the north.</p> <p>Land cover: a mix of improved grasslands and arable crops in small and medium sized semi-regular fields bounded by low hedge banks and fencing, and deciduous woodlands in the incised valleys.</p> <p>Land use: mixed arable and pasture on the land and commercial shipping on the waterway passing through to Inner Milford Haven. Also fishing, marine recreation and leisure activities.</p> <p>Built development and access: small coastal settlement of Dale and dispersed farmsteads but otherwise largely undeveloped. Access (within study area) is via minor roads to bays, eg West Angle Bay and the Pembrokeshire and Wales Coast Path which follows the cliff tops.</p> <p>Historical and cultural: rich history including Medieval burials (in West Angle Bay), a pair of blockhouses built by Henry VIII to guard the entrance to the Haven, a chain of forts built to defend the Haven from Napoleon III (on Thorn Island, South Hook, Stock Rock and Dale Fort), scheduled monuments and over 20 wrecks.</p> <p>Aesthetic and perceptual characteristics: large scale, exposed seaway contrasts with the small scale, enclosed and sheltered bays, rough and rugged textures of the red sea cliffs contrast with the smooth rolling green plateau, but a balanced, rural and generally tranquil area (busier during the summer), with a pleasant scenic quality and a strong sense of place.</p>

<b>Views</b>	Elevated and panoramic views of the sea from the cliff tops contrast with the low level, framed and more contained views from the bays. Views eastwards across the area, eg from Dale and St Anne’s Head, already contain vertical elements.
<b>Landscape designations</b>	In PCNP
<b>Recreational routes</b>	Long sections of Pembrokeshire and Wales Coast Path
<b>HWEZ</b>	Eastern side (land and sea) extends very slightly into the HWEZ
<b>LANDMAP overall evaluations:</b>	<p>Visual and sensory (ES Figure 5.4): VS074 (outstanding), VS075, VS076, VS077, VS091, VS115 (high), VS065, VS068, VS069 (moderate)</p> <p>Geological landscape (ES Figure 5.5): GL147, GL153, GL237 (outstanding), GL155, GL164 (high), GL136, GL137, GL138, GL139, GL140, GL142, GL144, GL233, GL234 (moderate)</p> <p>Historic landscape (ES Figure 5.6): HL43901, HL46919 (outstanding), HL43885, HL43886, HL43887, HL43890, HL43891, HL43902, HL43918, HL43920 (high), HL43888 (moderate)</p> <p>Cultural landscape (ES Figure 5.7): CL1003 (outstanding), CL565 (high)</p> <p>Landscape habitat (ES Figure 5.8): LH376 (outstanding), LH365, LH404, LH580, LH584, LH602 (high), LH502, LH580, LH605, LH608, LH667, LH940 (moderate), LH679, LH943 (low)</p>
<b>Value</b>	National value (in PCNP)
<b>Susceptibility</b>	Moderate susceptibility (key characteristics are strongly expressed and robust, views to the east make a contribution to seascape character but are already characterised by vertical features, and further changes in views that could be brought about by a development of the type, scale and location proposed would have a degree of compatibility with these factors)
<b>Sensitivity</b>	Medium sensitivity

Table 5.7: SCA 32: Inner Milford Haven

<p><b>Location:</b></p>	<p>From South Hook Point upstream to Cleddau Bridge, in the north of the study area.</p>
<p><b>Key characteristics</b></p>	<p>Landform and geology: the upstream part of a coastal inlet formed by the drowning of a river valley (ria) to create a wide estuary that runs east/west within this SCA, with intertidal areas of extensive mudflats, sandy bays (e.g. Angle Bay) and inlets and rocky shores. Incised through east/west bands of Devonian Old Red Sandstone and Carboniferous limestone. Rolling lowland plateau to the north and south, with small, incised valleys.</p> <p>Land cover: a mix of improved grasslands and arable crops in small and medium sized semi-regular fields bounded by low hedge banks and fencing. Semi-natural deciduous woodland along some sea edges, creeks and minor valleys.</p> <p>Land use: urban and large-scale industrial land uses, interspersed with some arable and pasture on the land and busy commercial shipping on the waterway with tanker terminals, ferry terminal and marinas, plus fishing and marine recreation.</p> <p>Built development and access: coastal towns of Milford Haven, Neyland and Pembroke Dock, dispersed farmsteads and very large industrial developments – Valero Oil Refinery &amp; Pembroke Power Station on the south side of the Haven and oil and gas storage tanks and the Wear Point Wind Farm on the north side. Access is via the railway (to Milford Haven), the A477 (over Cleddau Bridge), A4076, B4320, B4322 and B4325, urban and minor roads &amp; the Pembrokeshire and Wales Coast Path which mainly follows the coastal edge but diverts inland in places.</p> <p>Historical and cultural: rich history including Norman period (in Angle), defensive structures associated with Naval ship building at Neyland, Milford Haven and Pembroke Dock, scheduled monuments and several wrecks (two of which are aircraft).</p> <p>Aesthetic and perceptual characteristics: medium scale, sheltered seaway with the small scale, enclosed and sheltered bays, rough textures, noise and activity in the urban and industrial areas contrast with the smooth rolling green plateau and relative tranquillity of Angle Bay and Pembroke River estuary, resulting in a discordant area, with a pleasant scenic quality in places (but poor overall).</p>

<b>Views</b>	Elevated and panoramic views of the sea from the cliff tops contrast with the low level, framed and more contained views from sea level. Views across the area from most locations already contain vertical elements.
<b>Landscape designations</b>	Two small parts to north and south of the Haven are in the PCNP
<b>Recreational routes</b>	Long sections of Pembrokeshire and Wales Coast Path
<b>HWEZ</b>	Most of this SCA is within the HWEZ
<b>LANDMAP overall evaluations:</b>	<p>Visual and sensory (ES Figure 5.4): VS077, VS078, VS079, VS098, VS114, VS117 (high), VS061, VS065, VS066, VS067, VS068 (moderate), VS090, VS092 (low)</p> <p>Geological landscape (ES Figure 5.5): GL237 (outstanding), GL128, GL164, GL220 (high), GL141, GL142, GL162, GL163, GL165, GL166, GL167, GL223, GL227, GL229, GL233, GL234, GL236, GL244 (moderate), GL143, GL152, GL156, GL161, GL231, GL232 (low)</p> <p>Historic landscape (ES Figure 5.6): HL43874, HL43876, HL43914, HL43919, HL46188 (outstanding), HL43875, HL34879, HL43899, HL43920 (high), HL43879, HL43880, HL43889, HL43895, HL43915, HL43916 (moderate), HL43882, HL43917 (low)</p> <p>Cultural landscape (ES Figure 5.7): CL1003 (outstanding), CL006, CL007, CL009, CL101, CL196, CL977 (high), CL232 (low)</p> <p>Landscape habitat (ES Figure 5.8): LH142 (outstanding), LH365, LH401, LH549, LH584, LH602 (high), LH342, LH392, LH605, LH608, LH940, (moderate), LH451, LH553, LH586, LH649, LH771, LH807, LH943, LH955 (low)</p>
<b>Value</b>	National value (western part within PCNP), remainder Local value
<b>Susceptibility</b>	Slight susceptibility (key characteristics are clearly expressed and robust, views of the surrounding landscape make a minor contribution to seascape character and are already characterised by vertical features, and further changes in views that could be brought about by a development of the type, scale and location proposed would have a degree of compatibility with these factors)
<b>Sensitivity</b>	Low sensitivity

### Likely Natural Evolution of Seascape Character Baseline

- 5.98. Climate change is expected to bring about rises in global sea levels and an increase in the frequency and intensity of storm surges. According to The Royal Society<sup>4</sup>, the best estimate of the rate of global average sea level rise over the last decade is 3.6mm per year. If this rate of sea level rise continues for the next 35 – 40 years (the life of the Development), then there could be sea level rises of approximately 144mm (0.144m). However, if CO<sub>2</sub> and other greenhouse gases continue to increase on their current trajectories, the rate of sea level rise will accelerate over the coming years and it is projected that sea levels may rise, at a minimum, by a further 0.4 – 0.8m by 2100. On this basis, by 2060 (ie in 40 years' time), the increase in sea level could be nearer to 0.4m.
- 5.99. Where Milford Haven and the South Pembrokeshire peninsula coastline are defined by tall, steep sea cliffs, a sea level rise of 0.4m is unlikely to significantly change the shape of the coastline. The changes may be more noticeable, however, in the lower lying and relatively flat coastal areas, such as Angle Bay, Pembroke River estuary and the smaller sandy bays around the coastline, where both the high and low tides could be higher and the damaging effects of storm surges could bring about changes in the patterns of erosion and deposition of coastal and marine deposits.
- 5.100. However, for the purposes of this LSVIA, it has been assumed that any rises in sea level or changes in the rates of erosion or deposition over the next 35 – 40 years would not significantly change the character of SCA31 and SCA32 during the lifetime of the Development and, therefore, there would be no changes that would affect the sensitivity of the seascape units to this type of development or the purposes of the National Park and Heritage Coast.

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<sup>4</sup> [https://royalsociety.org/topics-policy/projects/climate-change-evidence-causes/question-14/?gclid=EAlalQobChMI58SYhIKW6wIVW-ztCh28dAjtEAAAYASAAEgl\\_vPD\\_BwE](https://royalsociety.org/topics-policy/projects/climate-change-evidence-causes/question-14/?gclid=EAlalQobChMI58SYhIKW6wIVW-ztCh28dAjtEAAAYASAAEgl_vPD_BwE)

**Visual Receptors**

5.101. The visual receptors within the 11km radius visual study area that are also within the tip height zone of theoretical visibility (ZTV) include:

- i. Residents in the settlements of Angle, Pembroke and Milford Haven (see ES Figure 5.20).
- ii. Residents in properties within the local area surrounding the site (see ES Figure 5.46).
- iii. Visitors to beaches and other attractions (see ES Figures 5.10 and 5.18a/b).
- iv. Walkers on the Pembrokeshire and Wales Coast Path (see ES Figures 5.10 and 5.18a/b).
- v. Cyclists on the Sustrans National Cycle Route (NCR4) (see ES Figures 5.10 and 5.18a/b).
- vi. Users of the local public rights of way within 3km of the site (see ES Figures 5.11 and 5.19).
- vii. Motorists and other road users on the B4320 and minor roads within 3km of the site (see ES Figures 5.11 and 5.19).

5.102. There is one area of access land in the visual study area, but this is in the far south of the study area and outside the ZTV (see ES Figures 5.10 and 5.18).

**Likely Natural Evolution of Visual Baseline**

5.103. No natural changes to the visual baseline are anticipated.

## **Siting, Design, Mitigation & Residual Effects**

### **Introduction**

5.104. This section provides a description of the siting and design of the development and the mitigation measures incorporated into the design to prevent, reduce or offset likely significant adverse effects on landscape, seascape and visual amenity.

### **Siting**

5.105. The site is on the South Pembrokeshire peninsula, to the south of Milford Haven, approximately 3km south of the town of Milford Haven and 9km west of Pembroke in the County of Pembrokeshire, South West Wales (see ES Figure 5.1).

5.106. It is immediately south of the Valero Oil Refinery, 4.5km east-southeast of the village of Angle and 0.6km east of what remains of the village of Rhoscrowther. It is 1.5km southwest of the Pembroke Power Station, immediately north and northwest of the two solar farms and just over 1km east of the former BP Oil Storage site.

5.107. The site was identified as a potential wind farm site during an extensive site search and selected as it met the locational requirements for a wind energy development of this scale and was considered to be a location where the effects on landscape, seascape and visual amenity (amongst other matters) could be minimised, subject to the appropriate design and mitigation of the Development (see ES Chapter 2).

### **Design**

5.108. The Development would consist of three wind turbines and ancillary development as described in detail in ES Chapter 3.

5.109. The aspects of the development with the potential to affect landscape, seascape and visual amenity are the elements and activities that would bring about physical changes to the existing landscape fabric of the site and/or would be visible from the surrounding area.

These are summarised below for each of the three distinct phases of the development – construction, operational and decommissioning phases.

### Construction Phase

- 5.110. The construction phase would be approximately 10 months including time to reinstate working areas. It would be undertaken in several overlapping stages, with each stage lasting only a few weeks, as illustrated in the Construction Programme (ES Chapter 3).
- 5.111. The elements and activities that have the potential to affect landscape and visual amenity include:
- i. Construction and on-site presence of the two new gated site entrances and new on-site access tracks and turning areas (see ES Figures 1.1 and 1.6). The entrances would be surfaced in tarmac and the tracks and turning areas would be surfaced in suitable stone aggregate imported from local quarries. The tracks would be approximately 1,300m in length and a minimum of 4.5m wide with local widening for junctions, bends and passing places (track area 5,850m<sup>2</sup>). The construction of the entrances and on-site access tracks would require the removal of approximately 150m of hedgerows. As illustrated on ES Figure 1.1, as the site is sloping, there would be some cut and fill required along the route of the tracks and around the turning areas, the exposed faces of which would be soiled and re-seeded.
  - ii. Construction and on-site presence of the temporary construction compound (see ES Figures 1.1 and 1.6). This would be located adjacent to the new eastern site entrance. It would be a fenced compound (400m<sup>2</sup>), with a stone aggregate surface and would contain modular, single-storey accommodation for the office, storage and staff welfare facilities, a bunded area for the storage of oil, fuel and machinery and a storage area for other materials and equipment (see ES Chapter 3). The temporary compound would be in place for the duration of the construction phase and removed

at the end of the construction phase, and the area restored with retained soils and re-seeded.

- iii. Excavation and construction of the crane hardstandings (4,188m<sup>2</sup>), laydown areas (3,900m<sup>2</sup>) and auxiliary crane pads (1,252m<sup>2</sup>) (see ES Figures 1.1 and 1.6). These would be surfaced in locally sourced stone aggregate. On completion of turbine installation, these would be reduced in size and the disturbed areas made good with retained soils and re-seeded (see ES Chapter 3).
- iv. Excavation of the cable trenches and laying of the transmission and communication cables (1,300m). The trenches would be approximately 1m wide x 1.5m deep and routed alongside the tracks. On completion of cable laying, these trenches would be backfilled with imported stone and retained materials and the topsoil re-seeded.
- v. Excavations for and construction of the substation and control building (see ES Figures 1.1, 1.2, 1.4 and 1.5). The substation and control building would be located within a fenced compound (area 1,280m<sup>2</sup>) adjacent to the new western entrance and access track. The substation would include electrical equipment and a transformer. The control building would be a single-storey pitched roof building approximately 9m x 9m and 7.5m to the ridgeline, with exterior finishes to reflect local styles, subject to the final design to be agreed with the DNO and the Council.
- vi. Excavation and construction of the foundations for the three wind turbines (each approximately 350m<sup>3</sup>) (see ES Figures 1.1 and 1.6). The turbine foundations would typically be circular with a maximum radius of 16m, finished below ground levels and, on completion of turbine installation, backfilled to existing ground levels with retained soils and re-seeded. As illustrated on ES Figure 1.2, as the site is sloping, the foundations would be built up on the downslope side of the turbine foundations, the exposed slopes of which would be soiled and re-seeded.

- vii. Installation of the three wind turbines (see ES Figures 1.1, 1.2 and 1.6). Each turbine would be installed in stages, first the tower sections, then the nacelle and finally the rotor. The lifting of the turbine components would require two cranes for a period of up to two weeks towards the end of the construction phase so the cranes would be on site for a very short part of the construction phase.
  - viii. Installation of transformers within the tower of each wind turbine.
  - ix. HGV deliveries to site and movement of the vehicles on-site during the construction phase.
  - x. Progressive site reinstatement and restoration as each part of the Development is completed and temporary areas are no longer required. This would include the removal of the temporary site compound and all its contents, the re-grading and seeding of the temporary compound area, track margins (including the cut and fill faces), and any other disturbed areas using site-derived materials, re-seeding and hedgerow planting, plus the bund and planting around the substation and control building. The crane hardstandings, lay down areas and auxiliary crane pads would be left in place and allowed to seed naturally.
- 5.112. The physical changes to landscape fabric would arise from the removal of approximately 150m of hedgerows to accommodate the entrances and on-site access tracks and the loss of ground vegetation in all areas disturbed by the works.
- 5.113. The progressive reinstatement and restoration works would reinstate the temporary site compound (400m<sup>2</sup>), and all other areas temporarily disturbed by the construction works (eg track margins). To compensate for the loss of hedgerows, there would be a scheme of gap planting for existing hedgerows on site, to create at least 175m of new hedgerows.

## Operational Phase

5.114. The operational phase would be 35 years and the elements and activities on the site that would be visible from the surrounding area would include:

- i. Site entrances and on-site access tracks – these would be retained for maintenance purposes. The entrances would remain surfaced in tarmacadam and the tracks would remain surfaced with coarse aggregate, with a minimum running width of 3.5m - 4.5m (see ES Figure 1.6).
- ii. Three wind turbines - each consisting of a tapered tubular steel tower, a nacelle, a hub and three blades, with a maximum height to tip of 135m (see ES Figure 1.3). No specific make or model would be applied for but the candidate turbine used in the ZTVs and visualisations has a hub height of 76.5m and a rotor diameter of 117m. The towers, nacelles, hubs and blades would be finished in a semi-matt, minimal reflective light or mid-grey colour (the final colour specification would be determined in consultation with the Council and consideration should be given to the selection of a colour to blend in with the colour of the Valero Oil Refinery chimneys). Each of the turbines would be identical, horizontal axis up-wind design and the rotors would all rotate clockwise (when viewed from upwind).
- iii. Substation and control building – as described in para 5.111 above (see ES Figures 1.1, 1.2, 1.4 and 1.5).
- iv. Aviation warning lights – if these are required by the MoD, these are likely to be night vision goggle (NVG) compatible infra-red lighting, mounted on the top of each nacelle and angled above the horizontal, so not visible to receptors in the surrounding area.

5.115. There would not be a monitoring mast and the grid connection would be underground. The total area occupied by the Development (site entrances, tracks, hardstandings, wind turbines, substation and control building compound) would be 1.88ha.

- 5.116. Once the wind turbines are in operation they would be monitored remotely and not staffed. Maintenance personnel would make routine visits by car/van on a weekly basis, with intermediate visits as and when necessary. Routine maintenance work would be carried out approximately twice a year and, in exceptional circumstances, a mobile crane and/or lorry may be used where large turbine components need to be repaired or replaced.

### **Decommissioning Phase**

- 5.117. The decommissioning phase would be undertaken after the end of the operational phase and could last approximately 10 months. All above ground structures and equipment (wind turbines, substation and control building) would be removed; the underground cables would be de-energised, cut back and left buried to avoid unnecessary ground disturbance; tracks and hardstandings would be left for use by the farmer; and the wind turbine foundations would be excavated to 1m below ground and soils replaced to a depth sufficient to allow current agricultural practises. These works would require the presence of cranes, HGV deliveries to and from the site and movement of vehicles on-site.
- 5.118. Finally, all ground disturbed by the works would be graded over with site derived soil and seeded (or allowed to seed naturally) and the land returned to agricultural use.

### **Mitigation**

#### **Embedded Mitigation**

- 5.119. The specific design and good practice measures that have been incorporated into the siting and detailed design of the Development, that would limit the effects of the proposed development on the landscape, seascape and visual amenity of this site and locality, include the following.
- 5.120. The site location is:
- i. Not within any national or local landscape designations.

- ii. Close to an existing grid connection (so the grid connection will be very short and underground).
- iii. Located adjacent to the existing Valero Oil Refinery, so the site and surrounding landscape and views from the surrounding area are already characterised to varying degrees by the oil refinery complex.
- iv. Located within the HWEZ, which has a focus on the energy and environmental sectors, and in an area that already includes other industrial installations, including the Pembroke Power Station and two solar farms, plus the abandoned BP Oil Storage site.
- v. In a landscape that has been used as a landfill site in the past, although now restored to farmland.

5.121. The Development has been reduced from five to three wind turbines and the detailed design includes the following measures:

- i. Site tracks - these would be surfaced with locally sourced aggregate similar to existing farm tracks in the locality.
- ii. Crane hardstandings, lay down areas and auxiliary crane pads – these would also be surfaced with locally sourced aggregate and would be left to re-seed naturally at the end of the construction phase.
- iii. Three wind turbines – these would be up to 135m in height, adjacent to and well below the height of the nearby Valero Oil Refinery chimneys (up to 169m) and so would appear close to and smaller than the chimneys in views from most locations.
- iv. Turbine layout - this locates the turbines at similar ground elevations (45 – 56m AOD) and at regular distances apart so that the three turbines appear in an evenly spaced line and at a consistent height from most locations.

- v. Single-storey control building – this would be constructed from local building materials and finished with a pitched roof (subject to agreement with the DNO and the Council), located close to the western site entrance and close to the two-storey building on the Valero Oil Refinery site. A planted bund to the southwest and southeast of the substation compound and control building would progressively screen these in views from the south.
- vi. Earthworks - the cut and fill slopes would be seeded or topped with the site derived topsoil and allowed to re-seed from the seed bank within the soil.
- vii. Reinstatement of temporarily disturbed areas - all areas temporarily disturbed during the construction phases and in the location of all tracks, structures, buildings, underground cables and utilities and other associated infrastructure removed during the decommissioning phase would be reinstated.
- viii. Landscape improvement measures – these would include gap-planting of native hedgerow species to in-fill existing “gappy” hedgerows within the site to compensate for the loss of hedgerows at the site entrance and along the access track.

### **Good Practice Mitigation**

- 5.122. In addition, there would be good practice measures in the Construction and Environmental Management Plan (CEMP), a Habitat Management Plan (HMP) and Decommissioning and Restoration Plan (DRP) that would also limit the effects of the proposed development on the landscape, seascape and visual amenity of this site and locality. These would include:
- i. Clerk of Works – to oversee the works and ensure that the environmental protection measures are fully adhered to.
  - ii. Temporary protective fencing – would be erected at the commencement of the construction and decommissioning phases around landscape features that are to be

retained on-site, such as established hedgerows, mature trees, etc and which need to be protected from damage during the construction and decommissioning works.

- iii. Site derived subsoil and topsoil - would be stockpiled (in areas of low ecological value) for reuse when reinstating any temporary works, such as the temporary site compound. The topsoil would contain a seed bank of the grass and ground flora species already growing on the site which would aid in the re-establishment of the existing swards which are characteristic of the landscape fabric and character of the site.

- 5.123. It is anticipated that the CEMP, HMP and DRP would be secured by way of a condition(s) that requires the provision of a CEMP and HMP prior to the commencement of the construction phase and the DRP not less than 12 months prior to the expiry of the operational phase.

### **Residual Effects**

- 5.124. The mitigation measures incorporated into the siting, design, construction, operation and decommissioning of the Development would limit the residual effects of the development on landscape, seascape and visual amenity and the additional residual effects of the construction, operational and decommissioning phases of the Development on landscape fabric, landscape character, seascape character, landscape designations and visual amenity are discussed in Sections 5.8 – 5.12.

### **Visual Analysis**

- 5.125. The extent and degree of visibility of the Development has been analysed by way of computer-generated zones of theoretical visibility (ZTVs) and a viewpoint analysis to identify the likely changes in views from 25 viewpoint locations within the study area.

### Theoretical Visibility Analysis

- 5.126. The ZTVs in ES Figures 5.12 – 5.20 are intervisibility maps that illustrate the locations in the study area where there may be views of the operational and proposed wind turbines. They have been generated using a computer-based intervisibility package, a digital terrain model (DTM) and models of the operational and proposed turbines. The DTM provides a three-dimensional model of the landform of the study area and was created from the Ordnance Survey Terrain 5 and 50 datasets which provide height data at 5m and 50m centres. Each height datum provides an easting, a northing and an elevation in metres above Ordnance Datum (mAOD). The digital models of the operational and proposed turbines were located at each turbine location on the DTM. A more detailed methodology for the production of the ZTVs is provided in ES Appendix 5.7.
- 5.127. The ZTVs in ES Figures 5.12 – 5.20 are based on landform only, so they do not take into account the screening effects of surface features such as trees, hedgerows or buildings. They have been configured to analyse the theoretical visibility of the operational and proposed wind turbines in the study area in various ways, as explained below.

#### ZTV to Maximum Blade Tip Height (135m)

- 5.128. ES Figure 5.12 uses the maximum blade tip height (135m) of the three proposed wind turbines as the targets and so illustrates the locations in the study area where topography may permit views of at least the blade tips of one (green zones), two (pink zones) and three (yellow zones) of the proposed wind turbines.
- 5.129. This suggests that at least the tips of all three proposed wind turbines (yellow zones) may be visible from the ridgelines that run west-northwest to east-southeast across the South Pembrokeshire peninsula, from Angle, the town of Milford Haven and parts of Pembroke, from the higher land to the north of Milford Haven, from Angle Bay, from most of Outer and Inner Milford Haven and from the sea to the south and southwest of the peninsula.

- 5.130. Due to the even height and spacing of the wind turbines and their location in an arc that follows the west-northwest to east-southeast grain of the local topography, there are only very small areas where 1 – 2 tips could be visible (green and pink zones). These are around the edges of the yellow zones, to the north, south, east and west of the site.
- 5.131. ES Figure 5.12 illustrates that none of the proposed wind turbines would be visible in most of the valleys between the ridges to the south of the site, from the lower land to the north of Milford Haven, from part of Inner Milford Haven to the north of the site and from around much of the South Pembrokeshire peninsula coastline.
- 5.132. The blade tip ZTV in ES Figure 5.12 has also been included in some of the other ES Figures to illustrate where there would be theoretical zones of visibility within the National Landscape Designations (ES Figure 5.15a), *LANDMAP* VSAs (ES Figure 5.16a), LCAs and SCAs (ES Figure 5.17a), along National Trails and at visitor attractions (ES Figure 5.18a), along local public rights of way (ES Figure 5.19) and at residential locations close to the site (ES Figure 5.46).

#### **ZTV to Approximate Hub Height (76.5m)**

- 5.133. ES Figure 5.13 uses a hub height of 76.5m for the three proposed wind turbines as the targets and so illustrates the locations in the study area where topography may permit views of at least the hubs of one (green zones), two (pink zones) and three (yellow zones) of the proposed wind turbines.
- 5.134. This suggests that at least the hubs of all three proposed wind turbines (yellow zones) may be visible from the ridgelines that run west-northwest to east-southeast across the South Pembrokeshire peninsula, from Angle, the town of Milford Haven and parts of Pembroke, from the higher land to the north of Milford Haven, from Angle Bay, from most of Outer Milford Haven and some of Inner Milford Haven and from the sea to the south and southwest of the peninsula. Whilst these zones are in similar locations to those for the tips, they are less extensive in area due to the lower height of the hubs compared to the tips.

- 5.135. Due to the even height and spacing of the wind turbines and their location in an arc that follows the west-northwest to east-southeast grain of the local topography, there are only small areas where 1-2 hubs could be visible (green and pink zones). Again, these are around the edges of the yellow zones, to the north, south, east and west of the site.
- 5.136. ES Figure 5.13 illustrates that none of the proposed wind turbine hubs would be visible in most of the valleys between the ridges to the south of the site, from the lower land to the north of Milford Haven, from much of Inner Milford Haven to the north of the site and from around most of the South Pembrokeshire peninsula coastline.
- 5.137. In those zones where no hubs would be visible, but tips may be, only the blades of the wind turbines could be visible.

#### **Cumulative ZTV**

- 5.138. ES Figure 5.14 uses the blade tip heights of the operational wind turbines and the three proposed wind turbines as the targets and so illustrates the locations in the study area where topography may permit views of at least one blade tip of the operational wind turbines only (green zones), at least one blade tip of the operational wind turbines and at least one blade tip of the proposed wind turbines (blue zones) or at least one blade tip of the proposed wind turbines only (yellow zones).
- 5.139. This illustrates the potential increase in the extent of visibility that would occur as a consequence of the Development, compared to the existing extent of visibility of the operational wind turbines in the study area (Wear Point, Castle Pill, Lower Scoveston Farm, Crican Farm and Scoveston Park).
- 5.140. This suggests that there are some locations (yellow zones) where the Development would introduce views of wind turbines, where none of the existing operational wind turbines are visible. These include areas on and immediately around the site, on the north facing slopes of the ridge and valley landform on the South Pembrokeshire peninsula and in the sea to

the south and southwest of the peninsula. However, over most of the zones of visibility, the proposed wind turbines would be seen in the context of one or more of the operational wind turbines (blue zones).

- 5.141. The cumulative ZTV in ES Figure 5.14 has also been included in some of the other ES Figures to illustrate where there would be theoretical cumulative zones of visibility within the National Landscape Designations (ES Figure 5.15b), *LANDMAP* VSAs (ES Figure 5.16b), LCAs and SCAs (ES Figure 5.17b) and along National Trails and at visitor attractions (ES Figure 5.18b).

### Limitations of ZTVs

- 5.142. As these ZTVs are based on landform only and do not take into account the screening effects of surface features such as trees, hedgerows or buildings, they are an overestimation of the extent of visibility. In reality, these surface features would fragment and reduce the extent of most of these zones of theoretical visibility and may also reduce the number and amount of the wind turbines visible from any one location.
- 5.143. In addition, these ZTVs do not illustrate the decrease in the scale of the turbines in views that occurs with increasing distance from the Development. The apparent scale of wind turbines visible 500m away will differ markedly from wind turbines 5km away, although both may be indicated on the ZTV as being within similar zones of theoretical visibility.
- 5.144. However, these ZTVs do illustrate the locations in the study area where the wind turbines would not be visible and the screening effects of surface features and the decreasing scale of the wind turbines with distance have been taken into account in the viewpoint analysis.

### Viewpoint Analysis

- 5.145. A viewpoint analysis is presented in ES Appendix 5.5. This predicts the likely changes in views from 25 viewpoint locations within the study area (see ES Figure 5.20).

- 5.146. As noted in paras 5.19 - 5.20 above, these include all viewpoints within the 11km study area that were assessed and illustrated in the 2014 ES, the 2015 ES Addendum and the LSVIA evidence presented at the 2015 and 2017 public inquiries, plus two additional viewpoints (Vp 02 and Vp 11). These viewpoints were re-numbered in increasing distance from the proposed five wind turbines that were considered at the consultation stage and so the viewpoint numbers are the same as in the draft LVIA prepared in 2020, but are not the same as in the documents for the previous scheme in the 2015 ES.
- 5.147. This viewpoint analysis is illustrated by the panoramic photographs and visualisations presented in ES Figures 5.21 – 5.45. Each illustrates a horizontal field of view of 120°, centred on the proposed wind turbines, and includes a panoramic photograph of the existing (baseline) view, a computer-generated wireframe of the predicted view and a photomontage of the predicted view.
- 5.148. Whilst these do not represent all locations where there would be views of the proposed wind turbines, they do illustrate some of the more open views of the proposed wind turbines that would be experienced by the various types of visual receptors in the study area. Therefore, they help to reveal and illustrate the likely extent and degree of impact that would be experienced by visual receptors and where these effects would be significant.
- 5.149. This suggests that changes in views could contribute to significant effects on visual amenity in locations with open views towards the Development for the following receptors:
- i. High sensitivity receptors such as residents, walkers on the Coast Path and visitors to recreational areas and routes within the National Park, where the effects on views would be *moderate+* or higher, which could occur up to approximately 5km from the nearest proposed wind turbine. This is illustrated by Vp 15 (see ES Figure 5.35).
  - ii. High/medium sensitivity receptors such as users of recreational areas and routes outside the National Park and motorists in the National Park, where the effects on

views would be *moderate+* or higher, which would occur up to approximately 4km from the nearest proposed wind turbine. This is illustrated by Vp 9 (where effects would be significant).

- iii. Medium sensitivity receptors such as motorists outside the National Park, where the effects on views would be *moderate+* or higher, which would occur up to approximately 2.5km from the nearest proposed wind turbine. This is illustrated by VP 07 (where effects would be significant) and Vp 08 (where effects would not be significant) (see ES Figures 5.27 and 5.28). Although both of these locations are inside the National Park, there would be similar views at similar distances from ridgetop roads outside the National Park to the east and southeast of the site.

5.150. However, not all receptors within these zones would experience a significant effect on their visual amenity due to the undulating nature of the terrain and the screening effects of the roadside vegetation, particularly along the minor roads, which means that there are locations within these zones where the turbines would be partially or even entirely screened. Effects on the visual amenity of key receptor groups are discussed in more detail in Section 5.10.

### **Assessment of Effects on Landscape and Seascape**

#### **Introduction**

5.151. This section provides an assessment of the likely significant effects of the Development on landscape fabric, landscape character, seascape character and landscape designations, during the construction, operational and decommissioning phases of the Development. The findings are summarised in Table 5.8 at the end of this section.

## Effects on Landscape Fabric

### **Construction Phase**

- 5.152. The construction phase would be approximately 10 months including time to reinstate working areas. There would be some adverse effects on the landscape fabric of the site as a result of the loss of ground cover over the areas disturbed by the works and the loss of up to 150m of hedgerow to allow access to and around the site (see para 5.112 above). However, the ground cover is semi-improved pasture, all temporary disturbed areas would be reinstated at the end of the construction phase and the loss of hedgerows would be compensated for by gap-planting native hedgerow species to in-fill existing “gappy” hedgerows (to be detailed in the HMP).
- 5.153. Therefore, these effects would be direct, discrete (as a result of the proposed development only), mainly short-term and temporary (in areas that would be reinstated at the end of the construction phase), with a limited amount of long-term loss of vegetation (in the locations of the wind turbines, tracks and substation, around 1.88ha) and adverse (where vegetation is lost) but also with some beneficial effects on landscape fabric (where gap-planting with native hedgerow species is undertaken).
- 5.154. No important, mature, diverse or distinctive landscape components would be lost, the short-term adverse effects would be partially mitigated and there would be some beneficial effects. Therefore, there would not be a significant adverse effect on landscape fabric as a consequence of the construction phase.

### **Operational Phase**

- 5.155. There would not be any further changes to the landscape elements on the site or in the surrounding landscape during the operational phase. However, the hedgerow gap planting would establish and mature, contributing to an improvement in the condition of the

hedgerows that are characteristic of the site, so there would be a direct, discrete, long-term and slightly beneficial effect on landscape fabric during the operational phase.

### **Decommissioning Phase**

- 5.156. There would be minimal disturbance of landscape features during this phase as below ground structures (e.g. lower part of the turbine foundations and the de-energised cables) would be left *in situ* and there would be reinstatement of the ground over the turbine bases (and possibly some of the tracks and hardstandings, depending on the preference of the landowner) on completion of the works.
- 5.157. Any effects on landscape fabric would be direct, discrete (as a result of the proposed development only), short-term and temporary adverse (in areas that would be disturbed during the decommissioning phase), but mainly long-term beneficial where vegetation is reinstated (in the locations of the wind turbines and possibly some of the tracks and hardstandings).
- 5.158. No important, mature, diverse or distinctive landscape components would be lost and most of the ground cover lost for the duration of the operational phase would be reinstated.
- 5.159. Therefore, there would be no significant adverse effects on landscape fabric during the decommissioning phase and, by the end of the decommissioning phase, the majority of the existing landscape fabric of the site would be reinstated.

### **Effects on Landscape Character**

#### **Construction Phase**

- 5.160. The effects on landscape character during the construction phase would arise from the construction and presence of the temporary construction compound, the construction and presence of the two site entrances and on-site access track, the excavation and construction of the foundations for the turbines and substation, the crane

hardstandings/working areas, the excavations for the cable trenches, the construction of the substation and control building, the installation of the three wind turbines and the presence of the cranes, site traffic and other machinery on the site.

- 5.161. The construction of each element would last for only part of the 10-month construction phase and ground disturbance would be minimised by the routing and design of the access track, by routing all vehicles along these access tracks, by locating much of the cable trenches alongside the routes of the access tracks, and by the use of temporary stock proof and protective fencing which would limit the construction footprint and ground disturbance to the working areas.
- 5.162. At the end of the construction phase, all temporary facilities would be removed and all disturbed areas outside the footprint of the development, including the temporary compound, the cable trenches and the track verges, would be reinstated using reserved topsoil and seeded.
- 5.163. Those elements that remain on-site beyond the construction phase are assessed as part of the operational phase below.

#### **Effects on Site Landscape**

- 5.164. The temporary construction elements and activities would be a direct, discrete, intermittent, short-term, temporary and reversible characteristic of the site landscape which would contrast with the existing character of the landscape on the site. These effects would be of *moderate* magnitude on a landscape of *medium* sensitivity (the site is located in LCA 25, see Table 5.5 above), resulting in effects on the landscape character of the site that would be *moderate adverse* and not significant.

#### **Effects on LCA 25: Hundleton and Lamphey**

- 5.165. There are extensive views of the surrounding landscape from the ridgelines in LCA 25 which contribute to landscape character. These include glimpses of the sea to the south and west

and Milford Haven to the north and also views northwards and westwards across the area which already contain the vertical elements of the Valero Oil Refinery.

- 5.166. The substantial hedgerows along the ridgelines to the north and south of the site would largely screen the ground level construction activities from the landscapes in the surrounding area and further afield within LCA 25. However, there would be some partial views of the taller construction elements and activities including very-short term views of the cranes from the more elevated ridgetops in LCA 25, although these would be seen in the context of the adjacent oil refinery.
- 5.167. From the closer parts of LCA 25, to the south, southeast and east of the site, the taller construction elements would be relatively close (within approximately 0.3km – 2.5km, see Vps 1, 2, 3, 5 and 6 and the ZTV in ES Figure 5.17a). From the remainder of LCA 25, the taller construction elements would be further away (see Vps 17 and 18). In all locations where there would be views of the taller construction elements from LCA 25 (see ES Figure 5.17a), they would always be seen in the context of the adjacent oil refinery.
- 5.168. Consequently, the construction phase would introduce some vertical elements into views across LCA 25 that would have an indirect, discrete, intermittent, short-term, temporary and reversible effects on some views which would contrast with the existing landscape character of limited parts of LCA 25.
- 5.169. For locations within approximately 0.3km – 2.5km, these effects on landscape character would be of *slight* magnitude on a landscape of *medium* sensitivity (see Table 5.5 above), resulting in effects on the landscape character of LCA 25 that would be *moderate/minor adverse* and not significant. For locations 2.5km – 5km, these effects would be of *slight/negligible* magnitude on a landscape of *medium* sensitivity, resulting in effects on the landscape character of LCA 25 that would be *minor+ adverse* and not significant. Beyond 5km, the effects would be of *negligible* magnitude on a landscape of *medium*

sensitivity, resulting in effects on the landscape character of LCA 25 that would be *minor adverse* and not significant.

#### Effects on LCA 6: Castlemartin/Merrion Ranges

- 5.170. There are extensive views of the open sea to the south from much of the higher ground and along the coast from the coastal path within LCA 6. Views northwards towards the site are a minor contribution to landscape character and already contain vertical elements.
- 5.171. There would be some partial views of the taller construction elements including very-short term views of the cranes in views northwards from the more elevated parts of LCA 6. From the closer part of LCA 6, to the west and southwest of the site, the taller construction elements would be relatively close (within approximately 0.7km – 1.9km, see Vps 2 and 7 and the ZTV in ES Figure 5.17a). From the remainder of LCA 6, to the south-southeast, south and southwest of the site (south of Castlemartin Corse), the taller construction elements would be further away (1.9km+, see Vps 8, 11 and 18 and the ZTV in ES Figure 5.17a). In all locations where there would be views of the taller construction elements from LCA 6, they would always be seen in the context of the adjacent oil refinery.
- 5.172. Consequently, the construction phase would introduce some vertical elements into northerly views out of LCA 6 that would be seen in the context of other vertical structures and would have an indirect, discrete, intermittent, short-term, temporary and reversible effect on these views.
- 5.173. For locations within 0.7km - 1.9km, these effects would be of *slight* magnitude on a landscape of *medium* sensitivity (see Table 5.1 above), resulting in effects on the landscape character of LCA 6 that would be *moderate/minor adverse* and not significant. For locations beyond 1.9km (south of Castlemartin Corse), these effects would be of *slight/negligible* magnitude on a landscape of *medium* sensitivity, resulting in effects on the landscape character of LCA 6 that would be *minor+ adverse* and not significant.

**Effects on LCA 7: Angle Peninsula**

- 5.174. There are extensive views of the open sea to the south and of Angle Bay and Milford Haven to the north from the higher ground and from the coastal path within LCA 7. Views eastwards towards the site do contribute to landscape character from Angle Bay and already contain vertical elements.
- 5.175. There would be views of the taller construction elements including very-short term views of the cranes in views eastwards from most parts of LCA 7 and at distances of between 0.8km – 6.8km (see Vps 4, 9, 12, 14, 15, 16 and 19 and the ZTV in ES Figure 5.17a) but always in the context of the adjacent oil refinery.
- 5.176. Consequently, the construction phase would introduce some vertical elements into easterly views out of LCA 7 that would be seen in the context of other vertical structures and would have an indirect, discrete, intermittent, short-term, temporary and reversible effect on these views.
- 5.177. For locations within 0.8km – 4km, these effects would be of *slight* magnitude on a landscape of *high* sensitivity (see Table 5.2 above), resulting in effects on the landscape character of LCA 7 that would be *moderate/minor+ adverse* and not significant. For 4km – 6.8km (west of Vps 15 and 16), these effects would be of *slight/negligible* magnitude on a landscape of *high* sensitivity, resulting in effects on the landscape character of LCA 7 that would be *moderate/minor adverse* and not significant.

**Effects on LCA 8: Freshwater West/Brownslade Burrows**

- 5.178. There are extensive views of the open sea to the west from the dunes and beaches. Views northeastwards towards the site are a minor contribution to landscape character and already contain vertical elements.
- 5.179. There would be views of the taller construction elements including very short-term views of the cranes in views northeastwards from the tops of the dunes between 1.65km – 4.8km

from the site (see Vps 7 and 11 and the ZTV in ES Figure 5.17a), but not from the beaches, and always in the context of the oil refinery chimneys.

- 5.180. Consequently, the construction phase would introduce some vertical elements into northeasterly views out of LCA 8 that would be seen in the context of other vertical structures and would have an indirect, discrete, intermittent, short-term, temporary and reversible effect on these views.
- 5.181. For locations within 1.6km – 2.6km of the turbines (Vp 7), these effects would be of *moderate/slight* magnitude on a landscape of *high* sensitivity (see Table 5.3 above), resulting in effects on the landscape character of LCA 8 that would be *moderate adverse* and not significant. For locations 2.6km – 4.8km (see Vp 11), these effects would be of *slight/negligible* magnitude on a landscape of *high* sensitivity, resulting in effects on the landscape character of LCA 8 that would be *moderate/minor adverse* and not significant.

#### **Effects on LCA 24: Southern Haven Mudflats**

- 5.182. There are low level views across the estuary to rising land to the east, west, south and north. These include natural banks and, above these, the urban areas of Pembroke and Pembroke Dock, the line of pylons to the south, Valerio Oil Refinery and the Pembroke Power Station to the west and the Wear Point wind turbines and oil storage tanks to the north. Views westwards towards the site are a minor contribution to landscape character and already contain vertical elements.
- 5.183. There may be views of the tops of the taller construction elements including very short-term views of the cranes in views westwards from parts of the estuary 2.5km – 5.5km from the site and always in the context of the oil refinery chimneys, as illustrated by the yellow zones on ES Figure 5.17a.
- 5.184. Consequently, the construction phase would introduce some vertical elements into westerly views out of LCA 24 that would be seen in the context of other vertical structures

and would have an indirect, discrete, intermittent, short-term, temporary and reversible effect on these views. These effects would be of *negligible* magnitude on a landscape of *medium* sensitivity (see Table 5.4 above), resulting in effects on the landscape character of LCA 24 that would be *minor adverse* and not significant.

### Operational Phase

- 5.185. Effects on landscape character during the operational phase could arise from the presence of the two site entrances and on-site access track, the crane hardstandings/working areas, the substation and control building, and the three wind turbines, all of which would be present on the site for the duration of the operational phase (35 years).
- 5.186. However, the site entrances would be similar to the current entrance into the former Cheveralton Farm and smaller in scale than the entrance into the Valero Oil Refinery. The site tracks would weather and appear similar to agricultural tracks in the area and the crane hardstandings/working areas would green over. The control building would be single-storey, constructed from local building materials and finished with a pitched roof (subject to agreement with the DNO and the Council), located close to the western site entrance and close to the two-storey building on the Valero Oil Refinery site. A planted bund to the southwest and southeast of the substation compound and control building would progressively screen these in views from the south.
- 5.187. Consequently, it is only the three wind turbines that are likely to result in significant effects on landscape character of the site and surrounding landscapes.

### Effects on Site Landscape

- 5.188. The three wind turbines would become a prominent and key characteristic of the site landscape that would contrast with the existing landscape character, visible from within and around the site (see the yellow zones on ES Figure 5.17a) in the context of the tall chimneys and stacks on the adjacent oil refinery site. None of the Wear Point or other

operational wind turbines on the north side of Milford Haven are visible from the site (see ES Figure 5.17b, where there are no blue zones on the site).

- 5.189. Consequently, the proposed wind turbines would result in a direct, discrete, continuous, long-term, but reversible effect on the character of the site landscape. These effects would be of *very substantial/substantial* magnitude on a landscape of *medium* sensitivity (see Table 5.5 above), resulting in effects on the landscape character of the site that would be *major/moderate+ adverse* and significant (see Vp 1 and the ZTV in ES Figure 5.17a).

#### **Effects on LCA 25: Hundleton and Lamphey**

- 5.190. There would be views of the three wind turbines from the more elevated ridgetops in LCA 25. These are illustrated by the yellow zones in LCA 25 on ES Figure 5.17a although, within these zones there would be further screening by roadside vegetation in places. In all locations within LCA 25 where there would be views of the wind turbines, they would always be seen in the context of the adjacent oil refinery and, in many locations, there would also be views of the Wear Point and other wind turbines further away on the north side of Milford Haven (see the blue zones within LCA 25 on ES Figure 5.17b), although these operational wind turbines do not have a significant effect on the character of LCA 25.
- 5.191. The three wind turbines would become a characteristic of views across LCA 25, would contrast with the existing landscape character and would be visible in the context of the large chimneys on the adjacent oil refinery site and other wind turbines further afield. Consequently, they would result in an indirect, largely discrete, continuous, long-term, but reversible effect on the character of LCA 25.
- 5.192. For locations within approximately 0.3km – 2.5km, these effects would be of *substantial* to *moderate* magnitude on a landscape of *medium* sensitivity (see Table 5.5 above), resulting in effects on the landscape character of LCA 25 that would be *major/moderate* to *moderate adverse* and significant (see VPs 2, 3, 5 and 6 and the ZTV in ES Figure 5.17a). For locations 2.5km – 5km, these effects would be of *moderate* to *slight* magnitude on a landscape of

*medium* sensitivity, resulting in effects on the landscape character of LCA 25 that would be *moderate* to *moderate/minor adverse* and not significant (see VP 17 and the ZTV in ES Figure 5.17a). Beyond 5km, the effects would be of *slight* to *negligible* magnitude on a landscape of *medium* sensitivity, resulting in effects on the landscape character of LCA 25 that would be *moderate/minor* to *minor adverse* and not significant (see VP 18 and the ZTV in ES Figure 5.17a).

### Effects on LCA 6: Castlemartin/Merrion Ranges

- 5.193. There would be views of the three wind turbines in views northwards from the more elevated parts of LCA 6. These are illustrated by the yellow zones in LCA 6 on ES Figure 5.17a although, within these zones there would be further screening by roadside vegetation in places. In all locations within LCA 6 where there would be views of the wind turbines, they would always be seen in the context of the adjacent oil refinery and, in many locations, there would also be distant views of the Wear Point and other wind turbines on the north side of Milford Haven (see the blue zones within LCA 6 on ES Figure 5.17b), although these operational wind turbines do not have a significant effect on the character of LCA 6.
- 5.194. The three wind turbines would become a characteristic of views across much of LCA 6, would contrast with the existing landscape character and would be visible or noticeable in the context of the large chimneys on the adjacent oil refinery site and other wind turbines further afield. Consequently, they would result in an indirect, largely discrete, continuous, long-term, but reversible effect on the character of LCA 6.
- 5.195. For locations within 0.7km – 1.9km, these effects would be of *substantial* to *substantial/moderate* magnitude on a landscape of *medium* sensitivity (see Table 5.1 above), resulting in effects on the landscape character of LCA 6 that would be *major/moderate* to *moderate+ adverse* and significant (see VPs 2 and 7 and the ZTV in ES Figure 5.17a). For locations beyond 1.9km (south of Castlemartin Corse), these effects

would be of *moderate* to *negligible* magnitude on a landscape of *medium* sensitivity, resulting in effects on the landscape character of LCA 6 that would be *moderate* to *minor adverse* and not significant (see Vps 8, 11 and 18 and the ZTV in ES Figure 5.17a).

### Effects on LCA 7: Angle Peninsula

- 5.196. There would be views of the three wind turbines in views eastwards from most parts of LCA 7 and at distances of between 0.8km – 6.8km (see VPs 4, 9, 12, 14, 15, 16 and 19). These are illustrated by the yellow zones in LCA 6 on ES Figure 5.17a although, within these zones there would be further screening by roadside vegetation in places. In all locations within LCA 7 where there would be views of the wind turbines, they would always be seen in the context of the adjacent oil refinery and, in many locations, there would also be distant views of the Wear Point and other wind turbines on the north side of Milford Haven (see the blue zones within LCA 7 on ES Figure 5.17b), although these operational wind turbines do not have a significant effect on the character of LCA 7.
- 5.197. The three wind turbines would become a characteristic of views across much of LCA 7, would contrast with the existing landscape character and would be visible in the context of the tall chimneys and stacks on the adjacent oil refinery site and other wind turbines further afield. Consequently, they would result in an indirect, largely discrete, continuous, long-term, but reversible effect on the character of LCA 7.
- 5.198. For locations within 0.8km – 4km of the turbines, these effects would be of *substantial/moderate* to *moderate* magnitude on a landscape of *high* sensitivity (see Table 5.2 above), resulting in effects on the landscape character of LCA 7 that would be *major/moderate* to *moderate+ adverse* and significant (see VPs 4 and 9 and the ZTV in ES Figure 5.17a). For locations 4km – 6.8km, these effects would be of *moderate/slight* to *negligible* magnitude on a landscape of *high* sensitivity, resulting in effects on the landscape character of LCA 7 that would be *moderate* to *minor+ adverse* and not significant (see VPs 12, 14, 15, 16 and 19 and the ZTV in ES Figure 5.17a).

**Effects on LCA 8: Freshwater West/Brownslade Burrows**

- 5.199. There would be views of the three wind turbines in views northeastwards from the tops of the dunes between 1.6km – 4.8km from the site (see VPs 7 and 11). These are illustrated by the yellow zones in LCA 8 on ES Figure 5.17a. In the locations within LCA 8 where there would be views of the wind turbines, they would always be seen in the context of the adjacent oil refinery and, at VPs 7 and 11, also the distant Wear Point wind turbines on the north side of Milford Haven (see the blue zones within LCA 8 on ES Figure 5.17b), although these operational wind turbines do not have a significant effect on the character of LCA 8.
- 5.200. The three wind turbines would become a characteristic in only the most elevated views out of LCA 8 from the tops of the dunes but not from the beaches and lower dunes which are low-lying and form the majority of this LCA. In the elevated views from the top of the dunes, the proposed turbines would contrast with the existing landscape character and would be visible in the context of the large chimneys on the adjacent oil refinery site and, in some places, the other wind turbines further afield. Consequently, they would result in an indirect, largely discrete, continuous, long-term, but reversible effect on the character of parts of LCA 8.
- 5.201. For locations within 1.6km – 2.6km of the turbines (see Vp 7 and the ZTV in ES Figure 5.17a), these effects would be of *substantial/moderate* magnitude on a landscape of *high* sensitivity (see Table 5.3 above), resulting in effects on the landscape character of LCA 8 that would be *major/moderate adverse* and significant. For locations 2.6km – 4.8km (see Vp 11 and the ZTV in ES Figure 5.17a), these effects would be of *moderate/slight* magnitude on a landscape of *high* sensitivity, resulting in effects on the landscape character of LCA 8 that would be *moderate adverse* and not significant.

**Effects on LCA 24: Southern Haven Mudflats**

- 5.202. There would be views of the three wind turbines in views westwards from parts of the estuary 2.5km – 5.5km from the site. These are illustrated by the yellow zones in LCA 24

on ES Figure 5.17a. In the locations within LCA 24 where there would be views of the wind turbines, they would always be seen in the context of the Pembroke Power Station, the line of pylons and the oil refinery. The oil storage tanks to the north side of Milford Haven and the Wear Point wind turbines are also visible to the north (see the blue zones within LCA 24 on ES Figure 5.17b), and these are sufficiently close to result in an effect on the character of LCA 24.

- 5.203. The three wind turbines would become a characteristic of views across LCA 24, would contrast with the existing landscape character and would be visible in the context of the large chimneys on the power station and oil refinery sites and the other wind turbines to the north. Consequently, they would result in an indirect, cumulative, continuous, long-term, but reversible effect on the character of LCA 24.
- 5.204. These effects would be of *slight* magnitude on a landscape of *medium* sensitivity (see Table 5.4 above), resulting in effects on the landscape character of LCA 24 that would be *moderate/minor adverse* and not significant.

### **Decommissioning Phase**

- 5.205. The effects on landscape character during the decommissioning phase would arise from the removal of all above ground structures and equipment (wind turbines, substation and control building), the removal of any temporary hardstanding areas, and the excavations of the wind turbine foundations. There would also be the presence of cranes, HGV deliveries to and from the site and movement of vehicles on-site.
- 5.206. Each element of the works would last for only part of the 10-month decommissioning phase and ground disturbance would be minimised by routing all vehicles along the access tracks, by de-energising, cutting back but leaving buried the underground cables, and by the use of temporary stock proof and protective fencing which would limit the footprint and ground disturbance to the working areas.

- 5.207. At the end of the decommissioning phase, all temporary facilities would be removed, and all areas disturbed by the works would be reinstated using site derived soil and seeded (or allowed to seed naturally) and the land returned to agricultural use.

#### **Effects on Site Landscape**

- 5.208. The decommissioning activities would be a direct, discrete, intermittent, short-term, temporary and reversible characteristic of the site landscape which would contrast with the existing character of the landscape on the site. These effects would be of *moderate* magnitude on a landscape of *medium* sensitivity (see Table 5.5 above), resulting in effects on the landscape character of the site that would be *moderate adverse* and not significant.
- 5.209. Those elements that remain on-site beyond the end of the decommissioning phase would either be underground (such as the cables and lower foundations) and so would not have any effects on landscape character or would remain for agricultural use (such as the tracks).

#### **Effects on LCA 25, LCA 6, LCA 7, LCA 8 and LCA 24**

- 5.210. The activities and effects of the decommissioning phase on landscape character within the surrounding LCAs would be very similar to those of the construction phase, as described in paras 5.165 - 5.184 above, and not significant.

#### **Effects on Seascape Character**

##### **Construction Phase**

- 5.211. The effects on seascape character during the construction phase would arise from the presence of the cranes, which would be on the site for approximately 2 weeks of the 10 month construction phase.
- 5.212. Those elements that remain on-site beyond the construction phase are assessed as part of the operational phase below.

**SCA 31: Outer Milford Haven**

- 5.213. There are elevated and panoramic views of the sea from the cliff tops within SCA 31 which contrast with the low level, framed and more contained views from the bays. Views eastwards across the area, eg from Angle Peninsula, Dale and St Anne's Head, already contain vertical elements.
- 5.214. There would be some very-short term and distant views of the cranes in views eastwards from both the more elevated parts of SCA 31 and in some of the low level views at distances of 5.3km+ from the site (see VPs 19, 22, 24 and 25 and the ZTV in ES Figure 5.17a).
- 5.215. Consequently, the construction phase would introduce some vertical elements into easterly views out of SCA 31 that would be seen in the context of other vertical structures and would have an indirect, discrete, intermittent, very short-term, temporary and reversible effect on these views.
- 5.216. These effects would be of *negligible* magnitude on a seascape of *medium* sensitivity (see Table 5.6 above), resulting in effects on the seascape character of SCA 31 that would be *minor adverse* and not significant.

**SCA 32: Inner Milford Haven**

- 5.217. There are elevated and panoramic views of the sea from the cliff tops within SCA 32 which contrast with the low level, framed and more contained views from sea level. SCA 32 contains the Valero Oil Refinery and Pembroke Power Station on the south side of the Haven and oil and gas storage tanks and the Wear Point Wind Farm on the north side, so energy development is already a key characteristic of this SCA and views across the area from most locations already contain vertical elements.
- 5.218. There would be some very-short term and close views of the cranes in views from parts of SCA 32 to the immediate west, north and east of the site at distances of 0.2km - 1.4km from the site (see VPs 3 and 4 and the ZTV in ES Figure 5.17a) and also middle distance views

from parts of SCA 32 to the west, north and east of the site at distances of 1.4km – 7km from the site (see VPs 7, 9, 10, 12, 13, 14, 15, 16 and 20 and the ZTV in ES Figure 5.17a).

- 5.219. Consequently, the construction phase would introduce some vertical elements into views across and out of SCA 32 that would be seen in the context of other vertical structures and would have an indirect, discrete, intermittent, very short-term, temporary and reversible effect on these views.
- 5.220. For locations within 0.2km – 1.4km, these effects would be of *slight* magnitude on a seascape of *low* sensitivity (see Table 5.7 above), resulting in effects on the seascape character of SCA 32 that would be *minor+ adverse* and not significant. For locations 1.4km – 7km, these effects would be of *negligible* magnitude on a seascape of *low* sensitivity, resulting in effects on the seascape character of SCA 32 that would be *minor/negligible+ adverse* and not significant.

### Operational Phase

- 5.221. Effects on seascape character during the operational phase could arise from the presence of the three wind turbines, all of which would be present on the site for the duration of the operational phase (35 years).

### SCA 31: Outer Milford Haven

- 5.222. There would be some distant views of the wind turbines in views eastwards from both the more elevated parts of SCA 31 and in some of the low level views at distances of 5.3km+ from the site (see VPs 19, 22, 24 and 25 and the ZTV in ES Figure 5.17a). These would be seen in the context of other vertical structures and would have an indirect, mainly cumulative, continuous, long-term, but reversible effect on these views.
- 5.223. These effects would be of *slight* magnitude on a seascape of *medium* sensitivity (see Table 5.6 above), resulting in effects on the seascape character of SCA 31 that would be *moderate/minor adverse* and not significant.

**SCA 32: Inner Milford Haven**

- 5.224. There would be some close views of the wind turbines in views from parts of SCA 32 to the immediate west, north and east of the site at distances of 0.2km - 1.4km from the site (see Vps 3 and 4 and the ZTV in ES Figure 5.17a) and also middle distance views from parts of SCA 32 to the west, north and east of the site at distances of 1.4km – 7km from the site (see Vps 7, 9, 10, 12, 13, 14, 15, 16 and 20 and the ZTV in ES Figure 5.17a). These would be seen in the context of other vertical structures and would have an indirect, mainly cumulative, continuous, long-term, but reversible effect on these views.
- 5.225. For locations within 0.2km – 1.4km, these effects would be of *substantial/moderate* magnitude on a seascape of *low* sensitivity (see Table 5.7 above), resulting in effects on the seascape character of SCA 32 that would be *moderate adverse* and not significant. For locations 1.4km – 7km, these effects would be of *moderate to slight* magnitude on a seascape of *low* sensitivity, resulting in effects on the seascape character of SCA 32 that would be *moderate/minor+ to minor+ adverse* and not significant.

**Decommissioning Phase****Effects on SCA 31 and SCA 32**

- 5.226. The activities and effects of the decommissioning phase on seascape character within SCA 31 and SCA 32 would be very similar to those of the construction phase, as described in paras 5.213 - 5.220 above, and not significant.

**Effects on Landscape Designations****Introduction**

- 5.227. The site is located outside any landscape designations but there are two national landscape designations within the study area – the Pembrokeshire Coast National Park and the South Pembrokeshire Heritage Coast (see ES Figure 5.2). The elements and activities of the

construction, operational and decommissioning phases of the Development that would be visible from within these designations have the potential to affect the special qualities and purposes of these designations.

### **Construction Phase**

- 5.228. The effects on seascape character during the construction phase would arise from the presence of the cranes, which would be on the site for approximately 2 weeks of the 10 month construction phase.
- 5.229. Those elements that remain on-site beyond the construction phase are assessed as part of the operational phase below.

### **Effects on Pembrokeshire Coast National Park**

- 5.230. LCA 6, LCA 7 and LCA 8 are within the PCNP, as are parts of SCA 31 and SCA 32 (see ES Figures 5.9 and 5.17a) and, as demonstrated by the assessment of effects on landscape and seascape character above, the construction phase would not significantly affect the character of the landscapes or seascapes within these LCAs and SCAs within the PCNP. It would also not significantly affect any of the special qualities of the PCNP (coastal splendour, diverse geology, diversity of landscape, distinctive settlement character, rich archaeology, cultural heritage, richness of habitats and biodiversity, islands, accessing the Park, space to breath, remoteness, tranquillity and wilderness, diversity and combination of special qualities) as listed and described in section 6.3 of the PCNP SPG: *Landscape Character Assessment* (PCNP June 2011) (see para 5.47 above).
- 5.231. Consequently, the purposes of the National Park (to conserve and enhance the natural beauty, wildlife and cultural heritage of the National Park; and to promote opportunities for public enjoyment and understanding of the special qualities of the National Park) would also not be significantly affected.

- 5.232. Therefore, the construction phase of the Development would not have a significant adverse or beneficial effect on the ability of the National Park to fulfil its purposes.

#### **Effects on South Pembrokeshire Heritage Coast**

- 5.233. Parts of SCA 31 and SCA 32 are within the South Pembrokeshire Heritage Coast (see ES Figures 5.2 and 5.9) and, as demonstrated by the assessment of effects on seascape character (paras 5.211 - 5.220 above), the construction phase would not significantly affect the character of the seascapes within these SCAs. It would also not significantly affect any of the purposes of the Heritage Coast designation as described on the Natural England website (to conserve, protect and enhance the natural beauty of the coastline, their terrestrial, coastal and marine flora and fauna, and their heritage features; to encourage and help the public to enjoy, understand and appreciate these areas; to maintain and improve the health of inshore waters affecting Heritage Coasts and their beaches through appropriate environmental management measures; and to take account of the needs of agriculture, forestry and fishing and of the economic and social needs of the small communities on these coasts).
- 5.234. Therefore, the construction phase of the Development would not have a significant adverse or beneficial effect on the ability of the Heritage Coast to fulfil its purposes.

#### **Operational Phase**

- 5.235. Effects on the purposes of the National Park and Heritage Coast designations during the operational phase could arise from the presence of the three wind turbines, all of which would be present on the site for the duration of the operational phase (35 years).

#### **Effects on Pembrokeshire Coast National Park**

- 5.236. With regards to the special qualities of the National Park, views of the wind turbines from within the National Park would not have any effects on the geology, diversity of landscapes, settlement character, archaeology, cultural heritage, habitats and biodiversity or islands

within the National Park. It would not affect access to the Park or reduce the space to breath.

- 5.237. It is clear from fieldwork observations and confirmed by the *LANDMAP* data that the perceptual qualities of remoteness, tranquillity and wilderness are more evident in the landscapes further west and south within the National Park and not in those areas closest to the site. Therefore, the proposed wind turbines would not affect the National Park's special quality of remoteness, tranquillity and wilderness.
- 5.238. With regards to coastal splendour, most of the coastal landscapes within the National Park are outside zones of visibility (see ES Figure 5.15a). Therefore, the Development would not have any effects on the splendour (scenic quality and visual amenity) of the majority of the coastline around the National Park.
- 5.239. The proposed wind turbines would be discernible from most of the coastline from St Ann's Head, around Dale Bay to Great Castle Head (VPs 24, 25 and 22 and the ZTV in ES Figure 5.15a). However, as illustrated in the viewpoint figures and viewpoint analysis (ES Appendix 5.5), the proposed wind turbines would be in the distance, adjacent to the Valero Oil Refinery, seen within the context of the extensive industrial development on both sides of the Haven and a very minor element in these views. Consequently, there would not be a significant change in views, landscape or seascape character from this part of the National Park.
- 5.240. Angle Bay (illustrated by VPs 4, 9, 12 and 14), part of the north coast of the Angle Peninsula (illustrated by VP 15) and the tops of the dunes in Kilpaison Burrows (illustrated by VP 7) are the only other sections of the coastline within the National Park where there would be views of the proposed wind turbines and walkers would notice a significant change in views to the east as a result of the proposed wind turbines, when walking eastwards along the north coast of the Angle Peninsula and around Angle Bay (1.3 – 4km from the Development), and in views to the northeast from the tops of the dunes Kilpaison Burrows

(1.6km – 2.6km). However, both the landscape and views within this part of the National Park are already characterised by the nearby Valero Oil Refinery and, to a lesser extent, by the industrial installations on the north side of the Haven which include the Wear Point wind turbines, and the proposed wind turbines would not have any effects on the coastal areas that are not already characterised by these other developments.

- 5.241. Therefore, the proposed wind turbines would not have any effects on the splendour (scenic quality and visual amenity) of the majority of the coastline around the National Park and where it would be visible, such as from Angle Bay and Angle Peninsula, it would be seen in an area of coastline that is already characterised by industrial development.
- 5.242. Furthermore, the significant effects on natural beauty (landscape character) would be limited to a small part of the National Park to the west and southwest of the site, which includes a small part of LCA 6 (Castlemartin/Merrion Ranges, 0.7km – 1.9km from the turbines, see paras 5.193 - 5.195), part of LCA 7 (Angle Peninsula, 0.8km – 4km from the turbines, see paras 5.196 - 5.198) and a very small part of LCA 8 (Freshwater West/Brownslade Burrows, 1.6km – 2.6km from the turbines, see paras 5.199 - 5.201). This is an area of approximately 8km<sup>2</sup> (0.013% of the total area of the National Park) and views from this area are already characterised by industrial development.
- 5.243. Consequently, the proposed wind turbines would not significantly affect the natural beauty of the National Park overall or the ability of the public to enjoy and understand the special qualities of the National Park and so would not compromise the ability of the National Park to fulfil its purposes.
- 5.244. Policy 18 in *Future Wales: The National Plan 2040* (WG 2021) states that Developments of National Significance will be permitted subject to, amongst other matters, there being no unacceptable adverse impacts on the surrounding landscape “*particularly on the setting of National Parks ...*”.

- 5.245. The setting of Pembrokeshire Coast National Park is not defined in any planning documents. In relation to heritage assets, undefined settings are considered to be those locations outside of the designated asset where the heritage value of the asset can be appreciated. Following this approach, the setting of a National Park could be considered to be those locations outside of the Park where the special qualities of the Park can be appreciated.
- 5.246. Within the study area, the topography in the Pembrokeshire Coast National Park slopes from its inland boundary towards the cliff tops and bays around its coastline and the low, undulating ridgelines and roadside hedgerows outside the Park mean that there are very few locations on land outside of the Park from which the special qualities of the Park can be appreciated. Fieldwork suggests that the only views into the Park are from the B and minor roads along the boundary of the Park, including the minor road through Rhoscrowther (Vp2), a 1.5km section of the B4320 (Vp5) and the minor road through St Twynnells (Vp18). However, from all these locations, the observer has to turn through 180° in order to see the Development which would not be in any of the views of the Park. 2km west of Vp18 there is a tower open to the public which provides an elevated view of the Castlemartin Ranges. However, this is just inside the Park (so not in the setting) and does not have any windows facing northwards towards the Development. Therefore, the nature of the landscape and topography in and around Pembrokeshire Coast National Park mean that this National Park does not have an inland component to its setting and the Development would not be visible in any views into the Park from the boundary roads.
- 5.247. The coastal splendour and islands can be appreciated from within the Park itself but can also be appreciated from the surrounding sea, from Outer Milford Haven (SCA31) and the western half of Inner Milford Haven (SCA32), and from the sea in the west and south of the study area. These marine locations could, therefore, be considered a seaward component of the setting of the Park, albeit none of the other special qualities of the Park can be appreciated from the sea. As illustrated by ES Figure 5.17a, the Development would be

visible to varying degrees from parts of Outer Milford Haven, Inner Milford Haven and the sea in the west and south of the study area, including from the entrance to Angle Bay but not from close to the coastline where the cliffs and islands would be best appreciated. As discussed in paras 5.222 - 5.225, the magnitude of change on Outer Milford Haven (SCA31) and the western half of Inner Milford Haven (SCA32) would be slight and not significant. In views from the sea in the west and south of the study area, the Development would be more distant and the effects on seascape would be even less.

*Therefore, the Pembrokeshire Coast National Park does not have a landward component to its setting and there would not be any significant effects on the seascape character of the seaward component of the setting of the National Park.* **Effects on South Pembrokeshire Heritage Coast**

- 5.248. Parts of SCA 31 and SCA 32 are within the South Pembrokeshire Heritage Coast (see ES Figures 5.2 and 5.9) and, as demonstrated by the assessment of effects on seascape character (paras 5.221 - 5.225 above), the operational phase would not significantly affect the character of the seascapes within these SCAs and so would not significantly affect the natural beauty of the coastline. It would not affect the terrestrial, coastal and marine flora and fauna or the health of inshore waters within the Heritage Coast, and would not affect the needs of agriculture, forestry and fishing and the economic and social needs of the small communities along the coastline.
- 5.249. Therefore, the operational phase of the Development would not have a significant adverse or beneficial effect on the ability of the Heritage Coast to fulfil its purposes.

### **Decommissioning Phase**

#### **Effects on Pembrokeshire Coast National Park**

- 5.250. The activities and effects of the decommissioning phase on landscape and seascape character and the special qualities of the National Park would be very similar to those of

the construction phase, as described in paras 5.228 - 5.232 above. Therefore, the decommissioning phase of the Development would not have a significant adverse or beneficial effect on the ability of the National Park to fulfil its purposes.

#### **Effects on South Pembrokeshire Heritage Coast**

5.251. The activities and effects of the decommissioning phase on seascape character and the purposes of the Heritage Coast would be very similar to those of the construction phase, as described in paras 5.233 - 5.234 above. Therefore, the decommissioning phase of the Development would not have a significant adverse or beneficial effect on the ability of the Heritage Coast to fulfil its purposes.

Table 5.8: Summary of Effects on Landscape Fabric, Landscape Character, Seascape Character and Landscape Designations

Resource	Approx. distances from turbines	Effects of Construction Phase	Effects of Operational Phase	Effects of Decommissioning Phase
<b>LANDSCAPE FABRIC</b>				
Site landscape	0.0km – 0.3km	No significant adverse effects	No effects	No significant adverse effects
Surrounding landscapes	0.25km+	No effects	No effects	No effects
<b>LANDSCAPE CHARACTER</b>				
Site landscape	0.0km – 0.3km	Moderate adverse	Major/moderate+ adverse	Moderate adverse
<b>LCA 25: Hundleton and Lamphey</b>	0.3km – 2.5km	Moderate/minor adverse	Major/moderate – Moderate adverse	Moderate/minor adverse
	2.5km – 5km	Minor+ adverse	Moderate – Moderate/minor adverse	Minor+ adverse
	5km+	Minor adverse	Moderate/minor – Minor adverse	Minor adverse
<b>LCA 6: Castlemartin/ Merrion Ranges</b>	0.7km – 1.9km	Moderate/minor adverse	Major/moderate – Moderate+ adverse	Moderate/minor adverse
	1.9km+	Minor+ adverse	Moderate – Minor adverse	Minor+ adverse

Resource	Approx. distances from turbines	Effects of Construction Phase	Effects of Operational Phase	Effects of Decommissioning Phase
<b>LCA 7: Angle Peninsula</b>	0.8km – 4km	Moderate/minor+ adverse	Major/moderate – Moderate+ adverse	Moderate/minor+ adverse
	4km – 6.8km	Moderate/minor adverse	Moderate - Minor+ adverse	Moderate/minor adverse
<b>LCA 8: Freshwater West/ Brownslade Burrows</b>	1.6km – 2.6km	Moderate adverse	Major/moderate adverse	Moderate adverse
	2.6km – 4.8km	Moderate/minor adverse	Moderate adverse	Moderate/minor adverse
<b>LCA 24: Southern Haven Mudflats</b>	2.5km – 5.5km	Minor adverse	Moderate/minor adverse	Minor adverse
<b>SEASCAPE CHARACTER</b>				
<b>SCA 31: Outer Milford Haven</b>	5.3km+	Minor adverse	Moderate/minor adverse	Minor adverse
<b>SCA 32: Inner Milford Haven</b>	0.2km – 1.4km	Minor+ adverse	Moderate adverse	Minor+ adverse
	1.4km – 7km	Minor/negligible+ adverse	Moderate/minor+ - Minor+	Minor/negligible+ adverse
<b>LANDSCAPE DESIGNATIONS</b>				
<b>Pembrokeshire Coast National Park</b>	0.7km+	No significant adverse or beneficial effects on special characteristics or purposes	No significant adverse or beneficial effects on special characteristics or purposes	No significant adverse or beneficial effects on special characteristics or purposes

Resource	Approx. distances from turbines	Effects of Construction Phase	Effects of Operational Phase	Effects of Decommissioning Phase
<b>South Pembrokeshire Heritage Coast</b>	3km+	No significant adverse or beneficial effects on purposes	No significant adverse or beneficial effects on purposes	No significant adverse or beneficial effects on purposes

## **Assessment of Effects on Visual Amenity**

### **Introduction**

5.252. This section provides an assessment of the likely significant effects of the construction, operational and decommissioning phases of the Development on the visual amenity of residents in settlements and individual properties, visitors to beaches and other attractions, walkers on the Pembrokeshire and Wales Coast Path, cyclists on the Sustrans National Cycle Route (NCR4), users of the local public rights of way and motorists and other road users on the B4320 and local road network.

### **Construction Phase**

5.253. The effects on visual amenity during the construction phase would arise from the construction and presence of the temporary construction compound, the construction and presence of the two site entrances and on-site access track, the excavation and construction of the foundations for the turbines and substation, the crane hardstandings/working areas, the excavations for the cable trenches, the construction of the substation and control building, the installation of the 3 wind turbines and the presence of the cranes, site traffic and other machinery on the site.

5.254. The construction of each element would last for only part of the 10 month construction phase and ground disturbance would be minimised by the routing and design of the access track, by routing all vehicles along these access tracks, by locating much of the cable trenches alongside the routes of the access tracks, and by the use of temporary stock proof and protective fencing which would limit the construction footprint and ground disturbance to the working areas.

5.255. At the end of the construction phase, all temporary facilities would be removed and all disturbed areas outside the footprint of the development, including the temporary compound, the cable trenches and the track verges, would be reinstated using reserved topsoil and seeded.

5.256. Those elements that remain on-site beyond the construction phase are assessed as part of the operational phase below.

- 5.257. The ground and low level activities and structures (temporary construction compound, site entrances, on-site access track, excavations and foundations, crane hardstandings/working areas, cable trenches, substation and control building) would be visible to varying degrees through gaps in the roadside hedgerows along the minor road to the north of the site, from the minor roads to the south of the site (see Vp 1) and to the west of the site (see Vp 2), from the more elevated section of the bridleway to the south (Vp 5) and from the B4320 to the south (Vp 5). These viewpoints are all on the surrounding ridgelines and within 1.5km of the wind turbines, ie the surrounding area.
- 5.258. The residential properties within this area which are at sufficient elevations to provide their residents with views of the ground and low level construction activities and structures on the site (mainly from upper floor windows as intervening roadside and garden vegetation would largely screening ground floor views) are on the minor road to the south of the site (2: Westwinds and Sunnyridge) and on the B4320 further to the south (7: Harry Standup and 8: Newton Farm and Newton Cottage). The locations of these properties are shown on ES Figure 5.46 and the wireframe views from these properties are provided in ES Figures 5.48, 5.53 and 5.54.
- 5.259. There would also be views of the cranes and turbine components from these locations and all these activities and elements would contrast with the existing character of the site and surrounding landscape (within the valley).
- 5.260. However, the effects on these views would be indirect, discrete, intermittent, short-term, temporary and reversible. Also, views towards the site from these locations are already characterised by the Valero Oil Refinery and the construction activities would be seen in the context of this facility. Therefore, the effects of the construction activities and structures on the visual amenity of receptors in the surrounding area would be *slight magnitude* on receptors of *high sensitivity* (residents), *high/medium sensitivity* (walkers, cyclists and equestrians on the bridleway and minor roads) and *medium sensitivity* (motorists) resulting in effects that would be *moderate*, *moderate/minor+* and *moderate/minor adverse* respectively and not significant.

5.261. The undulating topography and substantial hedgerows in the surrounding area would largely screen the ground and low level construction activities and structures from receptors further afield and, although there would be some partial views of some construction activities including very-short term views of the cranes from some locations, these would be seen in the context of the adjacent oil refinery and there would not be any significant adverse effects on the visual amenity of receptors beyond the surrounding area during the construction phase.

### **Operational Phase**

5.262. Effects on visual amenity during the operational phase could arise from the presence of the two site entrances and on-site access track, the crane hardstandings/working areas, the substation and control building, and the three wind turbines, all of which would be present on the site for the duration of the operational phase (35 years).

5.263. However, the site entrances would be similar to the current entrance into the former Cheveralton Farm and smaller in scale than the entrance into the Valero Oil Refinery. The site tracks would weather and appear similar to agricultural tracks in the area and the crane hardstandings/working areas would green over. The control building would be single-storey, constructed from local building materials and finished with a pitched roof (subject to agreement with the DNO and the Council), located close to the western site entrance and close to the two-storey building on the Valero Oil Refinery site. A planted bund to the southwest and southeast of the substation compound and control building would progressively screen these in views from the south.

5.264. Consequently, it is only the three wind turbines that are likely to result in significant effects on the visual amenity of receptors in the surrounding area.

5.265. The viewpoint analysis is presented in ES Appendix 5.5 and has been summarised in Section 5.8, paras 5.145 - 5.150. The locations of these viewpoints are shown on ES Figure 5.20 and the existing baseline and predicted views are illustrated in ES Figures 5.21 – 5.45.

- 5.266. The residential visual amenity assessment is presented in ES Appendix 5.6. The locations of these properties are shown on ES Figure 5.46 and wireframe views from these properties are provided in ES Figures 5.47 – 5.57.
- 5.267. These suggest that the extent of the significant effects on visual amenity for the main visual receptors in the study area would be as follows.

### Effects on Residents

- 5.268. As assessed in the residential visual amenity assessment (ES Appendix 5.6), residents in some of the properties within the surrounding area, would notice a significant change in some views from their houses, gardens and/or driveways and, consequently, would experience a significant effect on their visual amenity.
- 5.269. This includes residents in the closest occupied properties that are all within 1.55km of the nearest wind turbine - Greenhill Farm (H1), Westwinds and Sunnyridge (H2), Wallaston Farm (H3), Wallaston Green (H4), Wogaston Farm (H5), Hoplass Farm (H6), Harry Standup (H7), Newton Farm cottage (H8a), Newton Farm (H8b), Neath Farm, Little Neath Barn & Barn y Cel (H9), and Pleasant View in Rhoscrowther (H10) but not in Eastington Manor (H11) due to intervening screening (see locations on ES Figure 5.46, wireframes in ES Figures 5.47 – 5.57 and ES Figure 8.8).
- 5.270. The residential visual amenity assessment also examined whether the Development would be “overwhelming” and, therefore, exceed a residential visual amenity threshold. This is not an assessment of EIA significance, but a separate judgement on the potential effect of the Development on living conditions, and it was concluded that the Development would not, by virtue of its scale and proximity, be an unpleasantly oppressive and unavoidable presence in views “in the round” from these closest residential properties.
- 5.271. Significant effects on visual amenity could also be experienced by residents in villages, farmsteads and individual properties further afield, located on the ridgelines and/or with open and elevated views towards the Development from their properties, up to approximately 5km from the nearest proposed wind turbine, such as in Castlemartin (Vp

8), at the Old Point House and properties on the seafront at Angle (Vp 12 and Vp 14) and properties in Pennar (Vp 13).

5.272. However, there would not be significant effects on the visual amenity of residents in the majority of properties in Angle (as those west of the Church do not have views of Angle Bay and will not have views of the Development), Pembroke, Milford Haven and the many other farmsteads and local properties in the study area which are located on valley slopes, due to the screening effects of terrain, vegetation and intervening buildings.

### **Effects on Visitors to Beaches and Other Attractions**

5.273. There are a number of popular beaches around the coastline within the National Park that attract both local residents and visitors to the area. Those within 5km of the wind turbines include Angle Bay, West Angle Bay, Freshwater West and Frainslake Sands to the west and southwest of the site (see ES Figure 5.10).

5.274. As illustrated by the viewpoint analysis for VPs 4, 9, 12 and 14, there would be significant changes in views from all around Angle Bay and visitors would experience a significant effect on their visual amenity.

5.275. As illustrated by ES Figures 5.18a and 5.18b, the operational and proposed wind turbines would not be visible from Freshwater West and Frainslake Sands and are largely screened in views from West Angle Bay (VP 19), so visitors to these beaches would not experience a significant effect on their visual amenity.

5.276. Other visitor attractions within the local area include two churches – the Church of St Decumanus in Rhoscrowther and St Mary's Church at Pwllcrochan, Chapel Bay Fort & Museum, and the Range Spectator Area and Tower at Warren.

5.277. The Church of St Decumanus in Rhoscrowther is in a wooded valley to the west of the proposed wind turbines and visitors would experience intermittent and partially screened views of the wind turbines when approaching the church and moving around the churchyard, but generally not when looking towards the church itself. The turbines would be side on to the viewer and screened by vegetation in views from the gate in the north

wall of the churchyard, and side on and largely screened by vegetation when walking from the gate to the main door to the church (see ES Figure 8.5). The turbines would be behind the viewer and entirely screened by vegetation in views from the gate in the east wall of the churchyard (see ES Figure 8.7). It is only if visitors choose to walk around the church and look eastwards from the churchyard to the south of the church that they would notice the proposed wind turbines (see ES Figure 8.6). Even in this view, turbine 2 would be entirely screened by vegetation in summer and turbines 1 and 3 would be largely screened by vegetation, with just the blades of turbine 1 and the blade tips of turbine 3 visible above the vegetation.

- 5.278. The vegetation around the churchyard is quite dense but mainly deciduous, so the movement of the rotors may be discernible through the vegetation in winter.
- 5.279. The church is just outside the National Park and the primary views for visitors would be towards the church, as this would be the purpose of the visit, and not towards the wind turbines. The only location where there would be a significant change in the view would be from the churchyard to the south of the church and, overall, there is unlikely to be a significant effect on the visual amenity of visitors to this church.
- 5.280. St Mary's Church at Pwllcrochan is in a valley to the northeast of the proposed wind turbines and surrounded by dense vegetation. There are unlikely to be any views of the wind turbines from this location.
- 5.281. Chapel Bay Fort & Museum is built into the cliffs on the north coast of Angle Peninsula, just west of Vp 15. It was built during the Napoleonic wars and is designed to guard the Haven to the north. It is currently closed but is normally accessed via a private road and there is a small car park adjacent to the Fort. Some visitors may choose to use the car park in West Angle Bay and walk to the Fort via the Pembrokeshire and Wales Coast Path. The primary views for visitors would be out across the Haven, as this is the purpose of the Fort, and of the Fort itself, as this would be the purpose of the visit. The Fort is built into the cliff top and there is a bank of mainly coniferous vegetation around the south and east sides of the Fort, so views of the proposed wind turbines would be largely screened from most of the

Fort and there is unlikely to be a significant effect on the visual amenity of visitors to this attraction.

- 5.282. The Range Spectator Area and Tower at Warren is on the edge of the Castlemartin Artillery Range, 4km south-southeast of the proposed wind turbines. Its purpose is to provide visitors with an elevated view of the military exercises on the range to the south, so the primary view for visitors would be southwards across the range, as this would be the purpose of their visit, and not north-northwestwards towards the proposed wind turbines. Consequently, whilst the wind turbines would be visible from this location, they would be seen immediately in front of the Valero oil refinery chimneys and there is unlikely to be a significant effect on the visual amenity of visitors to this attraction.

### **Effects on Users of Recreational Routes**

#### **Pembrokeshire and Wales Coast Path**

- 5.283. Walkers on the Pembrokeshire and Wales Coast Path (see ES Figures 5.10, 5.18a and 5.18b) would notice a significant change in views as a result of the proposed wind turbines, when walking eastwards along the Coast Path along the north coast of the Angle Peninsula and around Angle Bay, within 1.3 – 4.5km of the proposed wind turbines (Vps 15, 12, 14, 9 and 4). Although there are views of the industrial installations on both sides of the Haven and the Wear Point and other wind turbines from this section of the route, these are in the middle distance and the addition of the proposed wind turbines would have a significant effect on the visual amenity of walkers along this short section of the route.
- 5.284. Along the Coast Path to the east of the site, when crossing the Cleddau Bridge (Vp 20, 6.65km) and along the north side of the Haven (Vp 10, 3.5km+), views of the proposed wind turbines from the Coast Path would be intermittent and are already strongly characterised by the industrial installations and the Wear Point and other wind turbines and, overall, the significant changes to a few views, as a consequence of the proposed wind turbines, would not result in a significant effect on the visual amenity of walkers on the Coast Path around the rest of the Haven.

**Sustrans National Cycle Route (NCR4)**

5.285. Sustrans National Cycle Route (NCR4) is a long distance route between London and Fishguard and a short section traverses the study area over 6km to the northeast and east of the proposed wind turbines (see ES Figures 5.10, 5.18a and 5.18b). For much of this route it follows a disused railway line and, other than where it crosses Cleddau Bridge (see Vp 20) and east of Pembroke, this route is largely outside the ZTV. Consequently, cyclists would not experience any significant effects on views or visual amenity as a result of the Development.

**Local Public Rights of Way**

5.286. There would be significant changes in views for walkers, cyclists and horse riders in some locations on most of the local public rights of way within 3km of the site (see ES Figures 5.11 and 5.19), including footpaths NP1 and NP7 and bridleway SP37/6/1 (Vps 1 and 5). Views of the proposed wind turbines from the local public rights of way would be intermittent due to the undulating topography and field boundary vegetation and, where there would be views from the more elevated and open locations, the proposed wind turbines would be seen in front of or adjacent to the existing Valero Oil refinery.

5.287. However, there are only a few local public rights of way in the area, most of which run N/S or E/W such that users would be walking either directly towards or away from the proposed wind turbines, and local roads are not ideal alternatives as most do not have verges and they can be very busy with traffic (accessing the power station, oil refinery and nearby beaches). Therefore, the significant changes in views from the local public rights of way as a consequence of the proposed wind turbines are likely to result in a significant effect on the visual amenity of walkers, cyclists and horse riders on the local public rights of way network within approximately 3km of the site.

**Effects on Users of Local Road Network**

5.288. There would be significant changes in views from some of the local roads within 3km of the site, such as the minor roads to the immediate south of the site (VP 1, 0.277km), to the immediate north of the site, to the west of the site (VP 2, 0.777km) and to the east of the

site (Vp 3, 1.040km) and also from the B4320 (VP 5, 1.360km and VP 7, 1.880km) and the minor road through Wallaston Green (VP 6, 1.480km) (see ES Figures 5.11 and 5.19). Further afield, such as from the B4319 to the south and southwest, the effects on the visual amenity of motorists would not be significant (see VP 8, 3.10km and VP 11, 3.552km). However, depending on the time of year and the height of the roadside hedgerows, the views could be sustained from the minor roads and B4320 that follow the three ridgelines closest to the site and there would be a significant effect on the visual amenity of road users up to 3km from the proposed wind turbines.

### Decommissioning Phase

- 5.289. The activities and effects of the decommissioning phase on visual amenity would be very similar to those of the construction phase and would be experienced by the same receptors, as described in paras 5.253 - 5.261. The ground and low level activities would be visible to varying degrees through gaps in the roadside hedgerows along the minor road to the north of the site, from the minor roads to the south of the site (see VP 1) and to the west of the site (see VP 2), from the more elevated section of the bridleway to the south (VP 5) and from the B4320 to the south (VP 5). They would also be visible to varying degrees from residential properties (mainly from upper floor windows as intervening roadside and garden vegetation would largely screening ground floor views) on the minor road to the south of the site (2: Westwinds and Sunnyridge) and on the B4320 further to the south (7: Harry Standup and 8: Newton Farm and Newton Cottage).
- 5.290. These activities and elements would contrast with the existing character of the site and surrounding landscape (within the valley) but the effects on these views would be indirect, discrete, intermittent, short-term, temporary and reversible. Also, all these receptor locations are to the south of the Development site, their views northwards are already characterised by the Valero Oil Refinery and the decommissioning activities would be seen in the context of this facility. Therefore, the effects of the decommissioning phase on the visual amenity of receptors in the surrounding area would be *slight magnitude* on receptors of *high sensitivity* (residents), *high/medium sensitivity* (walkers, cyclists and equestrians on the bridleway and minor roads) and *medium sensitivity* (motorists) resulting in effects that

would be *moderate*, *moderate/minor+* and *moderate/minor adverse* respectively and not significant.

- 5.291. As with the construction phase, the undulating topography and substantial hedgerows in the surrounding area would largely screen the ground and low level decommissioning activities from receptors further afield and, although there would be some partial views of some activities including very-short term views of the cranes from some locations, these would be seen in the context of the adjacent oil refinery and there would not be any significant adverse effects on the visual amenity of receptors beyond the surrounding area during the decommissioning phase.

### **Summary & Conclusions**

- 5.292. This section provides a summary of the design and good practice mitigation measures and the likely residual effects of the construction, operational and decommissioning phases of the Development on landscape, seascape and visual amenity and concludes on the ability of this location to accommodate the Development.

### **Design and Good Practice Mitigation**

- 5.293. The effects of the Development on the surrounding area have been limited by the location and design of the scheme. The site is located outside any national or local landscape designations, close to an existing grid connection, adjacent to the Valero Oil Refinery and within the HWEZ. The Development has been reduced from five (126.5m) to three (135m) wind turbines, all tracks and hardstandings would be surfaced in locally sourced aggregate, the control building would be single storey, the substation compound would be screened by existing hedgerows and a planted bund, all disturbed areas would be reinstated and there would be landscape and habitat improvements including the planting of 175m of new hedgerow on the site. Good practice mitigation during the construction phase would include a Clerk of Works to oversee the works and environmental protection measures, temporary fencing to protect landscape features on the site and the retention and reuse of topsoils and subsoils. All these mitigation and enhancement measures would be provided in more detail in a CEMP, HMP and DRP which would be secured by way of a condition(s) on the permission.

5.294. These measures will limit the extent of the effects on landscape, seascape and visual amenity (which are less than for the five turbine scheme) and will also reduce the effects on receptors close to the site, such as local properties and tourism facilities (compared to the five turbine scheme). Consequently, the residual effects would be as follows.

### **Effects on Landscape Fabric**

#### **Construction Phase**

5.295. There would be some adverse effects on landscape fabric due to ground disturbance and the loss of some vegetation on the site but these effects would be limited in extent and partially mitigated by the reinstatement of all temporarily disturbed areas at the end of the construction phase. Therefore, there would not be any significant adverse effects on landscape fabric as a consequence of the construction phase.

#### **Operational Phase**

5.296. During the operational phase, there would be no further disturbance of landscape fabric but the hedgerow gap planting done at the end of the construction phase would establish and mature, contributing to an improvement in the condition of the hedgerows that are characteristic of the site, and resulting in a slightly beneficial effect on landscape fabric during the operational phase.

#### **Decommissioning Phase**

5.297. There would be minimal disturbance of landscape features during the decommissioning phase and, by the end of the decommissioning phase, most of the ground cover lost for the duration of the operational phase would be reinstated. Therefore, there would not be any significant adverse effects on landscape fabric during the decommissioning phase and, by the end of the decommissioning phase, most of the existing landscape fabric of the site would be reinstated.

## Effects on Landscape Character

### Construction Phase

5.298. There would be some adverse effects on the character of the site and surrounding landscape during the construction phase, although these would not be significant, as follows:

- i. Site landscape (medium sensitivity) – the elements and activities on the site would be a characteristic of the site landscape during the construction phase and the consequential effects on landscape character would be *moderate adverse* and not significant.
- ii. LCA 25: Hundleton and Lamphey (medium sensitivity) – the vertical elements on the site would be visible, in the context of other vertical structures, in some views from the more elevated ridgetops in LCA 25. The consequential effects on landscape character would be *moderate/minor adverse* and not significant (0.3km – 2.5km from the turbines), *minor+ adverse* and not significant (2.5km – 5km) and *minor adverse* and not significant (5km+).
- iii. LCA 6: Castlemartin/Merrion Ranges (medium sensitivity) – the taller vertical elements on the site would be visible, in the context of other vertical structures, in some northerly views out of LCA 6. The consequential effects on landscape character would be *moderate/minor adverse* and not significant (0.7km – 1.9km), and *minor+ adverse* and not significant (1.9km+).
- iv. LCA 7: Angle Peninsula (high sensitivity) - the taller vertical elements on the site would be visible, in the context of other vertical structures, in some easterly views out of LCA 7. The consequential effects on landscape character would be *moderate/minor+ adverse* and not significant (0.8km – 4km) and *moderate/minor adverse* and not significant (4km – 6.8km).
- v. LCA 8: Freshwater West/Brownslade Burrows (high sensitivity) - the taller vertical elements would be visible, in the context of other vertical structures, in some

northeasterly views from the tops of the dunes. The consequential effects on landscape character would be *moderate adverse* and not significant (1.6km – 2.6km) and *moderate/minor adverse* and not significant (2.6km – 4.8km).

- vi. LCA 24: South Haven Mudflats (medium sensitivity) - the tops of the taller vertical elements would be visible, in the context of other vertical structures, in some westerly views out of LCA 24. The consequential effects on landscape character would be *minor adverse* and not significant (2.5km – 5.5km).

### Operational Phase

5.299. The proposed wind turbines are likely to result in significant effects on the character of the site and surrounding landscapes in LCA 25 (up to 3km from the turbines), in LCA 6 (0.7km – 1.8km), in LCA 7 (0.8km - 4.8km) and in LCA 8 (1.6km - 2.6km) but not in LCA 24 or in any landscape units further afield, as follows:

- i. Site landscape (medium sensitivity) – the three wind turbines would become a prominent and key characteristic of the site landscape, visible from within and around the site, in the context of the large chimneys of the adjacent oil refinery site, and the effects on the landscape character of the site would be *major/moderate+ adverse* and significant.
- ii. LCA 25: Hundleton and Lamphay (medium sensitivity) – the proposed wind turbines would be visible from the more elevated ridgetops in LCA 25, in the context of the adjacent oil refinery and, in many locations, with views of the Wear Point and other wind turbines further away on the north side of Milford Haven. The additional effects on landscape character would be *major/moderate* to *moderate adverse* and significant (0.3km – 2.5km), *moderate* to *moderate/minor adverse* and not significant (2.5km – 5km), and *moderate/minor* to *minor adverse* and not significant (5km+).
- iii. LCA 6: Castlemartin/Merrion Ranges (medium sensitivity) – the proposed wind turbines would be visible in some northerly views from the more elevated parts of LCA 6, in the context of the adjacent oil refinery and, in many locations, with distant views of the Wear Point and other wind turbines on the north side of Milford Haven.

The additional effects on landscape character would be *major/moderate* to *moderate+ adverse* and significant (0.7km – 1.9km) and *moderate* to *minor adverse* and not significant (1.9km+).

- iv. LCA 7: Angle Peninsula (high sensitivity) - the proposed wind turbines would be visible in easterly views from most parts of LCA 7, in the context of the adjacent oil refinery and, in many locations, with distant views of the Wear Point and other wind turbines on the north side of Milford Haven. The additional effects on landscape character would be *major/moderate* to *moderate+ adverse* and significant (0.8km – 4km) and *moderate* to *minor+ adverse* and not significant (4km – 6.8km).
- v. LCA 8: Freshwater West/Brownsnade Burrows (high sensitivity) – the proposed wind turbines would be visible in northeasterly views from the tops of the dunes in LCA 8, in the context of the adjacent oil refinery and, also the distant Wear Point wind turbines on the north side of Milford Haven. The additional effects on landscape character would be *major/moderate adverse* and significant (1.6km – 2.6km) and *moderate adverse* and not significant (2.6km – 4.8km).
- vi. LCA 24: South Haven Mudflats (medium sensitivity) – the proposed wind turbines would be visible in westerly views from parts of the estuary, in the context of the Pembroke Power Station, the line of pylons and the oil refinery and with the oil storage tanks to the north side of Milford Haven and the Wear Point wind turbines are also visible to the north. The additional effects on landscape character would be *moderate/minor adverse* and not significant (2.5km – 5.5km).

### Decommissioning Phase

- 5.300. The activities and effects of the decommissioning phase on the character of the site and surrounding landscapes would be very similar to those of the construction phase. Therefore, there would be some adverse effects on the character of the site and surrounding landscapes, but these would not be significant, and, by the end of the decommissioning phase, the existing character of the site and surrounding landscapes would be reinstated.

## Effects on Seascape Character

### Construction Phase

5.301. There would be some adverse effects on seascape character during the construction phase, although these would not be significant, as follows:

- i. SCA 31: Outer Milford Haven (medium sensitivity) – the taller vertical elements on the site would be visible, in the context of other vertical structures, in some easterly views out of SCA 32. The consequential effects on seascape character would be *minor adverse* and not significant (5.3km+).
- ii. SCA 32: Inner Milford Haven (low sensitivity) – the taller vertical elements on the site would be visible, in the context of other vertical structures, in some easterly, southerly and westerly views out of SCA 32. The consequential effects on seascape character would be *minor+ adverse* and not significant (0.2km – 1.4km) and *minor/negligible+ adverse* and not significant (1.4km – 7km).

### Operational Phase

5.302. There would be some adverse effects on seascape character during the operational phase, as a consequence of views of the proposed wind turbines from the surrounding seascape units, although these would not be significant, as follows:

- i. SCA 31: Outer Milford Haven (medium sensitivity) – the proposed wind turbines would be visible, in the context of other vertical structures, in some easterly views out of SCA 32. The additional effects on seascape character would be *moderate/minor adverse* and not significant (5.3km+).
- ii. SCA 32: Inner Milford Haven (low sensitivity) – the proposed wind turbines would be visible, in the context of other vertical structures, in some easterly, southerly and westerly views out of SCA 32. The additional effects on seascape character would be *moderate adverse* and not significant (0.2km – 1.4km) and *moderate/minor+ to minor+ adverse* and not significant (1.4km – 7km).

***Decommissioning Phase***

5.303. The activities and effects of the decommissioning phase on seascape character within SCA 31 and SCA 32 would be very similar to those of the construction phase. Therefore, there would be some adverse effects on seascape character within SCA 31 and SCA 32, but these would not be significant and, by the end of the decommissioning phase, the existing seascape character would be reinstated.

**Effects on Landscape Designations****Construction Phase**

5.304. There would not be any significant adverse effects on the National landscape designations in the study area, as follows:

- i. Pembrokeshire Coast National Park - the construction phase would not have a significant effect on the character of the landscapes or seascapes within the National Park and would not significantly affect any of the special qualities of the National Park, so would not have a significant adverse or beneficial effect on the ability of the National Park to fulfil its purposes.
- ii. South Pembrokeshire Heritage Coast - the construction phase would not have a significant effect on the character of the seascapes within the Heritage Coast and would not significantly affect any of the purposes of the Heritage Coast, so would not have a significant adverse or beneficial effect on the ability of the Heritage Coast to fulfil its purposes.

**Operational Phase**

5.305. There would not be any significant adverse effects on the National landscape designations in the study area, as follows:

- i. Pembrokeshire Coast National Park – the proposed wind turbines would result in significant effects on landscape character and visual amenity in a small part of the National Park to the west and southwest of the site (within LCA 6, LCA 7 and LCA 8).

However, both the landscape and views within this part of the National Park are already characterised by the nearby Valero Oil Refinery and, to a lesser extent, by the industrial installations on the north side of the Haven which include the Wear Point wind turbines, and the proposed wind turbines would not have any effects on areas and views not already characterised by these other developments. Consequently, the proposed wind turbines would not significantly affect the special qualities of the National Park and would not have a significant adverse or beneficial effect on the ability of the National Park to fulfil its purposes.

- ii. Setting of Pembrokeshire Coast National Park - the National Park does not have a defined setting and so its setting is considered to be those locations outside of the Park where the special qualities of the Park can be appreciated. Due to the nature of the landscape and topography in and around Pembrokeshire Coast National Park, there are very few locations on land outside of the Park from which the special qualities of the Park can be appreciated and the Development would not be visible in any views into the Park from the boundary roads. Although the coastal splendour and islands can be appreciated from the surrounding sea, the effects of the Development on Outer Milford Haven (SCA31) and the western half of Inner Milford Haven (SCA32) would be slight and not significant and even less from the sea in the west and south of the study area. Therefore, the Park does not have a landward component to its setting and there would not be any significant effects on the seascape character of the seaward component of the setting of the National Park
- iii. South Pembrokeshire Heritage Coast - the proposed wind turbines would not have a significant effect on the character of the seascapes within the Heritage Coast and would not significantly affect any of the purposes of the Heritage Coast, so would not have a significant adverse or beneficial effect on the ability of the Heritage Coast to fulfil its purposes.

### **Decommissioning Phase**

5.306. The activities and effects of the decommissioning phase on landscape and seascape character, the special qualities and purposes of the National Park and Heritage Coast would

be very similar to those of the construction phase. Therefore, the decommissioning phase of the Development would not have a significant adverse or beneficial effect on the ability of the National Park and Heritage Coast to fulfil their purposes.

### **Effects on Visual Amenity**

#### **Construction Phase**

- 5.307. There would be views of the ground and low level activities and structures, cranes and turbine components on the site from the minor roads around the site and from the upper floor windows of some of the residential properties up to approximately 1.55km from the site (2: Westwinds and Sunnyridge, 7: Harry Standup and 8: Newton Farm and Newton Cottage).
- 5.308. However, views towards the site from all these locations are already characterised by the Valero Oil Refinery and the construction activities would be intermittent, short-term and seen in the context of this facility, so the effects on the visual amenity of receptors in the surrounding area would be *moderate to moderate/minor adverse* and not significant.
- 5.309. There would also be views of the cranes and turbine components from some properties, recreational routes and roads further afield but these would be very-short term and seen in the context of the adjacent oil refinery and there would not be any significant adverse effects on the visual amenity of receptors beyond the surrounding area during the construction phase.

#### **Operational Phase**

- 5.310. The proposed wind turbines are likely to result in significant effects on the visual amenity of some receptors as follows:
- i. Residents in settlements and individual properties (high sensitivity) – in properties within 1.55km of the proposed turbines (Greenhill Farm, Westwinds and Sunnyridge, Wallaston Farm, Wallaston Green, Wogaston Farm, Hoplass Farm, Harry Standup, Newton Farm cottage, Newton Farm, Neath Farm, Little Neath Barn & Barn y Cel, Pleasant View and Eastington Manor), and also residents in villages, farmsteads and

individual properties located further afield on the ridgelines and/or with open and elevated views towards the Development from their properties, up to approximately 5km from the nearest proposed wind turbine, such as in Castlemartin, at the Old Point House on the seafront at Angle and properties in Pennar.

- ii. Visitors to beaches and other attractions in the National Park (high sensitivity) – visitors to Angle Bay to the immediate west of the site.
- iii. Walkers on the Pembrokeshire and Wales Coast Path – walking eastwards along the Coast Path along the south side of the Haven from the north coast of the Angle Peninsula and around Angle Bay (1.3km – 4.5km from the turbines).
- iv. Walkers, cyclists and horse riders on the local public rights of way network within approximately 3km of the turbines.
- v. Motorists on the minor roads to the immediate north, west and east of the site, on the B4320 and on the minor road through Wallaston Green up to 3km from the proposed wind turbines.

5.311. There would not be significant effects on the visual amenity of:

- i. Residents in the majority of properties in Angle, Pembroke, Milford Haven and the many other farmsteads and local properties in the study area which are located on valley slopes.
- ii. Visitors to West Angle Bay, Freshwater West, Frainslake Sands, and the many other popular beaches in the National Park
- iii. Visitors to the Church of St Decumanus in Rhoscrowther, St Mary's Church at Pwllcrochan, Chapel Bay Fort & Museum on the north coast of Angle Peninsula and the Range Spectator Area and Tower at Warren.
- iv. Walkers on the Coast Path around the rest of the Haven.
- v. Cyclists on Sustrans National Cycle Route (NCR4).

- vi. Users of the public rights of way and road network more than 3km from the wind turbines.

### **Decommissioning Phase**

- 5.312. The activities and effects of the decommissioning phase on visual amenity would be very similar to those of the construction phase and would be experienced by the same receptors. Therefore, the decommissioning phase of the Development would not have a significant adverse or beneficial effect on the visual amenity of receptors in the study area.

### **Conclusions**

- 5.313. The Development would be located in an open rural location, adjacent to the Valero Oil Refinery, with other large industrial installations and wind farms to the north and northeast.
- 5.314. By locating the Development adjacent to the oil refinery, there would be a close and complementary arrangement of these two energy developments, both functionally (clean energy contrasting with very large fossil fuel production) and visually, as closely associated but discrete sculptural elements and, in all views from the surrounding area, the Development would be seen in conjunction with the taller chimneys and stacks on the oil refinery site.
- 5.315. This is a relatively sparsely settled area, with landscapes and seascapes of mainly medium or low evaluation. Consequently, there would not be any significant effects on landscape fabric or seascape character, significant adverse effects on landscape character and visual amenity would be very limited in extent and would not harm living conditions for residents around the site.
- 5.316. Although located close to the National Park, the proposed wind turbines would not be visible from the majority of the Park, and significant effects on landscape character and visual amenity within the National Park would be limited to a small area to the west and southwest of the site, which is already characterised by views of the nearby oil refinery. Consequently, the Development would not significantly affect the special qualities of the

National Park and would not have a significant adverse or beneficial effect on the ability of the National Park to fulfil its purposes.

- 5.317. Although not within a Pre-assessed Area for Wind in Future Wales: The National Plan 2040 (WG 2021), the Development site is located within the HWEZ, where the overall vision is the creation of further investment in energy projects, the creation of green jobs, and the development and enhancement of existing jobs in the energy sector. The boundary of the HWEZ could have been drawn to the north of the site, immediately south of the Valero Oil Refinery but, by including this parcel of land in the HWEZ, the Welsh Government must consider this site capable of accommodating further energy development and future landscape change on and/or around this site would be an inevitable consequence of development in this part of the HWEZ.
- 5.318. Modern onshore wind turbines are large, moving structures that require open locations, so there will always be some significant landscape and/or visual effects as a result of their construction and operation for a number of kilometres around a site, and it would be impossible to site any large wind turbines in the UK landscape without some significant effects on landscape character and visual amenity.
- 5.319. In the case of the Development, it would be located within an area designated for energy development, adjacent to an oil refinery and where the significant adverse effects on landscape character and visual amenity would be very limited in extent, so could be satisfactorily accommodated in this location.

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## **Abbreviations**

CHP – Combined Heat and Power

CMLI – Chartered Member of the Landscape Institute

DNS – Development of National Significance

EIA – Environmental Impact Assessment

ES – Environmental Statement

LCA – Landscape character area or landscape character assessment

LSVIA – Landscape, Seascape and Visual Impact Assessment

NRW - Natural Resources Wales

PCNP – Pembrokeshire Coast National Park

PCNPA – Pembrokeshire Coast National Park Authority

PCC - Pembrokeshire County Council

PINS – The Planning Inspectorate