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DRAGON LNG SOLAR FARM - LANDSCAPE AND VISUAL TECHNICAL NOTE

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Introduction

Barton Willmore LLP (BWLLP) were commissioned by Anesco Ltd in August 2021 to undertake a Landscape and Visual Impact Assessment (LVIA) to accompany a planning application for a proposed Solar Energy Facility ('the Proposed Development') on land adjacent to the Dragon Liquefied Natural Gas terminal ('the Site') in Milford Haven, within the administrative area of Pembrokeshire County Council.

A full LVIA will be submitted as part of the planning application. This Technical Note sets out a summary of the key issues with respect to landscape and visual matters. It comprises a description of the landscape baseline of the study area, summaries of key landscape planning policy and published landscape character assessments and a description of the character of the Site and its visual relationship with the wider landscape. The TN also includes a description of the Proposed Development and the landscape mitigation strategy that has been developed to reduce or avoid adverse landscape and visual effects, and a brief outline of the likely potential effects arising from the Proposed Development.

The study area for the LVIA broadly equates to the extents of the landscape shown on **Figure 1: Site Context Plan**. The study area has been informed by the baseline appraisal and field surveys.

Site Context

Location and Land Use

In broad terms, the Site is located in a strongly industrialised rural coastal landscape between the settlements of Milford Haven (approximately 1.2km west) and Neylands (approximately 2.9km east) within the administrative area of Pembrokeshire County Council. The Site sits on the northern bank of the Milford Haven Waterway (MHW), which forms a dominant feature in the study area.

The study area is strongly influenced by industrial built development, with the extensive industrial complexes of the Dragon Liquefied Natural Gas Terminal (DLGN Terminal) and Pembroke Refinery located immediately north-east of the Site and approximately 1.7km south-west of the Site (on the

south side of the MHW) respectively. Pembroke Power Station is also located on the southern side of the MHW, approximately 1.8km south of the Site.

Dispersed and sporadic residential settlement is also present outlying the principal areas noted above, albeit they are often coalesced with larger industrial facilities. These include Hazelbeach and Waterstone to the north and east of the Milford Haven Refinery. There is also notable settlement in the south-east of the study area comprising clusters of homes at Pennar Park and Llanreath at a range of 2.2-2.5km from the Site. The settlement of Pembroke Dock is located further south-east, with the eponymous former Royal Navy Dockyard within the eastern extent of the study area.

Industrial built form is typically large scale and of substantial massing, with gasholders, flues, pylons and wind turbines prominent throughout the study area. A series of jetties also extend into the MHW from these facilities.

Transport and Rights of Way

The aforementioned areas of settlement and industrial built development are linked by a network of minor roads, including the B4325, which extends west from the DLNG Terminal to Milford Haven, approximately 900m north-west of the Site. A freight railway branch extends from the northern extent of the study area, and terminates within the DLGN Terminal, approximately 500m north-east of the Site.

As shown on Figure 1 a number of Public Rights of Way (PRoW) are present within the study area, the most notable of which are:

- PRoW PP51/22, which extends east-west along the coastline to the south of DLNG Terminal. It runs adjacent to the southern Site boundary before running north along the western boundary to meet PRoW PP65/38/1;
- PRoW PP65/38/1, which continues northwards to meet the B4325 to the east of Milford Haven;
- A cluster of PRoW in the south-eastern extent of the study area to the south and east of Llanreath, including PRoW SP32/3/3; and
- PRoW SP34/7/2 and SP34/7/1, which extend east-west along the southern coastline of the waterway.

The Pembrokeshire Coast Path National Trail extends along approximately 300km of the Pembrokeshire coastline. It incorporates a number of the PRoW set out above, including PRoW PP51/22 adjacent to the Site, and SP34/7/2/ and SP34/7/1 on the southern coastline of the MHW.

Topography and Hydrology

As demonstrated by **Figure 2: Topographical Features Plan**, the principal feature of the study area is the MHW, with the estuary (1.3km wide in the locale of the Site) dividing a landscape of broad low hills into northern and southern parts. To the north, a series of rivers and drains flow south to the MHW in sharply incised valleys, creating an undulating east-west topographical pattern. Between these valleys on the outskirts of Neyland and Milford Haven, the land rises to a broad elevated dome which peaks at 75m Above Ordnance Datum (AOD) near Little Honeyborough, approximately 2.25km north-east of the Site.

The DLGN Terminal sits on the southern extent of this gently elevated landscape, however the landscape immediately adjacent to the shoreline is a marked contrast, where steep-sided bluffs overlook the estuary, and where levels drop rapidly from 40m AOD to sea level. The Site itself occupies the edge of this elevated landscape, with the transition to steep coastal bluffs roughly coinciding with the southern boundary. A series of substantial earth bunds separate the Site from the DLNG Terminal to the north.

The pattern of landform to the south of the MHW is similar, with a typically steep sided coastline rising from the estuary and giving way to broad elevated ground, typically occupied by industrial facilities.

Vegetation

There is a marked contrast in the vegetation pattern of the study area, with the broadly level elevated agricultural landscape around areas of built form typically defined by trimmed hedgerows with few trees. Conversely, the incised river valleys are well wooded, with trees and scrubby vegetation often covering the steeply sloping coastal bluffs. Agricultural land is chiefly pastoral, with a regular patchwork of medium sized fields creating a simple rural backdrop to the extensive industrial facilities, which are themselves often bounded by belts of trees.

Designations

As demonstrated by Figure 1, the Site is not covered by any designations, but the study area is subject to the following designations:

- The Pembrokeshire Coast National Park (PCNP) encompasses land in the south-eastern extent of the study area to the immediate west of the Pembroke Refinery. At its nearest, the PCNP is located approximately 2.4km south-west of the Site;
- The landscape of the study area includes several small patches of Ancient Woodland, typically following the pattern of woodland within incised valleys and coastal margins. The nearest of these is located approximately 20m north-west of the Site;
- The entire study area is within the Milford Haven Waterway Landscape of Outstanding Historic Interest;
- There are several conservation areas within the study area, the closest to the Site encompasses the historic core of Milford Haven Conservation Area, located approximately 1.7km north-west of the Site. The former Royal Navy dock at Pembroke Dock is also designated as a Conservation Area;
- There are a number of listed buildings within the study area, the nearest of which is approximately 900m north-west of the Site; and
- A number of Scheduled Monuments are dispersed throughout the study area, including three along the southern coast of the MHW, at a range of 1.5-1.8km from the Site.

Planning Policy

National Policy

Planning Policy Wales (PPW) sets out the land use planning policies of the Welsh Government. These policies include supporting renewable energy projects, protecting and enhancing landscape and habitats, integrating green infrastructure, protecting and enhancing the special characteristics of designated landscapes.

Local Policy

The Pembrokeshire County Council Local Development Plan was adopted in 2013. The polices that are considered relevant to the Site and the Proposed Development are set out below.

Policy SP2 – Port and Energy Related Development, states that:

> ***"Development at the Ports of Milford Haven and Fishguard will be permitted for port related facilities and infrastructure, including energy related development."***

Policy GN.2 Sustainable Design, states that development will be permitted when it ***"is of a good design which pays due regard to local distinctiveness and contributes positively to the local context"*** and it ***"is appropriate to the local character and landscape/townscape context in terms of layout, scale, form, siting, massing, height, density, mix, detailing, use of materials, landscaping and access arrangements / layout".***

Policy GN.4 –Resource Efficiency and Renewable and Low-carbon Energy Proposals, states that:

> ***"Developments which enable the supply of renewable energy through environmentally acceptable solutions will be supported."***

Policy GN.37 – Protection and Enhancement of Biodiversity, states that:

> ***"All development should demonstrate a positive approach to maintaining and, wherever possible, enhancing biodiversity".***

Landscape Character

The extent of Landscape Character Areas (LCAs) identified in published character assessments are illustrated on **Figure 3: Landscape Character Plan.**

National Character

Natural Resources Wales has developed a series of National Landscape Character Areas (NLCA). The NLCA profiles include an outline of the key characteristics that define these broad areas. The Site is located within NLCA 48: Milford Haven.

Key characteristics of the NLCA include the following:

- A complex geological history;
- Historic sea level rise has flooded the valley to form the ria landscape;
- The ria extends inland and comprises the lengthy, twisting Daugleddau estuaries, Eastern and Western Cleddau tidal rivers, and vast lengths of salt marsh and mud banks;
- There are species-rich salt marshes and small muddy creeks;
- An undulating, lowland, agricultural landscape with a mixture of fields bounded by hedgerow;
- Mixed and conifer plantations are located along the upper ria and estuaries, numerous copses and riverside woodlands are located on the slopes. Ancient semi-natural sessile oak woodlands are a valued habitat;
- Villages and hamlets are dispersed along roads, junctions or former landing areas for ferries;
- Oil refineries and jetties, and a power station dominate this coastal landscape;
- The upper ria and estuaries are tranquil, intimate and rural with surrounding woodland and farmland unlike the lower ria; and
- The upper ria and estuaries are recognised for their scenic qualities.

Local Character

The Draft Pembrokeshire Landscape Character Assessment is informed by the all-Wales LANDMAP system. It identifies the Site as falling within Landscape Character Area (LCA) 10: The Haven North.

The key characteristics of LCA 10: The Haven North include:

> - ***"The geology is dominated by 'Old Red Sandstone' - Silurian sedimentary sandstone, cut by river and stream valleys flowing into the Milford Haven Waterway.***
> - ***Smaller settlements are 19th and 20th century and generally compact and linear in character. Most are dominated by residential development and English speaking communities. Neyland is more coherent in layout and contains a broader range of uses, including light industry and commercial uses. Traditional terraces at Neyland,***

largely painted in pastel colours overlook the marina, waterway and old railway terminus.

- *The area was once characterised by a diversity of industries and activities, maritime port, trade and fishing and these have evolved and grown or waned over time.*
- *The area contains two former oil refineries and chemical workings, a large liquefied natural gas installation and many large wind turbines.*
- *The northern edge of the area is bordered by busy A roads and north-south railway links. The remainder although largely quiet is heavily influenced by urban and industrial surrounds.*
- *Away from built areas, the landscape is dominated by rich pastoral agriculture with a mix of hedgebanks and narrow belts of woodland in valleys. The fieldscape is generally one of large regular fields with little rough ground remaining.*
- *The PROW network excludes the public from large industrial areas and links instead to the highway network, although recently cycle and walking tracks have expanded opportunities for active travel. The main leisure route is the Wales Coastal Path which runs along the southern edge of the Milford Haven Waterway.*
- *The recorded archaeological resource and listed buildings include pre-historic, medieval, 18th and 19th century buildings, structures and fortifications.*
- *The area is almost wholly within the Milford haven Waterway Landscape of Outstanding Historic Interest*
- *Habitat within built areas is largely formed by garden space and Improved agricultural grassland dominates away from the coast. The coastal edge is characterised by low cliffs naturally vegetated with coastal scrub."*

Site Appraisal

A landscape appraisal has been undertaken to ascertain the existing character of the Site. This is achieved through recording and analysing the existing landscape features and characteristics, the way the landscape is experienced, and the value or importance of the landscape and visual resources in the vicinity of the Site.

The character and physical features of the Site are described below with reference to Site Appraisal Photographs A - D with the locations of photographic viewpoints illustrated **on Figure 4: Site Appraisal Plan**.

The Site, with an area of 15.78 hectares (ha), comprises two pastoral fields between the DLGN Terminal to the north and the coastline of the MHW to the south. In the north-west, the Site boundary extends to include a part of the grass bunded earthworks, up to approximately 53m AOD, that form the south-western edge to the DLNG Terminal. The natural landform slopes downwards from approximately 55m AOD in the far north-eastern extent of the Site, to as low as approximately 30m AOD on the south-western boundary. There is a marked steepening of landform near the southern boundary, in closer proximity to the coastal bluffs that lie between the Site and the MHW.

The Site boundaries are predominantly defined by existing hedgerows, although there are considerable to the south, where the boundary is marked only by post and wire stock fences. The western section of the northern boundary, where the Site includes part of the bund, is not currently defined by any feature. To the west, the boundary is marked by dilapidated security fencing and patches of scrubby vegetation, while the fields themselves are separated by a robust existing hedgerow, oriented north-south through the Site.

The Site Appraisal Photographs demonstrate that the northern extent of the Site (eastern and western fields) is well contained by vegetation, bunding to the north and the natural pattern of landform, which limits intervisibility with the wider landscape to the south. To the south, however, more open views over the MHW are available. Existing industrial development is prominent in views from the Site, including silos and wind turbines at the adjacent DLNG Terminal, however there is also some intervisibility with the settlement of Milford Haven from the south-western part of the Site. Nonetheless, views to the north, north-west and north-east are screened by vegetation and landform.

Visual Appraisal

A visual appraisal was undertaken to determine the relationship of the Site with its surroundings and the approximate extent of its visibility within the wider landscape as experienced from publicly accessible viewpoints (roads, footways, PRoW and open spaces). A Zone of Theoretical Visibility (ZTV) was prepared to assist in the selection of viewpoints and guide the field survey work.

On the basis of the ZTV and field surveys, a series of representative views (Site Context Photographs) have been selected to support the assessment of the potential visual effects arising from the Proposed Development. The location and quantity of the Site Context Photographs (SCPs) have been agreed with officers of the Local Planning Authority. The ZTV is presented on **Figure 5: Visual Appraisal Plan**, with the location of the SCPs also shown. The SCP images (1-14) are included with this TN, with a description of the baseline visual characteristics of the Site set out below.

The Site is screened in close range views from the east of the Site up to SCP 1, taken from the Pembrokeshire Coast Path, approximately 80m from the Site boundary. Security fencing associated with the DLNG Terminal creates initial heavily filtered views of the Site on approach.

There are open, close range views across the Site from the short section of the Pembrokeshire Coast Path adjacent to the western part of the Site. The more elevated position provides distant views across the MHW, with industrial development notable to the north of the Site and to the south of the estuary. Existing interpretation boards, in a partially dilapidated state, are visible in the foreground.

SCPs 3, 4 and 5 demonstrate views that are available from the Pembrokeshire Coast Path as it passes the southern Site boundary. The reduced elevation and scrubby vegetation create a greater sense of enclosure, albeit there are more open isolated views as shown in SCP 4, while SCP 3 demonstrates how the Site is seen rising above the viewer through an open boundary, with gasholders and turbines at the DLNG Terminal visible on the horizon.

The Site is also visible from the Pembrokeshire Coast Path along the western boundary as demonstrated by SCPs 6 and 7, with dilapidated fencing and scrubby vegetation providing strong filtering of views, and industrial built form at the DLNG Terminal conspicuous beyond the Site. However, further north on the PRoW, the Site is typically well-screened, although part of the western field interior can be seen in SCP 7, with greater visibility likely from this location in winter conditions.

Due to a combination of intervening landform, industrial built form and vegetation, there are no views of the Site from the wider landscape to the north-west, north or north-east.

SCP 9 shows the view from an elevated position in Milford Haven. The Site is predominantly screened by intervening vegetation, or behind landform, however a small part of the western field is visible, as is the bund, seen in the context of the prominent gasholders and turbines, and at a distance of over 1.5km. However, in most locations within the settlement, the Site is more effectively contained, including from the Milford Haven Conservation Area, as demonstrated by SCP 10.

On the southern side of the MHW, there are distant partial views of the Site from the landscape to the east of Pennar Park, as shown by SCP 11. The Site interior, at a distance of 2.45km, is foreshortened by the nature of landform and viewing angle, such that it occupies a very small part of the overall view; a view that is strongly influenced by existing industrial built form and wind turbines. Further north-east from this point, intervening landform and vegetation results in the Site interior disappearing

from view, although there are likely to be distant glimpses of the Site from elevated positions in the south-eastern extent of the study area, including residential receptors.

Further west on the coastline, the Site is seen more openly from vantage points on roads (SCP 12) and PRoW (SCP 13). Nonetheless, these views are at a distance of over 1.5km, with the Site foreshortened and seen in the context of industrial built form in the backdrop of the Site and in the middle ground, as is the case with SCP 12.

Travelling further westwards on the Pembrokeshire Coast Path, there is dense woodland along the coastline which heavily filters views towards the Site, however there are distant glimpses from the western extent of the study area (and within the PCNP) as shown by SCP 14. Elsewhere to the south-west within the PCNP the Site is not visible due to landform and industrial built form at the Pembroke Refinery.

Mitigation Strategy

On the basis of a review of the Site's context, character and visual characteristics, as well as relevant policy and landscape character information, a landscape mitigation strategy has been developed and coordinated with the consultant ecologists, SLR. The mitigation strategy is illustrated on **Figure 6: Landscape Strategy Plan**.

The proposed landscape mitigation measures include:

- Retaining as far as possible the existing structure of vegetation on the Site and managing vegetation and grassland to encourage improved biodiversity;
- Offsetting proposed panels a minimum of 15m from the Pembrokeshire Coast Path to limit the potential for close range views and reduce the impact on longer distance views;
- Provision of a new native species hedgerow along the southern edge of the eastern field of the Site. The hedgerow will be set back from the Pembrokeshire Coast Path (and up against the proposed fence) to maximise the retention of an open buffer around the PRoW and screening of the Proposed Development;
- Planting of a block of native scrub with limited tree planting within the eastern extent of the Site to reduce the impact of the Proposed Development on views from the Pembrokeshire Coast Path and longer distance views from the east;
- Refurbish/replace the existing interpretation boards in the south-east of the Site, and provide an area of new native species rich grassland to improve the experience for users of the route; and
- Remove existing scrub and dilapidated fencing on the western Site boundary and replace with native species hedgerow to improve the appearance of the boundary and screen views of the Site from the Pembrokeshire Coast Path.

The aforementioned principles of mitigation are considered to provide appropriate mitigation for the scheme through reducing visual impact, improving the experience of users of the PRoW network, and through the potential for improvements to the structure and quality of the fabric of the landscape.

Potential Landscape and Visual Effects

As set out above the Site and its context are strongly influenced by existing industrial development that dominates the MHW. Nevertheless, the Site has a underlying agricultural character, and it occupies a relatively prominent position on the elevated coastline, within close proximity to the Pembrokeshire Coast Path National Trail.

The Proposed Development itself, being typical a typical solar scheme, has a limited height and unsubstantial massing, a visually permeable appearance and is static. The scheme will be completely reversible after 40 years, and the landscape baseline is readily reinstated after this period. The Proposed Development is designed to sit within the existing landscape framework, with limited vegetation removal required to allow access. A comprehensive landscape scheme is proposed, including substantial numbers of new native trees, hedgerow and scrub, whilst an enhanced landscape

management regime is proposed to encourage improved habitat potential, alongside other ecological recommendations.

In terms of landscape character, there will be direct effects on the character of the landscape of the Site due to limited, largely reversible changes to the physical fabric of the landscape. There will also be an increase in the perceived industrialisation of the landscape, however these changes will be perceived as limited in magnitude in comparison to existing industrial uses which dominate the local landscape. As such, effects on character are considered to be localised and reversible.

Furthermore, the mitigation strategy includes extensive planting and improved management arrangements such that, once established, there is potential for appreciable beneficial effects on the landscape features and physical fabric of the Site in the long term. In this way, it is considered that adverse effects on the character of the landscape can be ameliorated to an acceptable level.

In visual terms, the most significant effects are likely to be experienced by users of the Pembrokeshire Coast Path who will have an elevated sensitivity to development due to their activity, and who will also have close range views of the Proposed Development. Nonetheless, these views are only experienced for a relatively short section of the much longer overall route, and they are also experienced in a context heavily influenced by industrial built form and wind turbines. Furthermore, the primary purpose of the Pembrokeshire Coast Path is to provide access to and views of the coast and sea/inland waterways beyond. The Proposed Development is not considered to interrupt this experience and has been designed to respect and where possible improve views from the route, through specific mitigation measures.

Elsewhere in the study area, the Site is either screened or seen at a considerable distance, typically from a lower elevation where the Site interior is foreshortened, and only seen partially. It is also seen in an immediate context dominated by the DLNG Terminal, and associated gasholders and turbines. Although, the Proposed Development will extend industrialised built form on the northern coastline of the MHW, at the distances involved it is not considered likely to result in substantial adverse effects on visual receptors.

This includes receptors in landscapes of higher value, such as National Parks and Conservation Areas, where distant, partial views of the Proposed Development are unlikely to result in adverse effects greater than minor significance.

Conclusion

A comprehensive review of the Site and its context has been carried out. Field surveys have confirmed the landscape and visual baseline and a thorough review of planning policy and relevant evidence base has been undertaken. A series of landscape mitigation measures have been identified and embedded in the design of the Proposed Development with a view to reducing or avoiding adverse effects. The mitigation strategy has been developed in partnership with the consultant ecologist and are based on a robust understanding of and sensitive approach to the landscape.

There are likely to be adverse effects on landscape and visual receptors as a result of the Proposed Development, however the majority of these will be highly localised, and their significance will be limited by the industrial context. The significance of adverse effects is expected to diminish with the establishment of the comprehensive mitigation measures, and improved management of the existing features of the Site. As a result, adverse residual effects can be minimised and there is potential for long-term beneficial effects on the landscape of the Site itself.

On this basis, the Site is considered to have capacity to accommodate the Proposed Development without unacceptable adverse impact on landscape character and visual amenity.