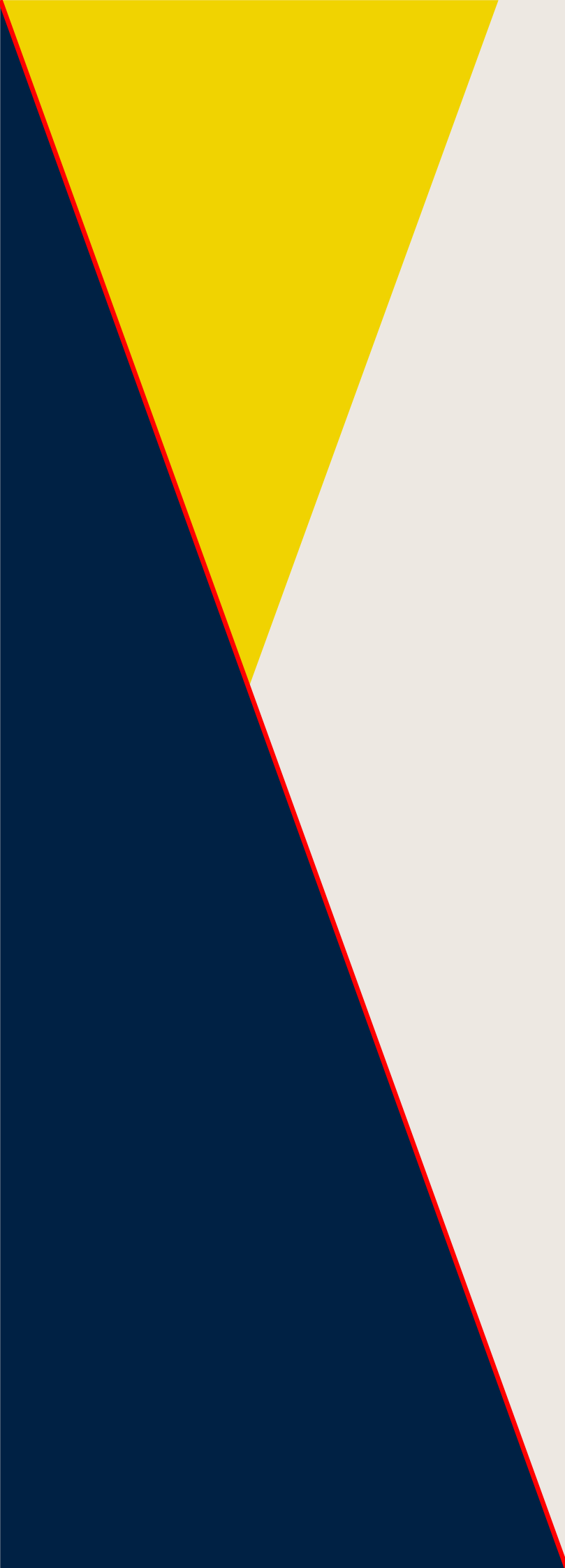




Goldborough Road Battery Energy Storage System

Environmental Statement

February 2024

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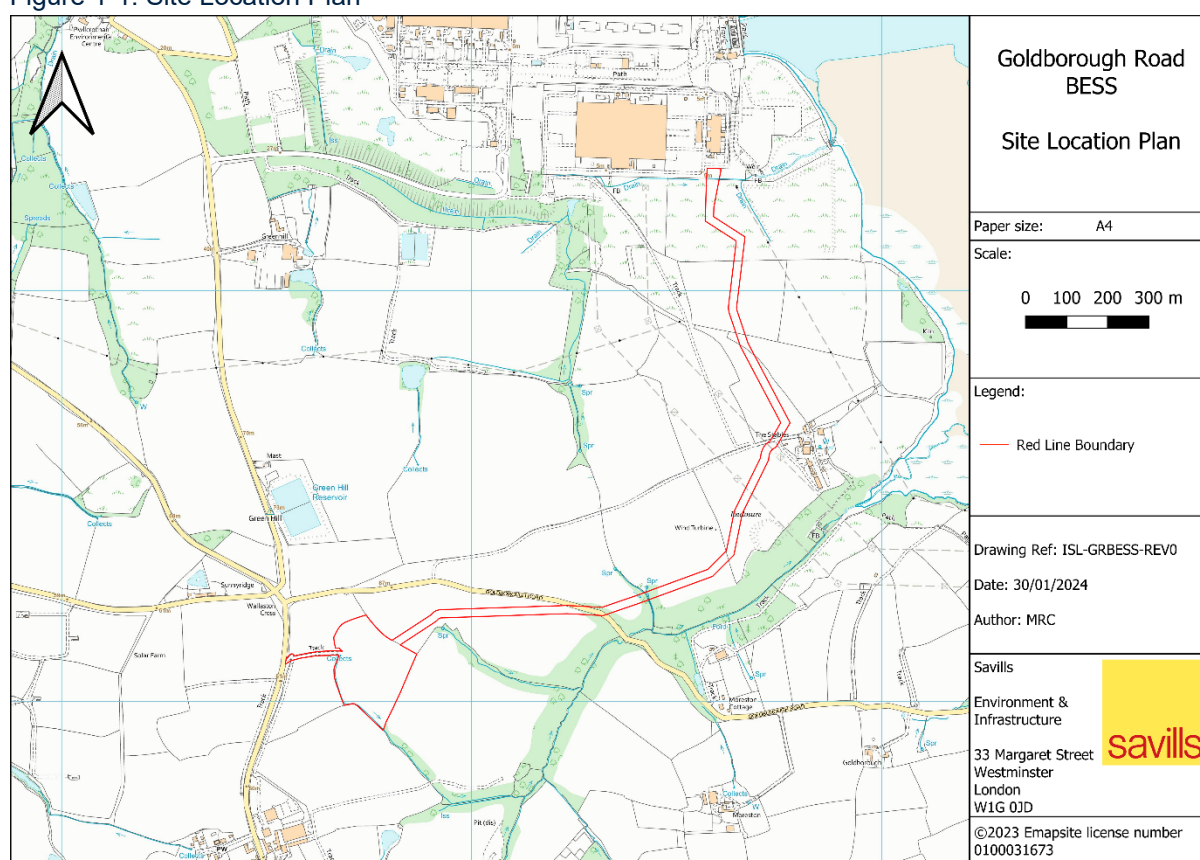
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1 Introduction

1.1 Introduction

- 1.1.1 This Environmental Statement (ES) has been prepared by Savills (UK) Limited ('Savills'), with input from the Environmental Impact Assessment (EIA) project team (see Section 1.6), on behalf of on behalf of Pembroke Green Limited (the Applicant).
- 1.1.2 This ES accompanies a suite of documents that together accompany a full planning application for the installation of a 120MW Battery Energy Storage System (BESS) with associated infrastructure (the 'Proposed Development') on land south of Goldborough Road, Wallaston Cross, Pembroke, near SA71 5SH, as illustrated in Figure 1.1.

Figure 1-1: Site Location Plan



- 1.1.3 BESS are an essential component of renewable electricity infrastructure which resolve the issues surrounding intermittency in energy generation from renewable sources. The Proposed Development will reinforce the National Grid by facilitating the deployment of intermittent renewable energy generation through the storage of renewable energy and subsequent release to the grid during periods where demand is higher than renewable energy generation. This will reduce reliance on fossil fuels which have historically been used for the provision of rapid response power during periods of peak energy demand. The Proposed Development will therefore positively contribute towards the UK's net zero target by 2050 and decarbonisation of the electricity grid by 2035.

- 1.1.4 Details of the site location and a summary description of the site and its surroundings are provided in Chapter 2 (The Site and Local Context), with further details provided in subsequent technical chapters.
- 1.1.5 The Proposed Development is for the construction, operation, maintenance and decommissioning of a 120MW 'battery energy storage system (BESS) with associated infrastructure and works' for distribution to the Pembroke Substation. The location and the extent of planning application site is identified by the red line shown on Figure 1.1 above. In total, the Site covers an area of 7.5 hectares (ha). Full details of the Proposed Development are provided in Chapter 3 (The Proposed Development).
- 1.1.6 Chapter 4 Approach to Assessment outlines consultation, design evolution and the consideration of alternatives and sets out the overarching approach of the EIA.
- 1.1.7 Chapters 5 (Ecology) and 6 (Landscape and Visual Impact) contain the technical assessments completed by a technical specialist for the Proposed Development. These chapters provide an assessment taking into account mitigation and enhancement measures to be implemented.
- 1.1.8 Chapter 7 (Other Environmental Matters) provides consideration towards those topics that were scoped out of the ES.
- 1.1.9 Chapter 8 (Summary of Mitigation, Residual and Interaction Effects) provides a summary of the ES including identifying mitigation commitments and any residual effects.

1.2 Environmental Impact Assessment

- 1.2.1 This ES has been prepared under the Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 (as amended) ('the 2017 Regulations'), which came force on 16 May 2017.
- 1.2.2 The 2017 Regulations require that before planning permission is granted for certain types of development, an EIA must be undertaken.
- 1.2.3 EIA is a systematic and objective process through which the likely significant environmental effects of a project can be identified, assessed and, wherever possible, avoided or mitigated. EIA aims to improve the environmental design of a development and provide decision-makers with sufficient information about the environmental impacts of a proposal.
- 1.2.4 This process and its outcomes are then reported in the ES to the local planning authority (LPA), in this case Pembrokeshire County Council ('the Council' / PCC), its advisors, and the public.
- 1.2.5 An ES accompanies an application for development consent, providing environmental information about the scheme, including a description of the development, its likely environmental impacts and the measures intended to mitigate any adverse impacts. The Non-Technical Summary (NTS) is provided to offer a concise and accessible account of the EIA process and the environmental effects of the Proposed Development to the wider public.
- 1.2.6 The ES reports on the outcome of the EIA process and details the assessment that has been undertaken. Once the EIA is completed, the ES (this document) is submitted to the LPA for consideration with the planning application.

1.3 Legal Background to EIA

European Union EIA Directives

- 1.3.1 The EU set out the legal framework for EIA in June 1985 in Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment. This has been subsequently amended in 1997, 2003 and 2009 with the amendments being codified in 2011 in Directive 2011/92/EU and more recently on 15 May 2014 in Directive 2014/52/EU.
- 1.3.2 This latter Directive sought to simplify the rules for assessing the potential effects of projects on the environment. The new approach is in line with the drive for smarter regulation, reducing administrative burden. It also improves the level of environmental protection, with a view to making business decisions on public and private investments more sound, more predictable and sustainable in the longer term.
- 1.3.3 The new approach pays greater attention to threats and challenges that have emerged since the original rules came into force some 30 years ago. This means more attention is paid to areas like resource efficiency, climate change and disaster prevention, which are now better reflected in the assessment process.
- 1.3.4 Member States were required to apply these rules from 16 May 2017, at the latest. They also needed to communicate to the Commission, the national legislation adopted in order to comply with the Directive.

The UK / Welsh EIA Regulations

- 1.3.5 The UK has incorporated the former EIA Directives into its existing legal framework, resulting in a multitude of regulations specific to certain Acts of Parliament. Most projects however require planning permission in accordance with the Town and Country Planning Act 1990 and it is the regulations relating to this that are most commonly applied.
- 1.3.6 These Regulations have been subject to review and amendment since they first came into force in July 1988. The 2017 Regulations that came into effect on 16 May 2017 only relate to development in Wales; other devolved parts of the UK have their own regulations. These regulations remain in place following the departure of the UK from the European Union.

1.4 Screening and Scoping for EIA

Screening

- 1.4.1 The 2017 Regulations set out the types of development that must always be subject to an EIA (Schedule 1 development) and other development that will only require assessment if it is likely to give rise to significant environmental effects (Schedule 2 development).
- 1.4.2 Schedule 3 of the 2017 Regulations provides guidance and thresholds ('selection criteria') to help to decide whether EIA is required for a Schedule 2 development.
- 1.4.3 On 31st August 2023, PCC, in their Screening Opinion (Appendix 1.1), concluded that:
"The Development is not a Schedule 1 development."
- 1.4.4 PCC also noted that:
"The Development relates to the Energy Industry (Part 3 of Schedule 2) and is one for the storage of energy. Whilst battery storage projects are not specifically referenced in Schedule 2 such projects are a subset of energy generation. In determining whether a particular proposal

for development is included within one of the categories of development local planning authorities (LPA) should have regard to The European Court of Justice that has ruled that project categories are to be interpreted widely because of the broad scope and purpose of the EIA Directive.

Given this, it is therefore considered that the development is a subset of and constitutes Schedule 2 development under Section 3(a) 'Industrial installations for the production of electricity, steam and hot water'. The area of development exceeds 0.5 hectares."

- 1.4.5 In relation to the Schedule 3 selection criteria, PCC expressed that there are a number of approved developments, as well as others that are not yet consented but pursuing consent, within close proximity to the Proposed Development that include a cable and sub-station. As such, they suggest that Proposed Development *"is likely to give rise to significant effects on the environment having regard to the potential cumulative effects with other development in the locality in respect of ecological and visual/landscape effects."*
- 1.4.6 Due to the reasons noted above, PCC state that the Proposed Development *"does require Environmental Impact Assessment because the development cumulatively with other development in the locality, is likely to have significant effects on the environment in respect of ecological and visual/landscape impacts."*

Scoping

- 1.4.7 A request was then made to PCC for its EIA Scoping Opinion in October 2023 (Appendix 1.2). The purpose of this was to identify what PCC considers to be the main environmental issues associated with the Proposed Development. The Council consulted with statutory consultees and issued a formal EIA Scoping Opinion in January 2024 (Appendix 1.3).
- 1.4.8 The Scoping Opinion confirmed that the following environmental effects require further assessment:
- Ecology; and,
 - Landscape and Visual.
- 1.4.9 As part of the assessment work, a number of issues were considered unlikely to give rise to significant environmental effects and as such, are scoped out of further assessment. For further justification, refer to Chapter 7 (Other Environmental Matters), which provides consideration of environmental topics scoped out of further assessment.

1.5 Environmental Statement Structure

- 1.5.1 The ES is structured as follows:
- ES Main Report;
 - ES Main Report Figures;
 - Technical Appendices; and
 - Non-Technical Summary (NTS).

ES Main Report

1.5.2 The ES Main Report comprises the following chapters:

Chapter Title	Description
1 Introduction	This chapter presents the legal framework and structure to the ES and an overview of the project team.
2 The Site and Local Context	This chapter presents a summary overview of the Site.
3 The Proposed Development	This chapter presents the Proposed Development including all construction, operational and decommissioning activities.
4 Approach to assessment	This chapter outlines the consultation and stakeholder engagement activities that have been undertaken, the alternative development options that have been considered and parameters assessed. This chapter also provides information on the general scope and methodology employed during the EIA process.
5 Ecology	This chapter provides an assessment of ecology and nature conservation effects, taking into account mitigation and enhancement measures to be implemented, as undertaken by a technical specialist. The chapter also provides an assessment of cumulative effects.
6 Landscape and Visual Impacts	This chapter provides an assessment of landscape and visual effects, taking into account mitigation and enhancement measures to be implemented, as undertaken by a technical specialist. The chapter also provides an assessment of cumulative effects.
7 Other Environmental Matters	This chapter provides consideration towards topics scoped out of further assessment in the ES.
8 Summary of Mitigation, Residual and Interaction Effects	This chapter provides a summary of the proposed mitigation, residual and interaction effects.
NTS Non-technical Summary	

ES Main Report Figures

1.5.3 The figures that accompany the ES are either embedded within the relevant technical chapters or provided in a separate supporting document.

Technical Appendices

1.5.4 The technical appendices supporting the chapters of the ES Main Report are provided in a separate supporting document.

Non-Technical Summary (NTS)

1.5.5 This is a summary of the ES in a non-technical language presenting the existing site conditions, a description of the Proposed Development and setting out the likely environmental effects.

1.6 The Project Team

1.6.1 Those working on the EIA of the Proposed Development are as follows:

- Savills: EIA co-ordination;
- RPS: Ecology; and,
- Pegasus: Landscape and Visual.

1.7 Statement of Relevant Expertise

- 1.7.1 The 2017 Regulations require that ESs must be prepared by competent experts. Paragraph 17 Part 4(b) of the 2017 Regulations states that the environmental statement must *“contain a statement by or on behalf of the applicant or appellant describing the expertise of the person who prepared the environmental statement”*.
- 1.7.2 This section has been prepared to meet the requirement of the Applicant to outline the relevant expertise or qualifications of such experts.
- 1.7.3 In line with Regulation 17(4), it is confirmed that the project team (outlined above), constitute ‘competent experts’ for the purposes of EIA project management, and drafting of relevant technical chapters. The combined project team have relevant experience in undertaking EIA on projects of this nature and scale; and have the expertise to ensure that the ES complies with the regulatory requirements and best practice. Appendix 1.4 sets out the ES Assessor information to meet these competency requirements.

1.8 Consultation

- 1.8.1 As of 1st August 2016, the Town and Country Planning (Development Management Procedure) (Wales) (Amendments) Order 2016 brought into effect various provisions set out in the Planning (Wales) Act 2015. This included the requirement to undertake pre-application consultation for all planning applications for ‘major’ development (full or outline) as defined in Article 2 of the Town and Country Planning (Development Management Procedure) (Wales) Order 2012 and applications for Developments of National Significance.
- 1.8.2 The pre-application consultation including all relevant planning documentation can be viewed at the project website, www.goldboroughroadbess.co.uk.
- 1.8.3 Following the Pre-Application Consultation period, a Pre-Application Consultation Report will be prepared and submitted in support of the planning application. It will details the approach to consultation, undertaken in accordance with the relevant legislation.

2 Site and Local Context

2.1 Introduction

2.1.1 This chapter provides a description of the Site and its setting.

2.2 Site Description

Existing Site and Surrounding Area

- 2.2.1 The application Site occupies approximately 7.5 hectares (ha) and comprises: (1) 'the main BESS Site' (containing the battery storage area, access, fencing, planting, etc; approximately 1.7 ha); and (2) 'the cable corridor' from the main BESS Site to the point of connection (POC) at Pembroke Substation (Figure 1.1 [in text]). The existing use of the land is for agricultural purposes, although the surrounding area hosts a number of industrial installations.
- 2.2.2 The immediate surrounding area is agricultural in nature, set within agricultural fields which have strong hedgerow boundaries. The southern and western boundaries of the proposed main BESS Site are bounded by a belt of trees. The eastern and northern boundaries comprise hedgerow planting. There is a small gap in planting on the north-western boundary.
- 2.2.3 Agricultural land and the settlement of Wallaston Green are located approximately 500m to the south; the access, agricultural land and two solar farms (Hoplass Solar Farm and Wogaston Solar Farm) are located to the west; Green Hill Reservoir is located to the north with the Valero Oil Refinery approximately 1.75km away in the same direction; Pembroke Power Station lies immediately adjacent to the northernmost end of cable corridor; agricultural land and Lambeeth Farm are located to the east. Pembroke Dock is located approximately 3.5km to the north-east of the site. Milford Haven is located approximately 5km to the north-west of the site.
- 2.2.4 There are no Public Rights of Way on, or in the immediate surrounding area of the main BESS Site. The Wales Coast Path, which runs around and through the Angle Peninsula is located approximately 1km to the east of the BESS site at its closest point; and footpath SP34/6 is located approximately 100m to the northeast of the BESS site.
- 2.2.5 There are very few residential properties close to the Site, the closest to the main BESS Site being a pair of bungalows 250m to the northwest; there are also receptors approximately 450m to the southwest, associated with Davies TG Dairy Farm. In relation to the cable corridor, Lambeeth Farm, a residential receptor, is located approximately 50m to the east. There are limited settlements with traditional scattered farms, houses and villages, with minor road networks which intersect the broader area. Beyond these is a larger built-up residential area of Pembroke Dock 3.5km northeast of the Site.
- 2.2.6 The underground cable corridor from the main BESS Site to the POC runs eastwards from the easternmost point of the main BESS Site, crossing beneath Goldborough Road and into the agricultural fields north of Goldborough Road. The cable corridor then runs parallel to the southern borders of these fields until it reaches existing overhead pylons, where it changes direction to run in a north-eastern direction, before changing direction again at Lambeeth Farm, pivoting to a northwest direction until it reaches Pembroke Substation.

Site Environmental Constraints

- 2.2.7 The main BESS Site and cable corridor proposed are covered by some statutory and non-statutory designations or assets that relate to ecology, landscape and cultural heritage. The following section outlines them in more detail.

Heritage

- 2.2.8 There are no built heritage constraints on the main BESS Site. The nearest listed building is Somerton Farmhouse (Grade II) located approximately 700m to the south of the main BESS Site. The nearest Designated Heritage Asset is the Wallaston Round Barrows Scheduled Ancient Monument, located approximately 600m to the south of the main BESS Site.
- 2.2.9 The main BESS Site is located within the 'Milford Haven Waterway' Landscape of Outstanding Historic Interest. This historic landscape is included in the non-statutory Register of Landscapes, Parks and Gardens of Special Historic Interest in Wales.
- 2.2.10 There are no World Heritage Sites within 5 km of the main BESS Site.

Flood risk

- 2.2.11 A small ditch/stream is located on the southern and western boundary of the Site, leading towards Goldborough Pill. According to the Natural Resource Wales (NRW) online maps, the site is located within Flood Zone A *"Considered to be at little or no risk of fluvial or coastal/tidal flooding"*.
- 2.2.12 There are some small areas of surface water flood risk within the site associated with areas of hardstanding.

Ecology

- 2.2.13 There are no designated ecological sites or features within the main BESS Site.
- 2.2.14 The main BESS Site is agricultural land used for grazing. According to the Agricultural Land Classification (ALC) Report undertaken for the Proposed Development, this forms part of the wider planning application package. The main BESS Site is comprised of 3b (moderate quality).
- 2.2.15 The cable corridor crosses a variety of land uses, including agricultural land used for grazing, connecting the main BESS Site to the Point of Connection.
- 2.2.16 The main BESS Site is within 5km proximity to the following ecological designations:
- Pembrokeshire Marine / Sir Benfro Forol Special Area of Conservation (SAC) (0.30km east of cable corridor);
 - Limestone Coast of South West Wales / Arfordir Calchfaen De Orllewin Cymru SAC (2.47km west of the main BESS Site);
 - Pembrokeshire Bat Sites and Bosherton Lakes / Safleodd Ystlum Sir Benfro a Llynnoedd Bosheerton SAC (3.19km southeast of main BESS Site);
 - West Wales Marine / Gorllewin Cymru Forol SAC (4.77km southwest of main BESS Site);
 - Castlemartin Coast Special Protection Area (SPA) (2.54km southwest of main BESS Site);
 - Somerton Meadows / Gweunydd Site of Special Scientific Interest (SSSI) (0.39km southeast of main BESS Site);

- Milford Haven Waterway SSSI (0.46km east of cable corridor);
- Broomhill Burrows SSSI (2.64km west of main BESS Site);
- Castlemartin Corse SSSI (2.76km southwest of main BESS Site);
- Castlemartin Range SSSI (3.25km southwest of main BESS Site); and,
- Orielson Stable Block and Cellars SSSI (3.16km southeast of main BESS Site).

2.2.17 The Pembrokeshire Marine / Sir Benfro Forol SAC encompasses almost the entire Milford Haven waterway to tidal limits and partially overlaps the Milford Haven Waterway SSSI. Both the Pembrokeshire Marine / Sir Benfro Forol SAC and Milford Haven Waterway SSSI are considered to support a significant number of habitat types and species including sandbanks, mudflats, coastal lagoons, inlets and bays, reefs, sea caves and Atlantic salt meadows suitable for migratory birds, fish and mammals.

Landscape

2.2.18 The main BESS Site is located within National Landscape Character Area 48: Milford Haven. This area is described as:

“The prominent industry at Pembroke Dock and Milford Haven, with oil refineries and their jetties dominating the coastal landscape at the mouth of the Haven, contrasts remarkably with the intimate and rural landscapes of the inland ria or Daugellau, and its surrounding woodland slopes and farmland.”

2.2.19 The Pembrokeshire Coast National Park (*Parc Cenedlaethol Arfordir Penfro*) is located to the south and west of the main BESS Site, approximately 1.1km from the Site at its closest point.

2.2.20 Any views that can be achieved of the main BESS Site from the National Park are set within an industrial landscape of the Valero Oil Refinery and the Pembroke Combined Cycle Gas Turbine ('CCGT') Power Station with overhead electricity transmission power lines. Within the broader setting, the Dragon LNG terminal and South Hook LNG terminal are visually prominent features within the landscape.

Other matters

2.2.21 There are no Public Rights of Way (PRoW) on the main BESS Site. The Wales Coast Path, which runs around and through the Angle Peninsula is located approximately 1km to the east of the main BESS Site at its closest point; and footpath SP34/6 is located approximately 100m to the northeast of the main BESS Site.

2.2.22 The cable corridor passes under the Wales Coast Path and footpath SP34/6 to the west of Lambeeth Farm.

2.2.23 The main BESS Site is not within or near any existing or proposed Air Quality Management Area (AQMA).

2.2.24 The Coal Authority's Interactive Map confirms the main BESS Site does not fall within a Coal Mining Reporting Area, a Development High Risk Area, or a Surface Coal Resource Area.

3 The Proposed Development

3.1 Introduction

- 3.1.1 This chapter provides the definitive description of the Proposed Development for the purposes of the EIA.
- 3.1.2 The chapter identifies the construction and operational design features of the Proposed Development that might affect the environment or contribute to the overall environmental effects of the scheme.

3.2 Overview

- 3.2.1 The planning application to which this ES relates comprises an application for full planning permission.
- 3.2.2 The description of the development applied for covered by this ES is as follows:

“Installation of a Battery Energy Storage System with associated infrastructure and works”.

- 3.2.3 The proposal is for the construction, operation, maintenance and decommissioning of a 120MW Battery Energy Storage System (BESS) for distribution of electricity to the National Grid. The Proposed Development would operate for a time limited period of 40 years.
- 3.2.4 The Site Location Plan and Proposed Site Plan related to the Proposed Development on which environmental assessment is based are illustrated in Figures 1.1 (in text) and 3.1 (in text) respectively. The Proposed Site Plan (Figure 3.1 [in text]) sets out a proposed layout for the development of the Site within the redline boundary within the red line boundary of the main BESS Site.
- 3.2.5 The total area contained within the red line planning application boundary (Figure 1.1) is 7.5 ha (main BESS Site plus the cable corridor).
- 3.2.6 The main components of the Proposed Development comprise:
- Battery storage facility (comprising battery modules housed within shipping containers or similar (Figure 3.2); auxiliary transformer; switchgear and associated buildings comprising control rooms (Figure 3.3) and switchgear rooms (Figure 3.4));
 - Inverter/transformer stations and associated electrical infrastructure distributed evenly across the site housed within shipping containers or similar (Figure 3.5);
 - Onsite 132kV substation infrastructure (Figure 3.6);
 - Perimeter fencing and CCTV/infra-red cameras mounted on posts internally within the perimeter of the Site (Figure 3.7);
 - Underground cabling to connect the battery containers and inverters/transformer stations to the proposed on-site substation and control room;
 - Underground cabling from the main BESS Site to the point of connection (POC) at Pembroke Substation;
 - Limited earthworks on part of the Site ('cut and fill' to form level development plateau on which the BESS will be situated);
 - On-site construction compound and temporary construction laydown area within the main BESS Site, and site access from the public highway; and,

- Landscape planting, biodiversity enhancements and surface water attenuation measures.

Figure 3.1: Proposed Site Plan



- 3.2.7 As illustrated in Figure 3.2, the shipping containers in which the battery modules will be housed typically measure 12.2 m in length, 2.4 m in width and 3.5 m in height, taking into account the fact that the containers will be elevated on a concrete base.
- 3.2.8 The inverters (Figure 3.5) will also be housed within shipping containers, however, these containers will typically be 6.1 m in length, and 2.4 m in width and 3.5 m in height (when the concrete base is taken into account).
- 3.2.9 The maximum height of any structure on site will be 6.5 m, which is the maximum height of the 132 kV substation, as illustrated in Figure 3.6.
- 3.2.10 The main BESS site will be secured through 2.4 m perimeter fencing and CCTV/infra-red cameras mounted on posts internally within the perimeter of the Site (Figure 3.7).
- 3.2.11 The point of connection to the grid will be made to the Pembroke Substation, located approximately 1.3 km north-east of the main BESS Site. The cable would run below ground from the boundary of the Site directly to the POC (Figure 1.1).

3.3 Phasing, Construction and Implementation

- 3.3.1 This section describes the anticipated programme of construction works and the key activities that will be undertaken prior to completion of the Proposed Development (i.e. enabling works, substructure works etc., construction material quantities, HGV movements and HGV routing).

3.3.2 The assessment of effects prior to the adoption of additional mitigation measures will assume that construction will proceed in accordance with industry standard best practice techniques and that all legislative requirements will be met. Standard measures can be secured through planning conditions and will therefore not be repeated as mitigation in the ES. These include site waste management; construction and environment management; construction traffic management.

3.3.3 The construction of the proposal would commence in 2025, subject to planning consent being granted. It is anticipated that construction would take place over the course of 12 months, and be completed by 2026, with some elements of the Proposed Development being sequenced during this period as follows:

Site establishment

3.3.4 Prior to the commencement of the Proposed Development, contact details of the person(s) on site responsible for the construction phase shall be identified and contact details shared with the relevant bodies.

3.3.5 The initial stage of works will include establishing access, creation of the construction compound and temporary welfare facilities, together with the installation of the perimeter fencing (and other temporary tree protection fencing) and other temporary fencing installed where required to secure the site. During this stage initial deliveries of materials and temporary matting/site hoardings to form the construction compound (where required) would be undertaken.

Site groundworks

3.3.6 The next stage of works will comprise the installation of the internal access roads from the construction compound, the necessary earth reprofiling works to the agreed height above ordnance datum (AOD) upon which the BESS will be located, establishing the relevant drainage infrastructure, the excavation then laying of the foundations and granular sub-bases (where required) to associated buildings, equipment and works compounds. The 132 kV substation groundworks will be undertaken including the necessary earth reprofiling works. Trenches for the cable connections within the Site will be excavated.

Battery Energy Storage System (BESS) Installation

3.3.7 Following survey and site marking out, the installation of the BESS along with the inverter/transformer units, substation compound and the supporting infrastructure is initiated. The energy containers themselves are likely to be delivered as pre-constructed units which would be installed on the foundations and connected to each other and the substation. The foundations associated with each building or electrical plant is generally limited to the footprint of the building, located above (or surrounded by) a permeable sub-base.

3.3.8 The method for piling will be determined prior to works commencing, based on the results of further ground studies and in consultation with a qualified ecologist.

3.3.9 The sequencing of construction will be determined by the appointed contractor.

Associated equipment installation

3.3.10 The installation of associated equipment, for example CCTV and other security systems is completed and cable is laid and connected.

3.3.11 It is possible that the associated equipment installation will be undertaken concurrently by a separate specialist contractor.

132 kV substation installation

- 3.3.12 The substation will be constructed on an aggregate base (following the earth reprofiling). This would be established first together with the excavation of the foundations and cable trenches between the equipment forming the necessary plant and equipment. Fencing around the 132 kV substation compound would also be installed as part of the works.

Testing and commissioning works

- 3.3.13 The penultimate stage of works includes the commissioning and testing of all systems on site, including electrical testing. The relevant installation, safety and compliance certificates are issued prior to the first export of electricity from the Proposed Development.

Landscaping and site restoration

- 3.3.14 When the temporary site working compounds are removed, any disturbance to the construction compound area will be repaired and land restored. Landscaping is then undertaken, and then managed in accordance with the approved details.
- 3.3.15 Given the nature and extent of the Site, the phasing across site may not follow in sequence but be undertaken concurrently.

Construction Environmental Management Plan (CEMP)

- 3.3.16 Details of measures to protect the environment during the construction of the Proposed Development have been set out in an accompanying Outline CEMP (Appendix 3.1). A final, detailed CEMP, based upon the Outline CEMP, will be prepared and implemented and will contain measures to address hours of working, noise, vibration, dust, light spill, wheel washing and control of runoff. It is anticipated that the implementation of the CEMP will be a condition of the planning permission and that it will be regularly monitored.
- 3.3.17 Once finalised and approved by the Local Planning Authority, the detailed CEMP would be held on-site. All site personnel would be made aware of its existence and undertake to adhere to the guidance. The site manager will be responsible for the implementation of the CEMP and the development of the detailed CEMP. Mitigation measures included in the Outline CEMP are set out below.

Dust management and cleaning of wheels

- 3.3.18 Construction traffic will be managed to ensure that both the construction route and access to the site are kept clean of dust, debris and mud during the works. Wheel cleaning of HGVs exiting the Site will be undertaken when necessary.
- 3.3.19 Measures will be put in place to ensure that wheel wash runoff (or other run off from rainfall) does not drain onto the public highway or carry sediment. As an additional measure, as required, a road sweeper will be deployed by the site manager if necessary.
- 3.3.20 A Construction Traffic Management Plan (CTMP) (Appendix 3.2) will be prepared, to be submitted to and approved by the Local Planning Authority prior to the commencement of the development, and secured via planning condition. The CTMP will set out the approach to cleaning of wheels upon leaving the Site and repair of any highways damage caused during the construction works. More detail on the CTMP is provided below.
- 3.3.21 Dust suppression measures will include:

- sand and other aggregates are stored in bunded area and, where possible, not allowed to dry out;
- avoid dry sweeping of large areas; and,
- ensure surfacing equipment is only operated with any manufacturer's dust measurements in place.

Air quality measures

- 3.3.22 Good industry practice dust management practices will be followed during the work. As required access tracks and areas of hardstanding, such as the construction compound, on the Site will be dampened down with a water bowser to prevent any dust created being blown. HGVs leaving site with materials (such as waste) will be sheeted to prevent the spillage of the load onto the highway and minimise dust created from HGVs. The site manager will take additional measures, as considered necessary, to prevent dust being blown.
- 3.3.23 The measures outlined in the CEMP, to be secured by planning condition, would ensure temporary air quality impacts arising from construction are reduced and managed. Construction vehicle movements and the associated emissions will also be managed through the CTMP to be secured via planning condition.

Surface treatments and the construction of any hard surfaces and tracks

- 3.3.24 Most of the Site will be retained as existing, with no change to the surface treatment. The Flood Consequences Assessment (Appendix 3.3) sets out the area of impermeable surface is limited to the footprint of the inverter/transformer units, substation buildings and the energy storage containers. The proposed access tracks will form hardstanding of a permeable design.
- 3.3.25 During construction, temporary matting can be deployed as necessary to protect ground from damage. Any bare ground resulting from construction activities should be re-seeded, this can be secured through the CEMP.
- 3.3.26 Landscaping improvements will be undertaken in accordance with the requirements of any permission granted as set out in the ecology and landscape chapters of this ES.

Pollution measures with respect to surface and ground water

- 3.3.27 The presence of any overland water flows within and adjacent to the main BESS Site will be noted as part of the site inductions given. Good industry practice construction measures will be deployed to ensure the construction works have no adverse impacts on onsite and offsite drainage ditches and water courses or groundwater.
- 3.3.28 Construction vehicles will be maintained appropriately in accordance with good site practices to reduce the risk of hydrocarbon contamination and to ensure that construction plant will only be active when required.
- 3.3.29 The site manager will be responsible for checking the mitigation measures are implemented to ensure environmental and legal compliance.
- 3.3.30 Additionally, the appointed contractor will subscribe to the applicable Flood Alerts.
- 3.3.31 Any construction materials will be stored, handled and managed with due regard to the sensitivity of the local aquatic environment and thus the risk of accidental spillage or release will be minimised. All materials and plant and equipment will be stored within the temporary construction compound prior to installation. Wherever possible, these will be located outside of

flood zones, surface water flood extent and away from areas of the site which are more susceptible to a pollution event (i.e. away from watercourses).

- 3.3.32 Welfare facilities for construction workers will be managed by an appropriately licenced provider who will be responsible for emptying, suitable disposal and upkeep the foul sewerage and toilet facilities on site during the construction period.

Emergency procedures and pollution response plans

- 3.3.33 Emergency contact details for the site manager will be placed on a notice board near the site entrance and the construction compound. The contact details will also be shared with representatives of the Community Council at the commencement of construction works.

- 3.3.34 A pollution response plan will be prepared by the contractor following appointment as set out within the Construction Environmental Management Plan (CEMP) (Appendix 3.1). The pollution response plan will follow appropriate guidance and cover matters including: Fuel delivery and fuel storage, provision and control of silt, working near waterbodies and sources of soil and groundwater contamination.

- 3.3.35 The pollution response plan will fully outline the measures to be adopted in the event of a spill or pollution incident. These will include:

- Stop release of fuel by removing the source or by using plastic sheeting and bunding.
- Excavate oil contaminated soil and place in an airtight container. This must be disposed of by a specialist waste handler as special waste.
- If spillage is onto a hard surface, all drains and gullies must be sealed immediately.
- Absorbent materials such as sand, sawdust, straw or oil absorbent granules/mats are to be placed over the contaminated area to soak up the spill. These should then be removed and stored and disposed of as special waste. Impermeable gloves and boots and disposable overalls are to be worn.
- The above items will be found in the oil spill kit, which will be made readily accessible to site personnel.
- Spill kits will be available on site and in all vehicles that transport hydrocarbon fuels for dispensing to other vehicles on the construction site. Spill kits will be made up of materials/products that are in line with environmental practice.

- 3.3.36 All incidents will be reported and it will be the responsibility of the site manager to notify relevant agencies and bodies (such as the Natural Resources Wales, IACC Environmental Health) as applicable to the incident.

Construction noise and vibration mitigation

- 3.3.37 Construction activities can give rise to noise associated with the works required to construct the approved development. The CEMP (Appendix 3.1) outlines the noise control measures for the construction phase and a detailed CEMP will be secured via planning condition.

- 3.3.38 Any piling necessary for building foundations is typically the activity which generates most noise during the construction phase. Where possible, plant and equipment utilised in construction works, will be deployed with suitable noise mitigation or specification (i.e. the quietest plant or construction method feasible) and shall be maintained in good and efficient working order.

- 3.3.39 All plant and machinery in intermittent use shall be shut down in the intervening period between works. Wherever possible, battery powered equipment shall be used instead of diesel or petrol powered generators.

- 3.3.40 All construction works will be undertaken within the hours specified in the CEMP secured by planning condition.
- 3.3.41 Good industry practice, such as that set out in BS5228, will be followed by the appointed contractor. Measures to minimise noise will be explained as part of the site induction. The site manager will be responsible for investigating and resolving any noise complaints received.
- 3.3.42 Fencing and digging of required cable trenches will be undertaken only following further ground condition studies, which will be the responsibility of the EPC contractor. The piled foundations will be undertaken at a distance which ensures ground vibrations from piling works, typically to a depth of between 1m and 2m, will not impact nearby designated sites.

Ecology mitigation

- 3.3.43 All construction and operational activities with the potential to affect legally protected species would be subject to precautionary measures to be consistent with environmental good practice and to comply with wildlife legislation as set out in the CEMP.
- 3.3.44 Prior to the start of construction, a walkover survey will be undertaken by a suitable qualified ecologist to confirm that no new ecological features (flora and fauna) have been established within areas affected by the Proposed Development. At the outset of ecologically sensitive works, an Ecological Clerk of Works (ECoW) will deliver a 'toolbox talk' to the site construction team, briefing them on all ecology and nature conservation requirements on site.
- 3.3.45 Within the construction area, any excavations will be covered overnight or a provision of escape will be provided to prevent animals becoming trapped in the unlikely event they enter the construction area.
- 3.3.46 To prevent animals from being attracted into the Site, good housekeeping shall be maintained so that the area is kept clear of food debris and rubbish.

Soils

- 3.3.47 The appointed contractor will be responsible for the designation and maintenance of any temporary soil storage areas. This may also include the temporary storage of materials including demolition waste.
- 3.3.48 Regular site inspections shall be conducted which shall include the need for stockpiling and/or controlling the size of stockpiles and environmental monitoring of the stockpiles.

Waste management plan

- 3.3.49 The appointed contractor will prepare a Site Waste Management Plan. The plan will detail the approaches to waste minimisation and management during the construction phase in accordance with the principles of the waste hierarchy.
- 3.3.50 It is not expected that significant quantities of waste would be created during the operational phase.
- 3.3.51 The decommissioning stage and removal of the Proposed Development from the Site will be in accordance with an approved decommissioning plan.

Site Set-up

- 3.3.52 A number of facilities will be required during the construction process of the Project. On-site facilities will include necessary office, storage and welfare facilities within the construction compound.

Temporary site compound including temporary structures/buildings, fencing, parking and storage

- 3.3.53 The precise location and form of construction compound will be determined by the appointed contractor. The construction compound will accommodate all temporary welfare buildings, contractor and visitor parking and material storage areas required for the construction within a 'Lay Down Area'. The compound will be enclosed within suitable temporary fencing or hoarding. Temporary modular buildings are expected to be limited in number and include: a site office, welfare facilities (including canteen, rest room, drying room, toilet block) and equipment/tool stores.
- 3.3.54 Parking provision will be made in accordance with the CTMP, to be submitted to and approved by the Local Planning Authority prior to the commencement of the development, secured via planning condition. The CTMP shall provide adequate onsite parking for contractors and visitors. As part of the site induction it will be explained there is to be no offsite parking on local roads.
- 3.3.55 The equipment within the compound will be removed following the completion of construction works and returned to its current use.

Details of proposed storage of materials

- 3.3.56 All materials necessary to construct the BESS will be stored within the temporary construction site compound. Materials will be stored only for a short time period prior to being utilised on site after being delivered at regular intervals. Nine HGVs are expected per day. Certain equipment may be delivered directly to a particular install location within the site such as inverter stations which are required to be directly unloaded onto foundations.
- 3.3.57 All materials will be stored appropriately and in a safe manner. For example, fuel for construction plant and equipment and other flammable materials, will be stored within bunded containers, located away from sources of accidental ignition and in accordance with all applicable legislation and guidance. The site and construction site compound will be kept to an appropriate standard of tidiness.

Temporary site illumination

- 3.3.58 Minimal external lighting is expected to be required during the construction stages. It may be necessary for the doorways of the welfare cabins and other temporary buildings, within the temporary construction site compound, to be externally illuminated utilising PIR sensor lighting activated by pedestrian movement approaching/leaving buildings. Such lighting would be appropriately shielded/cows fitted to prevent light spill away from the doorways.

Hours and Method of Working

- 3.3.59 Construction activities and deliveries will be carried out Monday to Friday 08:00-1800 and between 08:00 and 13:30 on Saturdays. No construction activities or deliveries will occur on Sunday or Public Holidays unless agreed in advance with the LPA. Where possible, construction deliveries will be coordinated to avoid construction vehicle movements during the traditional AM peak hour (08:00-09:00) and PM peak hour (17:00-18:00).

Hoarding/Fencing

- 3.3.60 The contractor will ensure site security measures around the construction zone are maintained to mitigate anticipated security risks and to ensure minimal environmental impact in providing the required control measures and environmental protections. Only the BESS footprint is to be fenced by security fencing (2.4m high metal weld mesh).

Cable Laying

- 3.3.61 Two methodologies for cable laying will be undertaken to make the grid connection within the BESS site to the POC at the Pembroke Substation. The trenching works will either form open excavation or horizontal directional drill (HDD). These two methodologies are described below.

Cable laying by open excavation

- 3.3.62 The majority of the cable laying works at Goldborough Road BESS would be by open excavation. Cable route construction works within the BESS footprint and on open agricultural land, grassland or scrub land consist of the following procedures: Excavation; cabling; and, backfilling. The main stage of works will comprise the excavation and preparation of the trench for the cable, before the cable is laid. Warning signs will first be placed to warn others of open trenches, excavation works and associated risks. Work areas are fenced off with temporary Heras fencing. Using suitable equipment, the excavation area will be checked for existing services against current utility drawings before excavations are undertaken. Trial digging may be required at various stages and locations to ensure the survey information matches existing drawings. A temporary working corridor width of up to 20m is required for open excavations. Trenches are excavated using narrow bucket excavators. Typically, around 100m of trench will be excavated at one time in sequence along the length of the grid connection route. Excavated material and soil will be separated (top soil and subsoil) stored for a short duration nearby (within 1m) to the trench, which will later be used to backfill. The cable will typically be laid at depths of 1.5m. The cable is typically laid on a bed of sand, in some instances the cable may be laid within ducting. Warning tape is placed above the cable and soil backfilled and compacted. The final surfacing will be reinstated to the previous condition, as agricultural land, grassland or scrub land saved for within the cable corridor footprint. Temporary works may be required to secure the trench walls depending on ground conditions and overall depth.

Cable laying by Horizontal Directional Drill (HDD)

- 3.3.63 HDD is a surface-launched drilling technique which will be required for some sections of the cable corridor at Goldborough Road BESS to cross under certain infrastructure or natural elements (i.e. Goldborough Road and Goldborough Pill) which cannot be altered or disturbed, as illustrated in Figure 3.8.
- 3.3.64 The HDD process requires the establishment of launch pits and receiving pits between which cable is laid without at, or near, ground level impacts or access. A risk assessment is first carried out prior to commencing work and the contractor's site safety plan and emergency procedures will be prepared and reviewed. Using suitable equipment, the excavation area will be checked for existing services against current utility drawings before excavations are undertaken. Directional Drilling equipment is a self-contained tracked machine and will be transported to the main Goldborough Road BESS construction compound via low loader or beavertail lorry and then unloaded. The tracked machine will be driven to the launch pit south of Goldborough Road. Generally, a HDD cable installation consists of a launch pit, a receiving pit and the below ground directional drill section. The launch and receiving pits each consist of a Heras fence compound within which an area forming a large pit is excavated (approximately 2.5 m (W) x 2 m (L) x 1.2 m (D)) with any required shoring or battering installed as necessary. The launch and receiving

pit can be pumped dry if ground water levels require. The contractor will provide relevant signage, guarding and temporary fencing for the works with the above ground, at ground level and near ground level of the below ground directional drill section unaffected.

- 3.3.65 The exact locations of HDD launch and receiving pits will be determined by the construction contractor prior to the commencement of the development. The use of HDD techniques enables the continued operation of the Goldborough Road and protects the integrity of Goldborough Pill.

Construction Traffic

- 3.3.66 An Outline Construction Traffic Management Plan (CTMP) will be prepared and submitted with the planning application (Appendix 3.2). Should permission be granted, a final CTMP, based upon the principles set out within the Outline CTMP will be agreed with the local highway authority prior to construction commencing, and will be implemented during the construction phase.
- 3.3.67 The aim of the CTMP is to set out traffic management measures that would be adopted during the construction phase to reduce the effect of the construction phase on the highway network. It will contain all the required information for the construction phase, including construction vehicle access, construction vehicle routing as well as package of agreed mitigation measures.
- 3.3.68 Construction activities and deliveries will be carried out Monday to Friday 08:00 and 18:00 and between 08:00 and 13:30 on Saturdays. No construction activities or deliveries will occur on Sunday or Public Holidays. Where possible, construction deliveries will be coordinated to avoid construction vehicle movements during the traditional AM peak hour (08:00-09:00) and PM peak hour (17:00-18:00). Nine HGVs are expected per day.
- 3.3.69 The contractor will introduce measures to manage the impact resulting from construction activities. It will be the responsibility of the Project Manager and Site Manager to oversee the implementation of the management measures. The management measures include: signage to direct construction vehicles associated with the development; avoiding construction deliveries by HGV between the hours of 8:00-9:00 and 17:00-18:00.; the use of banksmen to indicate to construction traffic when it is safe for them to enter and exit the Site; a booking system to manage arrivals and departures to the Site; advisory signs informing contractors and visitors that parking is not permitted on-street in the vicinity of the Site or on the Site access track; a wheel washing facility will be provided to ensure that construction vehicles are not carrying any residual debris onto the highway; the switching off of vehicle engines when on site and not in use; and sheeted dust suppression measures.

Health and Safety

- 3.3.70 All work will be undertaken to relevant Health and Safety legislation. The construction of the Proposed Development will be supervised in accordance with the CDM Regulations 2015.
- 3.3.71 A Battery Management Plan (BMP) (Appendix 3.4) has been prepared to accompany the planning application associated with the Proposed Development. The BMP has been prepared by Enso Energy with appropriate input from battery design engineers with sufficient technical expertise to inform the planning application and to offer Pembrokeshire County Council (PCC) comfort within the scope of their planning assessments and considerations.

Waste

- 3.3.72 During construction a limited amount of waste through earthworks, excavation of cable trenches and ground works or foundations for the substation, batteries and other associated buildings is

expected. Construction would require the use of natural resources as is standard with construction works. Much of the excavated material would be reused on site (i.e. backfilling of cable trenches or 'cut and fill' earthworks). Other wastes will be those typical of any construction project, none of which are to be generated in large quantities.

3.3.73 Significant adverse effects from the management of waste would be unlikely.

3.4 Operation

3.4.1 Once operational, with the exception of the main BESS Site, all development would be at, or below, ground level.

3.4.2 The maximum height of the battery containers will be 3.5m above ground level. The tallest infrastructure on site is the 132kV substation at 6.5m. The ground impact is limited to the groundworks necessary to accommodate the main BESS Site, cabling (underground), access roads, security fencing, proposed on-site substation and battery storage facility.

3.4.3 Once operational there would be limited vehicle visits each month comprising a transit-style van, accessing the main BESS Site via the access created for construction via the B4320.

3.4.4 A landscape masterplan has been developed to inform the design and layout of the Proposed Development. Along the north western and south eastern edges of the main BESS Site, trees will be planted, which will reduce LVIA on nearby receptors. The battery facility will be surrounded by proposed native buffer planting, riparian planting and native scrub planting. In the southeast corner of the main BESS Site, a wet grassland is proposed, enveloped by a neutral grassland.

3.4.5 Allowances for climate change in development have been made to ensure flood risk is considered for the lifetime of the development and will also help minimise vulnerability and provide resilience to flooding. The conceptual drainage strategy includes utilising a new gravity stormwater system with attenuation via an attenuation pond (basin) in the southeast of the Site, which will provide storage of 783m³. The proposed indicative surface water drainage concept provides attenuation of up to the 1 in 100 year event plus 40% climate change allowance, which will reduce risk of flooding downstream.

3.4.6 In an event exceeding this magnitude, detailed drainage design will identify mitigation measures to ensure that the resulting above-ground flooding will be confined to temporary shallow flooding of the on-site road network and will not affect the buildings on site or significantly increase flood risk to offsite locations.

3.4.7 Overall there will be no waste arising from the operation of the built development.

3.5 Decommissioning

3.5.1 The Proposed Development is anticipated to have a lifespan of 40 years once operational. Once the development ceases its operational life, it will be decommissioned in accordance with a decommissioning plan agreed with the LPA, this will include the safe management and disposal of the batteries and associated infrastructure in accordance with the most appropriate approach and technology at the time of decommissioning. The effects of decommissioning are anticipated to be similar to those anticipated at the construction phase and therefore, decommissioning has not been assessed separately in the ES.

4 Approach to assessment

4.1 EIA Process

- 4.1.1 As set out in Chapter 1 (Introduction), EIA is a process through which the likely significant environmental effects of a development proposal can be identified and, where possible, adverse effects avoided or mitigated.
- 4.1.2 The overall aim of this ES is to provide an objective and systematic account of the likely significant environmental effects of the Proposed Development and to assess the ability of the site and surrounding area, including receptors such as people, flora and fauna, to accept those effects.
- 4.1.3 This chapter describes the methodology and approach adopted for the EIA.

4.2 EIA Screening

- 4.2.1 Given the nature and scale of the Proposed Development, the Applicant requested a formal Screening Opinion from the LPA in July 2023 (reference: 23/0402/SC) (Appendix 1.1) to determine whether significant effects on the environment would be likely and hence whether an EIA is required. The request was accompanied by an EIA screening report that set out the potential environmental issues associated with the Proposed Development.
- 4.2.2 PCC concluded, on 31st August 2023, that the development proposals constitute those which should be considered EIA development.

4.3 EIA Scoping

Technical Scope

- 4.3.1 The following technical assessment work has been undertaken:
- Identification of the site boundary;
 - Identification of the key characteristics of the site and the establishment of the environmental baseline through a series of desk and site studies;
 - Identification of where there were gaps in the baseline and the further survey work required to address this;
 - Undertaking required further survey work;
 - Consideration of the potential sources and nature of environmental effects through assessment against the established environmental baseline; and
 - Definition of the assessment methodologies to be used.

Topics Scoped into the EIA

- 4.3.2 A request was made to PCC for its EIA Scoping Opinion in October 2023 (reference 23/0616/SO), the Council consulted with statutory consultees and issued a formal EIA scoping opinion in January 2024 (see Appendix 1.3).
- 4.3.3 The Scoping Opinion confirmed that the following environmental effects require further assessment:
- Ecology; and

- Landscape and Visual.

4.3.4 The assessment of cumulative effects is explained later in this section. Each technical topic chapter provides comment on these effects as applicable.

Topics Scoped Out of the EIA

4.3.5 As part of the assessment work, a number of issues are considered as unlikely to give rise to significant environmental effects and as such, are scoped out of further assessment. The following topics have been scoped out of further assessment, full justification is provided in Chapter 7 (Other Environmental Matters).

- Accidents, Fire and Natural Disasters;
- Agricultural land and soils, including ground conditions;
- Air quality;
- Human health;
- Heritage and archaeology;
- Hydrology, flood risk and drainage;
- Noise and vibration;
- Transport and access; and
- Waste.

Geographic Scope

4.3.6 The geographic scope of the proposed EIA includes the physical extent of the site, as shown on the Site Location Plan (Figure 1.1).

4.3.7 The nature of the current environmental conditions and the manner in which impacts are likely to be generated will mean that the influence of many potential impacts can extend beyond the immediate site boundary. Full detail on topic study areas are provided in Chapters 5 and 6.

Temporal Scope

4.3.8 The EIA will consider impacts arising from both construction and operational phases of the Proposed Development.

4.3.9 Environmental effects of decommissioning have not been considered on the premise that future plans will include an assessment of decommissioning as required.

Cumulative Scope

4.3.10 In relation to the information for inclusion in an ES, Schedule 4(5)(e) of the 2017 EIA (Wales) Regulations requires a description of the likely significant effects of the development on environment resulting from *“the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources”*.

4.3.11 The EIA (Wales) Regulations indicate that the approach to cumulative assessment should focus on the effects of Proposed Development with other existing and/or approved development. Development that is approved, but not yet developed or in operation will be included in the ‘future baseline’ scenario.

- 4.3.12 For most disciplines, the consideration of cumulative effects in the ES will be of a qualitative nature. It is not proposed to attribute levels of effect or significance in the assessment.
- 4.3.13 Consideration of the potential for cumulative effects should have regard to specific environmental receptors. This requires the team to make a judgement on which other developments have the potential for cumulative effects when the construction and/or operational phases could be concurrent, and where there are sensitive receptors common to both developments within a defined geographical area described as the Zone of Influence (ZOI). Usually cumulative effects are considered in three categories - incremental, accumulative and cumulative.

Interactive effects

- 4.3.14 Interactive effects relate to multiple effects from a single development, which may give rise to a potentially significant impact upon a receptor. For example, an individual receptor close to the site boundary may be affected by both noise and visual effects.
- 4.3.15 The conclusion chapter, Chapter 7 of this ES provides comment on these effects as applicable.

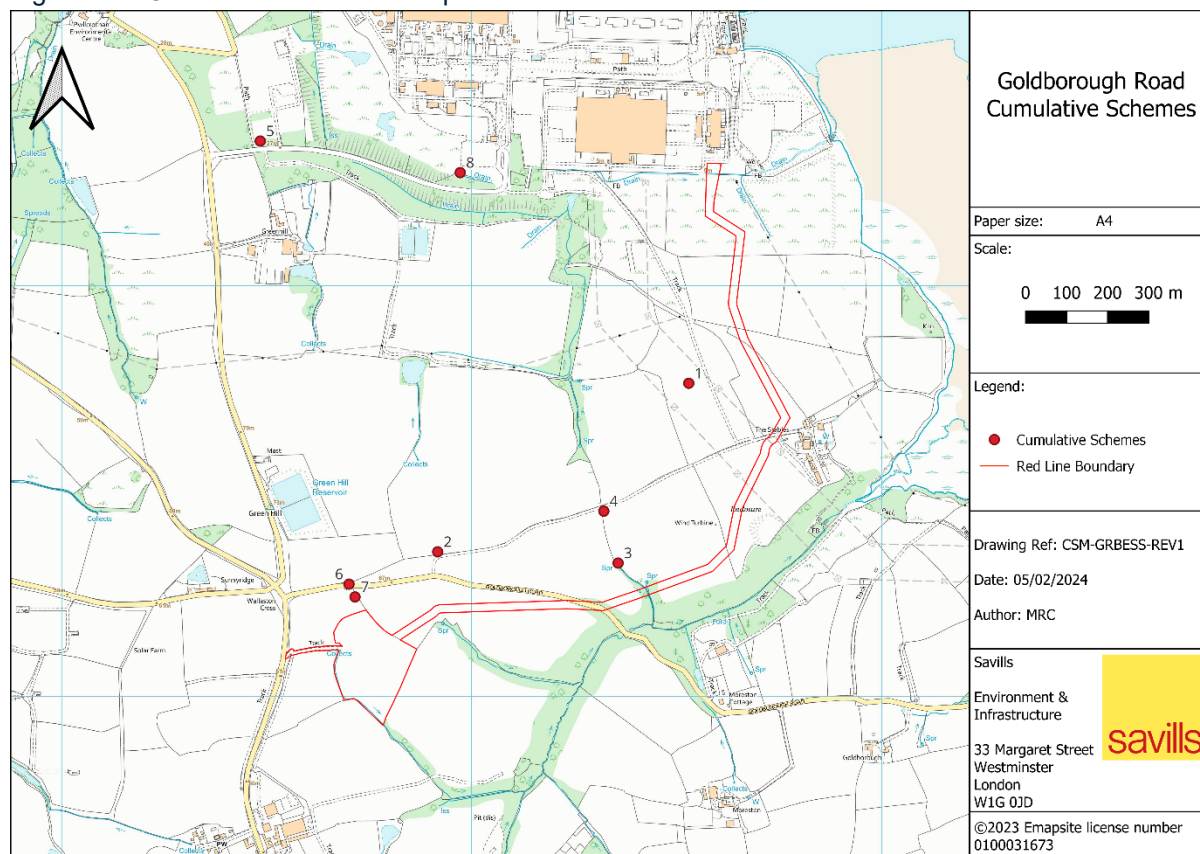
Cumulative effects

- 4.3.16 In-combination cumulative effects relate to multiple developments giving rise to significant effects at a receptor. For example, a number of projects in proximity to each other may give rise to significant effects cumulatively. These effects are reported in each technical topic chapter.
- 4.3.17 The potential cumulative effects of the Proposed Development in association with other committed developments both during the construction phase and following completion are included where relevant as required by the 2017 Regulations.
- 4.3.18 Table 4.1 provides a list of cumulative schemes that are either approved developments, or developments that are not yet consented but pursuing consent, within close proximity to the Proposed Development. The list has been defined through consultation with the Council, as well as an online planning search and through local knowledge of forthcoming projects. This has enabled a meaningful and realistic consideration of potential cumulative effects based upon the information currently available.
- 4.3.19 The corresponding locations of the cumulative schemes listed in Table 4.1 are illustrated in Figure 4.1 below. The locations of schemes 1-5 and 8 are representative of the closest point to the main BESS Site of the Proposed Development along the boundary of the equivalent main site of each cumulative scheme (i.e. not cable corridors or access points of cumulative schemes). The locations of schemes 6-7 represent the closest point to the main BESS Site of the Proposed Development along the cable corridor of the cumulative schemes. This is because schemes 6 and 7 comprise offshore development and so only the onshore cable corridor is considered to have cumulative impacts with the Proposed Development
- 4.3.20 These schemes form the basis for the assessment of potential cumulative effects alongside high level consideration of related off-site infrastructure provision (highways and drainage) so far as is reasonable taking into account the availability of information at the time of assessment.

Table 4-1: Proposed cumulative schemes

Ref.	Site Address	Application Reference	Description	Distance from Site (m)
1	Land at Lambeeth, Pembrokeshire	23/0330/SO	Construction of a Battery Energy Storage System across a total area of approximately 1.39ha including access track and cable run.	1,000 ^a
2	Land south of Pembroke Power Station	23/0497/SC	Development comprising a battery energy storage facility and ancillary equipment with a grid import and export capacity of 350MW and an area to connect it to the electricity substation.	719 ^a
3	Land to the south of Pembroke Power Station, Lambeeth Farm, Pembroke (Wollaston Cross)	20/0041/PA	Development of a converter station and upgraded permanent access road from Wollaston Cross to the converter station. Plus associated landscaping, drainage and other supporting infrastructure associated with the development.	500 ^a
4	Lambeeth Farm access road	20/0044/PA	Installation of underground electricity cables (including below ground jointing bays and three above ground link pillars) and underground fibre optic cables; temporary construction compound and construction haul roads; and permanent upgrade to existing Lambeeth Farm access road.	850 ^a
5	Green hydrogen project at Pembroke Power Station	23/0795/SO	Part of the plans comprising Pembroke Net Zero Centre. A screening and scoping request, and an application are yet to be submitted.	1300 ^a
6	Land to south of power station & cable route across Angle Peninsula	22/1148/NS	Erebus floating offshore wind Cable and Substation. Planning permission approved.	85 ^b
7	Land to south of power station & cable route across Angle Peninsula	CO/0035/22	Llyr floating offshore wind	0 ^b
8	Pembroke Power Station	23/0349/PN	Proposed Synchronous Condenser	950 ^a
Notes a – Distance measured between the main BESS Site of the Proposed Development and the equivalent main site of cumulative scheme (i.e. not cable corridors or access points of cumulative schemes) b – Distance measures between the main BESS Site of the Proposed Development and the closest location along the cable corridor of the cumulative scheme. This measurement of distance was chosen as these schemes comprise offshore development and so only the onshore cable corridor is considered to have cumulative impacts with the Proposed Development.				

Figure 4-1: Cumulative Schemes Map



4.4 Greenhouse gas emissions and climate change

Impact of the Proposed Development on Climate Change

- 4.4.1 The proposal is for the construction, operation, maintenance and decommissioning of a 120MW Battery Energy Storage System (BESS) for distribution of electricity to the National Grid and would operate for a time limited period of 40 years. In terms of the Proposed Development's impact on climate change, the proposal has the potential to give rise to both adverse and beneficial effects at different stages of its life cycle, so the overall balance needs to be considered. A proportionate, qualitative assessment of greenhouse gas emissions is provided here, in line with the principles of the IEMA guidance (2022) *Assessing Greenhouse Gas Emissions and Evaluating their Significance (2nd edition)*¹.
- 4.4.2 BESS are one valuable component of renewable electricity infrastructure to manage the intermittency in the availability of renewable resources. The Proposed Development will facilitate the deployment of intermittent renewable energy generation through the storage of renewable energy produced nearby, therefore reducing reliance on fossil fuels in the provision of rapid response power during periods of peak energy demand. The Proposed Development will therefore positively contribute towards the UK's net zero target by 2050 and decarbonisation of the electricity grid by 2035. This beneficial effect in operation is likely to be significant.
- 4.4.3 Whilst this is true, it is also important to consider the whole-life carbon emissions resulting from the Proposed Development, including the manufacturing and installation stage. For the

¹ Available at: <https://www.iema.net/resources/blog/2022/02/28/launch-of-the-updated-eia-guidance-on-assessing-ghg-emissions>, accessed 06/02/24

purposes of this qualitative climate change assessment, it is assumed that the proposed BESS will use lithium-ion batteries (LIB). This is because of their charge capability, energy density, round-trip efficiency and falling costs. The carbon intensity of the production, and hence embodied carbon of LIBs is relatively high, but depends on a number of factors including the chemical properties of the lithium-ion used, the source of energy used during production and the extent of recycling during its end of life stage.

- 4.4.4 This will affect the 'payback period' over which the benefits of the BESS in operation, year on year, pay back the one-off carbon cost of the battery system manufacturing and installation. It is likely that the construction-stage impact on climate change will be an adverse effect that is significant.
- 4.4.5 Therefore, to secure and maximise the expected whole-life beneficial effect of the Proposed Development on climate change, and ensure that this payback period is commensurate with the UK's carbon reduction goals, it is vital for the embodied carbon of lithium-ion batteries to be further investigated and managed during the procurement process. This should be undertaken via engagement with the supply chain and careful selection of the supplier based on verified environmental performance.
- 4.4.6 With implementation of that mitigation, it is expected that the net lifetime residual effect of the Proposed Development will be significantly beneficial, due to the operational facilitation of renewable energy deployment and avoidance of fossil-fuelled peaking power offsetting and paying back the construction-stage effect during the lifetime of the BESS.

Impact of Climate Change on the Proposed Development

- 4.4.7 The impact of climate change on the development and adaptations to climate change has been considered within this discrete section of each technical chapter, utilising the Met Office UKCP18 climate change projections. Each assessor has included a high-level assessment of whether potential climate change may alter the predicted effects, and if so, in what way. It is unlikely that completely new direct impacts will arise as a result of climate change, but the geographic scale or spread of potential impacts might change when considered against the future baseline conditions.
- 4.4.8 With respect to climate risks to the Proposed Development, flood risk has been assessed with appropriate climate change allowances (in line with NRW guidance) as described in Section 7.7. Assessment of other climate risks was proposed to be scoped out of the EIA and no specific comment has been made in the adopted Scoping Opinion, which is interpreted as acceptance of that position.

4.5 Consultation

- 4.5.1 This section summarises the consultation process undertaken with key stakeholders and includes the key issues raised during these discussions.
- 4.5.2 Full details of this are provided within the Planning Statement and Design and Access Statement (DAS) submitted as part of the suite of planning application documents.
- 4.5.3 As part of the EIA Scoping Request procedure, PCC contacted appropriate third parties for their input and comments. Table 4-2 provides a summary of the comments made and the Applicant's response and signposting to where items can be found.

Table 4-2: Scoping Report comments and applicant responses

Scoping Report Comment	Applicant's Response
Dyfed Archaeological Trust LTD	
We recommend that Heritage should be scoped into the EIA	A Heritage Statement has been prepared to accompany the planning application and identifies the archaeological potential in consultation with relevant third parties such as the LPA Archaeological Advisors and Cadw. The Heritage Statement concludes, that with the mitigation measures set out within it, any effects upon archaeological sites of significance equivalent to the significance of a scheduled monument are not significant.
The proposed development is located within an archaeologically sensitive landscape, with the cable corridor partially running through a Registered Historic Landscape and close to several significant prehistoric sites. These include a Mesolithic flint-working site (PRN 3,255), Bronze Age barrows (PRNs 11,694 and 48,371) and an Iron Age promontory fort (PRN 3,244) The scheduled Wallaston round barrows (PE064) are located approximately 600m to the south of the BESS site. We therefore consider there to be good potential for the scheme to impact the historic environment, both directly and visually.	- A Heritage Statement has been prepared to accompany the planning application and identifies the archaeological potential in consultation with relevant third parties such as the LPA Archaeological Advisors and Cadw. The Heritage Statement concludes, that with the mitigation measures set out within it, any effects upon archaeological sites of significance equivalent to the significance of a scheduled monument are not significant. - The Heritage Statement assessed the potential archaeological impacts of the Proposed Development. The Heritage Statement concludes that it is unlikely that any archaeological remains (below ground non-designated heritage assets) on the Site would be equivalent to the significance of a scheduled monument and therefore would be of lesser significance and would not require changes to the layout of the proposals. - The Heritage Statement also concludes that development groundworks within the Site would have a direct impact on any archaeological remains present within the Site. Any impacts from groundworks associated with the Proposed Development could be mitigated through an agreed programme of archaeological works developed in conjunction with the Dyfed Archaeological Trusts Planning Archaeologist. Agreed archaeological mitigation works could then be undertaken prior to and / or during the construction phase.

Scoping Report Comment	Applicant's Response
	- It notes further: the exact scope and extent of any mitigation fieldwork would need to be agreed with the Dyfed Archaeological Trust's Planning Archaeologist and undertaken in accordance with an approved Written Scheme of Investigation (WSI). All archaeological fieldwork would be monitored by the LPAs archaeological advisor to ensure that the works comply with the agreed WSI. The LPA archaeological advisor would also review all reporting on the archaeological fieldwork. The Archaeological Trust's Planning Archaeologist as necessary. - In terms of the impact to Designated Heritage Assets, the Heritage Statement concludes that the proposals would have no direct impact on any of these heritage assets, a negligible impact on the present day extended rural setting of the scheduled monuments, and a negligible impact on the wider setting of the listed building. It was also determined that these impacts to the setting of these heritage assets would result in no harm to their significance.
- Since the original scoping response received from Dyfed Archaeological Trust (DAT), the client shared a copy of the Heritage Statement with them. In response, DAT responded further to the application case officer, Mike Simmons, with the following: "Thank you for sending the draft Heritage Statement prepared by Savills Heritage and Townscape. This is actually a Desk-based Assessment and we are satisfied that the historic environment has been adequately addressed as part of the pre-application consultation and there should be no requirement for it to also be included in the EIA. - The potential impact on the designated historic assets within the study area have been assessed and it is concluded that the proposed development would have no direct impact and only a negligible impact on their setting. Acceptance of this conclusion is within Cadw's remit. - It is also concluded that the potential for the proposed development to have a direct impact on archaeological deposits dating to the prehistoric period is moderate to high (4.3.3), although downgraded to low-moderate in the conclusions (7.2.1) It is, however, agreed that further	- Dyfed Archaeological Trust have reviewed the Heritage Statement and agree with the above conclusions as long as proposed mitigation measures are secured. - A Welsh summary will be provided with the Heritage Statement and references to English institutions will be removed.

Scoping Report Comment	Applicant's Response
mitigation measures are required. One point – we appreciate that the document is still in draft form and requires addition of a Welsh summary, but we have noted references to GGAT HER (Table 1) and Historic England (5.1.1) that need revising.”	
Cadw	
The request for a scoping opinion is accompanied by a scoping report produced by Savilles. This report suggests that “Heritage” will be “scoped out” of the EIA but will be covered by a Heritage Statement”: This is presumably due to Savilles considering that the proposals will not have a significant impact on the historic environment, but their opinion is contrary to the Screening Opinion provided by the LPA which clearly states that “the development is likely to have adverse environmental effects by reason of visual and landscape impacts (and potentially related impacts on the historic environment)”.	- A Heritage Statement has been prepared to accompany the planning application and identifies the archaeological potential in consultation with relevant third parties such as the LPA Archaeological Advisors and Cadw. The Heritage Statement concludes that with the mitigation measures set out within it, any effects upon archaeological sites of significance equivalent to the significance of a scheduled monument are not significant. - Dyfed Archaeological Trust and Pembrokeshire County Council have agreed with the content of the Heritage Statement and have agreed that “Heritage” can be “scoped out” as long as the Heritage Statement is submitted as part of the application package.
The scoping report fails to consider that the proposed development is located in an area where there is known significant prehistoric archaeological resource, with a strong possibility that unrecorded archaeological features could be located in the development area. Such features may relate to designated historic assets, in particular scheduled monument PE064 Wallaston Round Barrows and therefore have a significant impact on their settings.	- Whilst it is true that construction work, such as preliminary ground works, site strip, movement of vehicles, excavation for the cable route, and all other intrusive groundworks during the construction phase may have the potential to impact on currently unknown archaeological receptors that may be present within the Site or along the proposed cable route, the Heritage Statement prepared to accompany the planning application ensures that effects upon archaeology are fully addressed. - There will be no post-construction effects on archaeology within the Site as any remains within the Site will have been preserved in situ or preserved by record if necessary (by process of archaeological fieldwork mitigation) before this stage of the Proposed Development. - The impact of the Proposed Development on Wallaston Round Barrows has been assessed in the Heritage Statement, which concludes that with the mitigation measures set out within it, any effects upon archaeological sites of significance equivalent to the significance of a scheduled monument are not significant.

Scoping Report Comment	Applicant's Response
▪ Whilst it is noted that in the first instance the distance of the proposed development from many of the designated historic assets (identified above as being inside 3km of the application area) may suggest that there will not be a significant impact on their settings, but there is concern that the cumulative impact of the proposed development, along with other proposed development in its proximity, could have a significant impact on their settings.	▪ Cumulative impacts have been assessed within the technical chapters of the ES, Chapters 5 and 6, in accordance with the methodology set out in the cumulative scope section of Chapter 4 of the ES.
▪ Insufficient detail has been given in the scoping report to fully explain what issues will be covered in the standalone Heritage Statement and how its results will be incorporated into the design of the proposed development and if it will be updated when design changes are made.	▪ Dyfed Archaeological Trust and Pembrokeshire County Council have reviewed a draft copy of the Heritage Statement and have agreed with its content. They agree that "Heritage" can be "scoped out" as long as the Heritage Statement is submitted as part of the application package. ▪ The Heritage Statement, along with the Planning Statement and the Design and Access Statement explain how the results of the Heritage Statement have been incorporated into the design of the Proposed Development.
Highways Development Control	
▪ The proposal for the Battery Energy Storage System (BESS) at Goldborough Road, Hundleton is accepted in principle by the CHA. ▪ The CHA notes that a Construction Transport Management Plan (CTMP) will also be submitted, focussing on the construction element and transportation impacts (Para 6.9.1). The CHA agrees with this approach and notes that once the construction period of the BESS has been concluded, regular maintenance visits to the site are likely to be infrequent (handful of movements per month) over the course of operation. More detailed information regarding the expected number of maintenance visits should be included within the CTMP during the operational period of the site. ▪ The application has been considered by the COUNTY HIGHWAY AUTHORITY who having assessed the application on safety, capacity and policy grounds recommends the following conditions be imposed on any permission granted:	▪ An outline CTMP is submitted as part of the application (Appendix 3.2) a detailed version will be submitted pre construction, secured through planning condition, focussing on the construction element and transportation impacts, and including detailed information regarding the expected number of maintenance visits during the operational period of the Site. ▪ The CTMP will also include information recommended by the County Highway Authority (a-j).

Scoping Report Comment	Applicant's Response
1) A CTMP shall be submitted prior to commencement to, and approved in writing by, the Local Planning Authority. This shall include further information on the following: a. Parking for vehicles, site personnel, operatives and visitors b. Expected levels of staff and any shift work, by phase c. Expected trip generation for the construction period d. Loading and unloading of plant and materials e. Storage of plant and materials f. Vehicle routing g. Measures to prevent the deposit of materials on the highway h. Before and after construction conditions surveys of the highway and a commitment to fund the repair of any damage caused i. On-site turning for construction vehicles j. Information regarding expected maintenance schedule, frequency of trips and occurrence during the operational phase of the proposed development.	
NRW	
▪ The ES for this development should include sufficient information to enable your Authority to determine the extent of any environmental impacts arising from the proposed scheme. Evaluation of the impacts of the scheme should include direct and indirect; secondary; cumulative; short, medium and long term; permanent and temporary; positive and negative, for the construction and operational phases.	▪ This ES, accompanying the planning application includes sufficient information to enable the Authority to determine the extent of any environmental impacts arising from the Proposed Development. It evaluates the effects of the Proposed Development, including direct and indirect; secondary; cumulative; short, medium and long term; permanent and temporary; positive and negative, for the construction and operational phases.
Chapter 3 The Proposed Development ▪ Within the EIA, the proposed scheme should be described in detail, in its entirety. This description should cover construction and operation phases as appropriate and include detailed, scaled maps and drawings. ▪ We would expect the description to include: ▪ The purpose and physical characteristics of the proposal. ▪ Location, development size and configuration of the development	▪ Chapter 3 of the ES describes the Proposed Development in detail, in its entirety, further detail is provided in the Planning Statement and Design and Access Statement. This description covers construction, operation and decommissioning phases as appropriate and include detailed, scaled maps and drawings, and covers the matters listed by the consultee.

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including flexibility of the site layout. - Procedures for good working practices. - Identification of appropriate pollution contingency and emergency measures for watercourses on site. - Timing of all works and contingency plans should slippage in the programme occur. - Maintenance requirements of any structures. - Arrangements for maintenance and management of any habitats within the site. - Artificial lighting requirements, including likely intensity and location of light spill on green infrastructure.	
Any maps, drawings and illustrations that are produced to describe the project should be designed in such a way that they can be overlaid with drawings and illustrations produced for other sections of the EIA.	Any maps, drawings and illustrations that are produced to describe the project have been designed in such a way that they can be overlaid with drawings and illustrations produced for other sections of the EIA.
The EIA must also include a description of all the existing natural resources and wildlife interests within and in the vicinity of the proposed development.	The EIA also includes a description of the existing natural resources and wildlife interests within and in the vicinity of the Proposed Development, this is addressed through Chapters 2, 5 and 6 of the ES.
Chapter 5 Approach to Assessment Table 5-4 identifies cumulative schemes. Other relevant developments include the Erebus and Greenlink developments and, Project Llŷr.	This comment is noted, Table 4.1 and the accompanying text sets out the approach to cumulative assessment and the sites / projects that have been considered, this includes the projects identified by the consultee.
Chapter 7 Ecology - We note the baseline surveys proposed in Paragraphs 7.4.1 to 7.4.5. - We advise that, in general, any habitat surveys should accord with the NCC Phase 1 survey guidelines (NCC (1990) Handbook for Phase 1 habitat survey. NCC, Peterborough). Phase 1 surveys should be undertaken and completed during the summer to ensure the best chance of identifying the habitats present.	- The habitat survey and protected species audit was undertaken at the beginning of October with the results presented in Preliminary Ecological Appraisal (PEA) (Appendix 5.1). Although just outside the optimal season (April to September) it is considered that sufficient information was obtained to enable an accurate assessment of the habitats within the site. - A number of further species surveys will be undertaken as recommended in the PEA (Appendix 5.1) to support the findings of the assessment.
We advise that the site and where necessary land adjacent to the site is subject to assessment to determine the likelihood of protected species	Chapter 5 of the ES sets out the approach to surveys and the assessment.

Scoping Report Comment	Applicant's Response
being present and affected by the proposals. Targeted species surveys should be undertaken for all species scoped in which: i. are undertaken by qualified, experienced and where necessary, licensed ecologist(s) and, ii. comply with current best practice guidelines. If the surveys deviate from published guidance, or there are good reasons for deviation, full justification for this should be included within the EIA.	▪ All species surveys will be led by qualified, experienced ecologists. Where required, aerial inspections of trees to assess potential bat roost features would be undertaken by a NRW Class II bat licence holder. ▪ The survey methods and the timing will be consistent with best practice wherever possible. Any deviation, for example due to unavoidable constraints would be documented with justification for the approach adopted.
Section 7.5 Potential effects ▪ Paragraph 7.5.3 correctly identifies potential impact pathways from the installation of the cable route to the Milford Haven Waterway Site of Special Scientific Interest (SSSI) and the Pembrokeshire Marine Special Area of Conservation (SAC). However, effects on overwintering bird features of Milford Haven Waterway SSSI have not been clearly identified within the scoping report. The proximity of the development to the SSSI and nature of the flood-prone agricultural pasture the cable route will traverse through, may be important roosting or foraging habitats for waders and wildfowl from nearby designated sites. We advise a short desk-based study using existing WeBS data is undertaken to identify the species composition and habitat use of the site by overwintering birds. Consideration should also be given to a course of high-tide winter bird surveys (Nov-Feb).	▪ The proximity of the Proposed Development to the SSSI and nature of the flood-prone agricultural pasture the cable route will traverse through, may be foraging habitats for waders and wildfowl associated with Milford Haven Waterway SSSI. High tide waders and wildfowl roosts within the Site are much less likely, based on the location of the BESS construction site and distance from intertidal habitats.
▪ Within Paragraph 7.5.4 we welcome the intention to conduct surveys for otter. Where impacts to otter are anticipated, the application should include a conservation plan setting out the anticipated impacts and all the mitigation and/or compensation measures that will be put in place to offset these.	▪ Protection measures for otter and other faunal species have been considered in the outline CEMP (Appendix 3.1) ▪ Potential effects on otter will be avoided through protective fencing on adjoining wooded wildlife corridors (Appendix 3.1) ▪ Detailed specifications will be set out in the final CEMP secured via a suitably worded planning condition.
Section 7.6 Proposed Mitigation ▪ We welcome the commitment to produce a Construction Environmental Management Plan (CEMP) in support of the proposal and refer the applicant to the Guidance for Pollution Prevention documents available on the NetRegs website.	▪ An outline Construction Environmental Management Plan (CEMP; Appendix 3.1) is submitted with the application and the Guidance for Pollution Prevention documents available on the NetRegs website are referred to. A detailed CEMP will be prepared prior to construction and secured through a suitably worded planning condition.

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Section 7.8 Conclusion ▪ The report concludes that 'Based on the geographic location and the nature of the habitats within and adjacent to the BESS development there is a reasonable likelihood that potentially significant impacts on the following species groups/receptors during construction and operation will be scoped out of the ES Chapter. • Great crested newts • Bat roosts • Dormice ' ▪ We concur with the decision to scope out great crested newts. However, in respect of bats and dormice, we offer the following advice Bats ▪ We advise that the potential for bat roost sites is scoped into the EIA. Where potential has been identified in either trees or structures, and there is potential for direct or indirect impacts, we advise that surveys are undertaken to inform the EIA. ▪ For trees, this should include climbed, endoscope inspections of any potential roost feature present. If any buildings are to be affected, demolished or are near the proposed scheme, we advise that surveys should also include emergence surveys, as well as internal/external inspections. Surveys should follow the guidance in Bat Conservation Trust's 'Bat Surveys for Professional Ecologists. Good Practice Guidelines (4th Ed). ▪ Where impacts to bats are anticipated, we advise the application include a Bat Conservation Plan setting out the anticipated impacts and all the mitigation and/or compensation measures that will be put in place to offset these. Dormouse ▪ We are aware of records of dormouse in the area and therefore advise that dormouse surveys are undertaken. We advise that a mixture of survey methods are undertaken following published best practice guidance. ▪ Where impacts to dormice are anticipated, the application should include a Dormouse Conservation Plan setting out the anticipated	Potential effects on bats and dormice have been scoped into the EIA and the findings of the assessment in relation to these species is set out in chapter 5 of the ES. Great crested newts remain scoped out of the assessment due to there being no potential for likely significant effects on this species. Bats ▪ No buildings or structures will be affected by the Proposed Development ▪ The three trees will be climbed and subject to endoscope inspections to define presence/absence of PRFs and to inspect any potential roost features found to bat activity. ▪ A WG bat mitigation licence would be obtained if there is potential for a bat roost to be disturbed by construction operations. ▪ It is anticipated that HDD beneath the scrubby woodland will avoid any adverse impact on any trees or bat roost features if present. ▪ Lighting design will maintain the dark corridors adjacent to the operational site; avoiding potential adverse effects on flightlines associated with any roosts in the wider landscape. Dormouse ▪ Presence/absence dormouse surveys will be undertaken, with the survey following published best practice guidance. ▪ The potential use of the wooded field boundary and hedgerow has been considered in the outline CEMP (Appendix 3.1) with Heras fenced stand offs to be created and maintained. ▪ If the survey confirms the presence of a dormouse population, a WG

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impacts and all the mitigation and/or compensation measures that will be put in place to offset these.	dormouse mitigation licence would be obtained to cover the removal and restoration of the sections of hedgerow crossed by the cable route. ▪ The temporary effects of the loss of short, relatively poor quality field boundary hedgerows will be minimised through replanting as soon as possible after hedgerow loss and cable installation.
Impact Assessment ▪ Should protected species be confirmed, information must be provided identifying the species-specific impacts in the short, medium and long term together with any mitigation and compensation measures proposed to offset the impacts identified.	▪ A precautionary approach has been adopted to the assessment of effects. ▪ Confirmed species specific mitigation requirements are detailed in CEMP (Appendix 3.1) ▪ The landscape masterplan (Appendix 6.2) includes a number of features that will provide value for species that will be affected (nesting bird habitat, invertebrate habitat) ▪ Licences will be obtained for legally protected species where present in the locality and affected by the Proposed Development. This includes badger setts, bat roosts, dormouse populations, and otter. All the mitigation measures will be defined in the licence focussed on minimising the duration and magnitude of effects.
▪ We advise comprehensive descriptions of the habitats affected are included to support robust conclusions about their significance for the species.	▪ Descriptions of all the habitats affected are included in the PEA (Appendix 5.1 of this ES) and summarised in Chapter 5, Ecology. These support precautionary conclusions about their significance for faunal species.
▪ We advise that EIA considers significance (both alone and in combination) and where applicable conservation status. In respect of conservation status, we advise consideration to be given to the current conservation status of the relevant species. The EIA must demonstrate that there will be no detriment to maintenance of favourable conservation status (FCS) of the species during construction and operational phases of the scheme.	▪ Chapter 5, Ecology, considers impact significance (both alone and in combination) ▪ The EIA demonstrates that the development has the capacity to fully mitigate all known and potential effects on faunal species. There will be no detriment to maintenance of favourable conservation status (FCS) of the species during construction and operational phases of the Proposed Development.
▪ Where proposals implicate protected species which are also notified features of designated sites, we advise that the EIA considers the impacts on those species from both perspectives.	▪ In Chapter 5, Ecology, consideration is given to potential effects on qualifying features of international designations ○ Otter population using the Pembrokeshire Marine SAC and the

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	wider landscape. ○ Wintering bird populations associated Milford Haven Waterway SSSI. ○ Bat populations associated with Pembrokeshire bat sites.
▪ We advise that the EIA sets out how the long-term site security of any mitigation or compensation will be assured, including management and monitoring information and long term financial and management responsibility. Where the potential for significant impacts on protected species is identified, we advocate that a Conservation Plan is prepared for the relevant species and included as an Annex to the ES.	▪ Long term delivery of mitigation and compensation will be fully captured in the Landscape and Ecology Management Plan (LEMP) which will be secured via a suitably worded planning condition.
Local Biodiversity Interests ▪ We recommend consulting with your Authority's Ecologist on the scope of the work to ensure that regional and local biodiversity issues are adequately considered, particularly those habitats and species listed in the relevant Local Biodiversity Action Plan, and that are considered important for the conservation of biological diversity in Wales.	▪ Pembrokeshire County Council's Ecologist has been consulted on the scope of the work. ▪ Local and national conservation importance and status has been considered in the evaluation of receptors and in the assessment of the significance of effects.
▪ NRW would expect the developer to contact other relevant people/organisations for biological information/records relevant to the site and its surrounds.	▪ The local biological record centre has provided biological data for the site and its surrounds and this information is summarised in the PEA (Appendix 5.1). The biological data has informed the precautionary approach to the assessment of potential impacts.
▪ Finally, we advise that the development incorporates robust green infrastructure that will remain unlit to allow protected species to continue to inhabit the site and move through it. It is vital that the design of the development avoids narrow green infrastructure corridors through it and avoids breaks in those corridors.	▪ The landscape masterplan is submitted as part of the ES (Appendix 6.2). The Proposed Development will incorporate green infrastructure around the operational BESS. Lighting design will ensure that features areas of habitat creation outside the built development will remain unlit. Hedgerows and woodland are protected to maintain their future value. The Landscape Masterplan (Appendix 6.2) avoids the creation of narrow green infrastructure corridors within the development site and avoids fragmentation of adjoining wildlife corridors.
Biodiversity Enhancement ▪ We also advise that, in accordance with the Environment (Wales) Act	▪ In accordance with the Environment (Wales) Act 2016 and Planning Policy Wales, the application includes a Landscape Masterplan

Scoping Report Comment	Applicant's Response
2016 and Planning Policy Wales, the application demonstrates how it can deliver biodiversity enhancements and thus contribute to promoting ecological resilience. This is reaffirmed in the Welsh Government letter of 23rd October 2019 to all Chief Planning Officers.	(Appendix 6.2) incorporating a number of biodiversity features. A 30 year Landscape and Ecology Management Plan (LEMP) will detail management actions designed to deliver biodiversity value in each of the habitats, this will be secured via an appropriately worded planning condition. The Landscape Masterplan and LEMP together will demonstrate how the compensation and enhancement measures detailed in the ES chapter (Chapter 5) will be funded and delivered to achieve a long term Net Benefit for Biodiversity and promotion of ecological resilience.
Chapter 8 Landscape and Visual - Our advice relates to the potential impacts of the proposed development on the landscape character and visual amenity of Pembrokeshire Coast National Park (PCNP). - Paragraph 8.1.4 confirms that a Landscape and Visual Impact Assessment (LVIA) will be undertaken as part of the EIA. The development would be located approximately 1km from the PCNP boundary at its closest point and effects on 'landscape designations as appropriate' will be scoped into the LVIA (Paragraph 8.5.1), this should include an assessment of the potential effects on the PCNP.	Chapter 6, Landscape and Visual Impacts, includes an assessment of the potential effects of the PCNP.
The LVIA will consider the impacts on landscape character and refers to Landscape Character Assessment (LCA) 25 Hundleton and Lamphey in which the site is located (Paragraph 8.2.6). We advise this assessment should also consider the guidelines for the LCA, and the guideline to: 'Manage expansion of energy related developments such as solar, wind and power lines so that the capacity of this largely open landscape is not exceeded.'	The LVIA and Landscape Chapter (Chapter 6) address the matters raised by the consultee.
Chapter 3 (The Proposed Development) does not state the maximum heights of the battery storage facility however, it is noted that the batteries will be housed in shipping containers or similar. Shipping containers are circa 3 metres tall therefore the proposed 3km study area for the assessment of landscape and visual impacts is acceptable. Nine assessment viewpoints are identified in the SR. Viewpoints 5 and 9 are	Chapter 3 (The Proposed Development) of the ES states the maximum heights of the battery storage facility at 6.5 metres. Eleven assessment viewpoints have been assessed. Viewpoints 6 and 8 are located on the boundary of the PCNP. Cross valley views from B4320 east of Viewpoint 6 has now been considered and included within the LVIA at Viewpoint 11.

Scoping Report Comment	Applicant's Response
located on the boundary of the PCNP. No draft photography has been provided at this stage. Based on the preliminary ZTV (Figure 8-1) we advise cross valley views from B4320 east of Viewpoint 6 should also be considered for inclusion in the LVIA.	
It is proposed to include two photomontages within the LVIA. No explanation is given for the limit of two photomontages. Given the elevated position of the site, local topographical variation and differences in visibility, it may be that additional photomontages are required to illustrate the nature of the proposals and its impacts. We recommend at least one photomontage is included from the PCNP boundary. Photomontages and photography should be prepared and presented in accordance with the principles for preparing visualisations set out in Technical Guidance Note 06/19 Visual Representation of Development Proposals by the Landscape Institute.	Two photomontages have been included within the LVIA at Figure 6.6. These are at Viewpoints 2 towards the PCNP and Viewpoint 6 from the PCNP boundary. They illustrate the Proposed Development in-situ at Year 1 and Year 15 from these viewpoints.
Other relevant guidance to that listed in 8.4.3 is NRW's Guidance Note 46: Using LANDMAP in Landscape and Visual Impact Assessments.	LANDMAP Aspect Areas have been considered throughout the LVIA process.
Other Matters Our comments above only relate specifically to matters included on our checklist, Development Planning Advisory Service: Consultation Topics (September 2018), which is published on our website. We have not considered potential effects on other matters and do not rule out the potential for the proposed development to affect other interests.	Noted
We advise the applicant that, in addition to planning permission, it is their responsibility to ensure they secure all other permits/consents/licences relevant to their development. Please refer to our website for further details.	Noted, all relevant permits / consents / licenses will be secured at the appropriate time.
LPA's Ecologist	
Any application/ES must provide sufficient information to identify any nature conservation features (habitats/species) that are likely to be	The ES provides sufficient information to identify any nature conservation features (habitats/species) that are likely to be affected by the Proposed

Scoping Report Comment	Applicant's Response
affected by the proposals and identify potential options for mitigation and enhancement. The impacts of any species protected under legislation must be considered along with any species or habitats listed under the Pembrokeshire LBAP, UK BAP and the Section 7 list of the Environment (Wales) Act 2016. Surveys must be carried out by a qualified ecological surveyor and the ES must identify the potential of the habitats on site to be used by protected species.	Development and identifies potential options for mitigation and enhancement. The impacts of any species protected under legislation are considered along with any species or habitats listed under the Pembrokeshire LBAP, UK BAP and the Section 7 list of the Environment (Wales) Act 2016. Surveys have been carried out by a qualified ecologist and Chapter 5, Ecology, of the ES identifies the potential of the habitats on site to be used by protected species.
Any application/Environment Statement (ES) must: ▪ Cover the construction, operation maintenance, closure and decommissioning stages of any project. ▪ Determine the importance of ecological features affected, through survey and/or research. ▪ Assess impacts potentially affecting important features. ▪ Characterise the impacts by describing their extent, magnitude, duration, reversibility, timing and frequency. ▪ Identify cumulative impacts; and identify significant effects of impacts in the absence of any mitigation. ▪ Consider alternative location(s) or layouts for the proposed development. ▪ Identify mitigation measures and explain their likely success. ▪ Identify opportunities for enhancement. ▪ Design and agree a monitoring strategy and monitoring of mitigation performance. ▪ Provide sufficient information for mitigation measures to be implemented effectively. ▪ Produce a clear summary of the residual impacts and the significance of their effects following incorporation of avoidance and mitigation measures, in accordance with planning policies and legislation.	▪ The ES as a whole and specifically, ES Chapter 5, Ecology, covers all matters raised by the consultee.
In order to provide confidence in the information provided as part of the application/ES the following key points must be addressed: ▪ Ecological baseline and trends if the project were not to go ahead. ▪ Criteria used to evaluate ecological features. ▪ Criteria used to assess the significance of impacts of the project.	To provide confidence in the information provided as part of the ES, the key points raised in the consultation response have been addressed. In addition an outline Construction Environmental Management Plan (CEMP) (Appendix 3,1) has been prepared and is submitted as part of the application.

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▪ Justification of methods used. ▪ The identification of likely impacts (positive and negative) on ecological features together with an explanation of the significance of their effects. ▪ Mitigation, compensation and enhancement measures. ▪ Legal and policy consequences. ▪ A note of any key data that were unavailable or missing and ▪ A presentation of any analytical techniques used and the analysis itself. ▪ Consideration for the zone of influence – if the site requires new infrastructure (roads, power supply etc.) there could be significant consequences for ecological features beyond the boundaries of the site, including any connection or other works to the battery energy storage system, and at the site of the BESS itself. ▪ A Construction Environmental Management Plan (CEMP) must be produced.	
Species and Habitats to be considered: ▪ Any application/ES must identify any habitats and species that are likely to be affected by the proposal and identify potential options for mitigation and enhancement for all elements of the development. There must also be justification for disregarding certain species from any assessments.	▪ Chapter 5 of the ES, Ecology, identifies any habitats and species that are likely to be affected by the Proposed Development and identifies potential options for mitigation and enhancement for all elements of the Proposed Development. As set out in the response to NRW above, the only species scoped out from further assessment was Great Crested Newts and justification is provided for this in the PEA (Appendix 5.1).
Protected sites in the area include: ▪ Pembrokeshire Marine Special Area of Conservation (SAC) ▪ Milford Haven Waterway Site of Special Scientific Interest (SSSI) ▪ Gweunydd Somerton Meadows SSSI ▪ Broomhill Burrows SSSI ▪ Castle Martin Coast Special Protection Area (SPA) ▪ Limestone Coast of South West Wales SAC ▪ Orielson Stable Block and Cellars SSSI ▪ Pembrokeshire Bat Sites SAC	▪ This is noted above in Chapter 3, and subsequently within Chapter 5.
▪ A Phase I habitat survey must identify the quality and extent of the habitats present. The habitat survey must be carried out between the months of April and September only. It should also identify the presence	▪ Noted, the PEA forms Appendix 5.1 of the ES.

Scoping Report Comment	Applicant's Response
of any invasive species.	
▪ Reptiles – common species of reptiles may be present on a site of this nature. If suitable habitat is to be removed as a result of the proposal then survey may be required. A precautionary approach to any site clearance may also be necessary. It is likely that the development will result in opportunities for reptile enhancements, these should be clearly identified and described. Enhancement of connectivity and habitat condition and extent should be included as part of any application.	▪ A precautionary working method statement detailing best practice approaches will form part of the detailed CEMP secured via planning condition. ▪ The Landscape Masterplan (Appendix 6.2) increases the extent and value of potential reptile habitat within the application site.
▪ Badgers – surveys for badger activity should be included within the ecological survey, whilst it is not known whether setts are currently present on site it is important to be mindful that activity within 30 metres of a sett will require a license, therefore surveys may need to be undertaken to ensure there will be no disturbance of setts outside the red line boundary. Badgers are protected under The Protection of Badgers Act 1992.	▪ The survey work has confirmed the absence of badger setts within 30m of areas of works outside of HDD section of the cable route. Follow up assessment of the badger sett status will be undertaken to inform any future licence application.
▪ Birds – The application must make an assessment of the bird populations, including farmland birds, currently using the application area in the form of a breeding bird and winter bird surveys and the impact of the development on these birds, in terms of loss of habitat and displacement. There are many records of farmland birds both on and around the site	▪ A precautionary assessment has been made in relation to the breeding and wintering bird assemblages based on habitat type.
▪ Dormice – There may be suitable habitat on site to support dormice, and there are dormice records in the area, therefore it is possible that dormice are present in the area. The application should explore this and survey if suitable habitat is present. If any hedgerow or woodlands are to be removed, and no survey has taken place, further justification for not undertaking dormice surveys will be required within any submitted application/ES. Dormice are protected under legislation, their presence is a material consideration in the planning process.	▪ With short sections of hedgerow to be removed on the alignment of the cable route, dormouse presence / absence surveys will be undertaken A WG dormouse mitigation licence will be obtained if the results show that dormouse are using habitats within or adjoining the Proposed Development.
▪ Bats – There are several important sites for bats, including the Orielson	▪ The site's value as a foraging habitat for important bat roosts is assessed

Scoping Report Comment	Applicant's Response
Stable Blocks SSSI and Pembrokeshire Bat Sites SAC within relatively close proximity to the proposed development. The development site is well within the foraging range of the bats, and records on site.	in the Ecology Chapter (Chapter 6). A precautionary assessment of effects has been made in the context of the wide assemblage of species recorded in the local area.
Impact upon foraging habitats this close to the SSSI and SAC would be likely to cause detriment to the populations at those protected sites and should therefore be covered in depth in the ecological report. Options for increasing the ecological resilience of the protected sites by creating foraging habitat at the development site would be welcome. The wooded areas within and surrounding parts of the site are likely to be key connectivity features for bats foraging and commuting in the area, as are any substantial hedgerows. These features should be considered within the ecological report and application, along with activity and other appropriate bat surveys. Any lighting may impact upon bat movements in the area, therefore if significant lighting is proposed, activity surveys may be required in order to establish important areas for bats which must remain dark and inform any lighting plan to ensure there is no impact upon the bats and other nocturnal wildlife. Again, if activity surveys are not required, then clear justification for this will need to include within any application/ES. Bats are protected and their presence is a material consideration in the planning process. If any trees are to be removed these must also be surveyed for their potential to support a bat roost.	Protection of the value of foraging habitat has been considered in site layout, lighting design and the design of the Landscape Masterplan (Appendix 6.2). Protection of woodland edge and hedgerows will maintain key flightline connectivity. No trees will be removed as part of the Proposed Development.
Otter – The proposed cable route will go through at least one water course. Otters are highly mobile and suitable habitat is likely to exist on site, including the woodland and watercourses on and around the site. Surveys will be required, and measures for ensuring there is no disturbance must be included within any application/ES. Otters are protected under legislation, their presence is a material consideration in the planning process.	Otter activity in and around the Proposed Development will be assessed in 2024. Stand offs from woodland and from the wooded stream will retain all potential otter habitat within the application site. Protection measures detailed in the outline CEMP (Appendix 3.1) will be designed to avoid any effect on otters moving through the landscape.
Pollinators – Protection and enhancement of pollinator habitat and populations in the area should be considered as part of the proposal.	Wildflower grassland and native tree and shrub planting in the landscaping around the BESS will provide resources not present in the existing improved pasture, this is set out in the Landscape Masterplan

Scoping Report Comment	Applicant's Response
	(Appendix 6.2).
▪ Green Infrastructure - In line with PPW Chapter 6, a Green Infrastructure (GI) statement must be submitted with the application. This must be proportionate to the scale and nature of the development proposed and described how GI has been incorporated into the proposal. THE GI Statement must demonstrate how well designed spaces can deliver multi-functional outcomes (e.g. biodiversity mitigation and enhancement, landscaping, SUDs highways drainage etc.)	▪ A GI Strategy has been submitted with the application (Appendix 6.3). It is proportionate to the scale and nature of the Proposed Development and describes how GI has been incorporated into the Proposed Development.
Biodiversity Enhancements: ▪ Once any unavoidable impacts on species/habitats have been mitigated for, opportunities for enhancement must be included with any application. An Landscape Ecological Management Plan (LEMP) should be submitted (this could be tied into the GI Statement), to include details of how the site will be managed for wildlife throughout the solar farms lifetime.	▪ A LEMP will be prepared, secured through an appropriately worded planning condition, to include details of how the site will be managed for wildlife throughout its lifetime.
▪ The plan should also include details of an ecological monitoring programme, to ensure the management plan is working and, where necessary, make changes to ensure appropriate and successful management for biodiversity. The LEMP should be written in discussion with both the ecologist and landscape officer/architect.	▪ The LEMP will include details of an ecological monitoring programme, ensuring the management plan is working. If necessary, changes will be made to ensure appropriate and successful management of biodiversity is achieved. The LEMP will be written in discussion with both the ecologist and landscape officer/architect.
Further considerations: ▪ The results of all required surveys and assessments of the effects the development may have on species and habitats and recommendations for mitigation and enhancement must be included within any application/ES. ▪ Ecological assessments may result in the requirement for further survey work. ▪ Surveys and assessments must be carried out in line with the British Standards for Biodiversity: Code of Practice for Planning and Development (BS42020:2013) and other relevant species and survey best practice guidelines. All surveys will be required to be carried out by	▪ The comments from the consultee are noted, and the approach taken to these points is covered in the ES Chapter, chapter 5.

Scoping Report Comment	Applicant's Response
a suitably qualified ecologist within the appropriate season and to appropriate survey standards and methodology. ▪ In-combination fragmentation of the landscape must also be considered due to the number of similar applications being proposed in the area.	

Statutory Pre-Application Consultation

- 4.5.4 As of 1st August 2016, the Town and Country Planning (Development Management Procedure) (Wales) (Amendments) Order 2016 brought into effect various provisions set out in the Planning (Wales) Act 2015. This included the requirement to undertake pre-application consultation for all planning applications for 'major' development (full or outline) as defined in Article 2 of the Town and Country Planning (Development Management Procedure) (Wales) Order 2012 and applications for Developments of National Significance.
- 4.5.5 The Statutory requirement to consult is imposed by section 61Z of the Town and Country Planning Act 1990. Further provision is contained in Part 1A of the Development Management Procedure (Wales) Order.
- 4.5.6 The Statutory Pre-Application Consultation (PAC) is to commence on 13 February 2024. Details of the outcome of the PAC will be included within a Statutory Pre-Application Consultation Report and summarised in the final ES.

4.6 Alternatives and design iteration

- 4.6.1 Schedule 4, paragraph 2 of the 2017 Regulations requires Environmental Statements to include:

“A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.”

- 4.6.2 The 2017 Regulations do not require the full assessment of all potential alternatives, only those actually considered by a developer prior to the submission of the planning application.

Alternative Sites

- 4.6.3 Due to the nature of the proposals, choosing the location of the Proposed Development was driven primarily by the need to be close to an available grid connection point. The proximity of the Proposed Development to a grid connect point has tangible impacts its viability where its viability reduces the further away it is from the Point of Connection. The Pembroke Substation has capacity and the Applicant has secured this through a Connection Agreement.
- 4.6.4 On securing the connection at the Pembroke Substation, a 1km radius was mapped from this Point of Connection (POC). There are commercial and practical reasons for this:
- The further away from the POC the more must be spent on the cable, which has a significant impact on the viability of project;
 - Longer cable routes result in increased inefficiency in the scheme i.e. increased electrical losses; and
 - A longer cable corridor results in more disturbance, both environmentally and locally.
- 4.6.5 Within this 1km radial search area, the Applicant has considered environmental and planning constraints, such as landscape designations, policy designations such as Strategic Gaps, sensitive habitats, archaeological and heritage issues etc. The Applicant has also carefully considered geographical and topographical factors such as slope and aspect, shading, access etc.
- 4.6.6 Once potentially suitable locations were identified, the Applicant engaged with the landowners in the area to ascertain their interest in being involved with a potential low carbon energy storage

scheme. These conversations involve landowners having the ability and desire to lease their land and having sufficient area of the right type of land to host a viable development either on its own or in combination with other nearby landowners. This exercise has been successful and the Applicant is bringing forward the Proposed Development on a suitable site.

Alternative Layout Designs

4.6.7 Alternative designs for the Proposed Development were considered during the scheme evolution process and the outcome of consultation with the technical consultant team. Amendments to the original design include:

- New substantial structural tree planting creating green corridors;
- Boundary enhancement planting where needed to improve screening; and
- Pulling in of the security fencing as close as possible to the BESS to create larger zones outside of the BESS for planting.

Alternative Renewable Energy Technologies

4.6.8 An alternative renewable or low carbon energy source in this location could be wind. However, several large-scale wind turbines would be necessary to generate the same amount of power as the Proposed Development. Given the site context and prevailing local planning sentiment for on-shore wind, it is concluded that the preferred technology is battery storage.

Do Nothing Alternative

4.6.9 It is regarded as best practice within the EIA to consider the “do nothing” alternative. The “do nothing” option would entail leaving the Site in its current condition and it is assumed that the current land use would remain as it is. That is, available for agriculture. It is an obvious statement that any impacts associated with the Proposed Development would therefore not occur.

4.6.10 However, the “do nothing” option would result in the loss of a significant and urgently needed low carbon energy source and storage proposed by the Proposed Development. Other benefits that would not be secured are the biodiversity benefits; carbon sequestration benefits through tree planting; and farm diversification benefits.

4.7 EIA Terms of Reference and Methodology

Proposed Development

4.7.1 It is important to establish an appropriate ‘development scenario’ for assessment which enables the identification of the likely significant environmental effect of the Proposed Development. In order to do this, assessments has been informed by the following:

- Chapter 3: The Proposed Development
- Figure 1.1: Site Location Plan; and,
- Figures 3.1-3.8.

Impact Assessment Guidance

4.7.2 The assessments presented in the ES consider the potential for significant environmental impacts to affect the baseline conditions as a direct/ indirect result of the Proposed Development.

- 4.7.3 A description of the aspects of the environment likely to be significantly affected by the Proposed Development is a requirement of the 2017 Regulations. The baseline conditions are defined as the current state of the environment (within schedule 4, section 3 of the 2017 Regulations) and how it may develop in the future in the absence of the proposals and with certain committed developments included. In order to forecast potential future effects it is necessary to make predictions. To ensure that predictions are as accurate as possible, a description of the methods used to assess the effects of the Proposed Development is also required by the 2017 Regulations.
- 4.7.4 The assessments have been undertaken in accordance with best practice guidelines published by the relevant professional bodies. Each technical Chapter in this report provides full details of the baseline and assessment methodology employed for that topic area alongside terminology used in the context of that technical discipline.

Potential and Residual Effects

- 4.7.5 As stated previously, the EIA process enables the likely significant effects of a Proposed Development to be identified so that, where possible, adverse effects predicted to arise as a result of the proposal can be avoided or mitigated through the adoption of suitable measures. Additionally, enhancement measures can be incorporated to maximise the beneficial effects of the development. The adoption of mitigation and enhancement measures results in potential and residual effects. These can be defined as:
- Potential Effects: Effects occurring as a result of the Proposed Development prior to the adoption of any additional mitigation or enhancement measures.
 - Residual Effects: Effects occurring as a result of the Proposed Development taking into account the adoption of identified additional mitigation or enhancement measures.
- 4.7.6 Additional mitigation and enhancement is defined as a measure that is additional to the Proposed Development as initially proposed.
- 4.7.7 Measures that design out significant effects that form an embedded part of the Proposed Development as proposed, known as embedded or inherent mitigation, are considered in the assessment of potential effects.
- 4.7.8 For example many environmental constraints, such as flood risk, must be designed out of a project for it to be viable and it would be impractical to consider the Proposed Development without such measures in place.
- 4.7.9 Embedded or inherent mitigation also includes best practice measures, such as the implementation of a Final CEMP, Drainage Strategy and Dust Management Plan etc. This approach ensures that standard good practice measure and industry standards are accounted for on the assumption that construction will adhere to these standards. As such this is not considered as additional mitigation.

4.8 EIA Assumptions and Limitations

- 4.8.1 The following key assumptions have been made in preparing the ES:
- Each of the baseline reviews were based on information readily available at the time of the assessment, the published documents referenced and the site visits undertaken.
 - All legislative requirements will be met. Therefore, any standard guidance which is provided to ensure minimum legal compliance is not considered to constitute mitigation in the EIA. The assessment of effects prior to the adoption of mitigation measures will assume that all legislative requirements will be met.

- The assessment of effects prior to the adoption of mitigation measures will assume that the Proposed Development will be constructed in accordance with industry standard techniques. Such techniques will therefore not be considered as mitigation.
- Where further assumptions have been made for individual topic assessments these have been identified within the relevant topic Chapters.
- Any limitations or uncertainties associated with impact prediction or the sensitivity of receptors due to the absence of data or other factors will give rise to uncertainty in the assessment. Any such limitations have been referred to in the relevant technical Chapters of the ES.

4.9 Technical Chapter Structure

4.9.1 The technical specialists undertaking the environmental topic assessments have prepared their Chapter to comprise:

- Introduction;
- Policy Context;
- Assessment Methodology;
- Baseline Conditions;
- Embedded Design Mitigation;
- Potential Effects;
- Additional Mitigation;
- Residual Effects;
- Cumulative Effects
- Summary;

4.9.2 Where appropriate and necessary, detailed information or baseline studies are presented in the appendices of the ES and referred to as relevant within the Chapter.

5 Ecology

5.1 Introduction

- 5.1.1 This Chapter reports the outcome of the assessment of likely significant environmental effects arising from the Proposed Development in relation to terrestrial ecology.
- 5.1.2 The chapter details the methodology followed, a review of the baseline conditions in the defined study area, and the results of the assessment. The assessment reports on the environmental effects on biodiversity with reference to embedded (primary) mitigation within the design of the Proposed Development including the Landscape Masterplan (Appendix 6.2), working methods and best practice environmental protection to be implemented by all site contractors.
- 5.1.3 The chapter identifies additional mitigation measures that will be implemented to prevent, reduce or offset adverse effects on species. The conclusions are provided both in terms of the residual effects and whether these are considered significant.
- 5.1.4 Descriptions of the Proposed Development are given in Chapter 3 of the ES and the associated figures. Inherent mitigation measures have been incorporated into the design of the scheme to avoid significant adverse effects. These include directional drilling beneath woodland, dense scrub and a minor watercourse plus the inclusion of stand offs from the wooded watercourse on the western boundary of the development.
- 5.1.5 The ground impact is limited to the groundworks necessary to accommodate the main BESS Site, cabling (underground), access roads, security fencing, proposed on-site substation and battery storage facility.
- 5.1.6 Once operational there would be limited vehicle visits each month comprising a transit-style van, accessing the main BESS Site via the access created for construction via the B4320.
- 5.1.7 The Proposed Development is anticipated to have a lifespan of 40 years once operational. Once the development ceases its operational life, it will be decommissioned in accordance with an agreed decommissioning plan. The effects of decommissioning are anticipated to be similar to those anticipated at the construction phase.
- 5.1.8 This Chapter and Preliminary Ecological Appraisal (PEA) (Appendix 5.1), including the habitat plan, is intended to be read as part of the wider ES.
- 5.1.9 Documents of highest relevance to the ecology chapter are;
- Detailed Landscape Masterplan (Appendix 6.2),
 - Green Infrastructure Strategy (Appendix 6.3) defining the step-wise approach taken for biodiversity protection, compensation and enhancement, and
 - Outline Construction Environment Management Plan (Appendix 3.1)
- 5.1.10 The principles of future habitat management are included as additional mitigation in this assessment, Section 5.7 of this chapter. Biodiversity objectives, detailed management specifications, management schedules and a biodiversity monitoring programme will be presented in the Landscape and Ecology Management Plan (LEMP) which will run for a minimum duration of 30 years.

5.2 Policy context

5.2.1 The following legislation has informed the assessment of effects within this Chapter.

- Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the Habitats Directive);
- The Conservation of Habitats and Species Regulations 2019 (EU Exit Amendment);
- The Wildlife and Countryside Act 1981 (as amended);
- The Wellbeing of Future Generations (Wales) Act 2015;
- The Environment (Wales) Act 2016.
- The Protection of Badgers Act 1992;
- The Natural Environment and Rural Communities (NERC) Act 2006;
- The Countryside and Rights of Way Act 2000; and,
- The Hedgerow Regulations 1997.

5.2.2 The EC Directives 2009/147/EC on the Conservation of Wild Birds (the Birds Directive) and 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the Habitats Directive) are implemented in the UK principally through the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017.

5.2.3 The Environment (Wales) Act 2016 includes measures to provide an integrated natural resource management process to deliver the sustainable management of natural resources. That means the collective actions (including non-action) required for managing the maintenance, enhancement and use of natural resources in a way, or at a rate, which enables people and communities to provide for their social, economic and environmental well-being in Wales.

5.2.4 Section 6 of the Act sets out a biodiversity and resilience of ecosystems duty and replaces Section 40 of the Natural Environment and Rural Communities Act 2006. This applies to a range of public authorities such as the Welsh Ministers, local planning authorities and public bodies. This ensures that biodiversity is an integral part of the decisions that public authorities take in Wales. It also links biodiversity with the long-term health of ecosystems and aligns to the framework for sustainable natural resource management in the Act. The Act requires all public authorities in Wales to report on the actions they are taking to improve biodiversity and promote ecosystem resilience.

5.2.5 Section 7 of the Act requires the Welsh Government to prepare and publish a list of the living organisms and types of habitat which in their opinion are of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales, and to take measures to maintain and enhance these species and habitats. Hereafter these are referred to as 'Priority Species' or 'Priority Habitats'.

5.2.6 The Well-being of Future Generations (Wales) Act 2015 includes a number of well-being goals (Part 2 Section 4), the second of which is 'A resilient Wales' described as: 'A nation which maintains and enhances a biodiverse natural environment with healthy functioning ecosystems that support social, economic and ecological resilience and the capacity to adapt to change (for example climate change).'

5.2.7 The following national and local planning policy documents and guidance are relevant to the Proposed Development, and are described briefly in the sections below with reference to the particular sections applicable to nature conservation and biodiversity:

- Planning Policy Wales (PPW) 11 and revised Policy 6 released in advance of Planning Policy Wales 12;
- Technical Advice 5: Nature Conservation and Planning;
- The Nature Recovery Plan for Wales 2020;
- Biodiversity Duty Plan 2020 – 2030;
- Action Plan for Pollinators in Wales;
- Future Wales – The National Plan 2040;
- Pembrokeshire County Council Adopted Local Development Plan 2016;
- Pembrokeshire County Council Biodiversity Supplementary Planning Guidance 2021; and,
- Biodiversity Duty Plan 2017.

5.2.8 The Biodiversity and Resilience of Ecosystems Duty: Section 6 under Part 1 of the Environment (Wales) Act 2016 and Chapter 6 of PPW states *development should not cause any significant loss of habitats or populations of species, locally or nationally and must provide a net benefit for biodiversity*. In line with PPW, development proposals should demonstrate how decisions on design, siting, and scale have been informed by biodiversity and ecosystem resilience considerations as defined by diversity, extent, condition, and connectivity.

5.2.9 In the Pembrokeshire County Council Adopted Local Development Plan 2016, Policy GN.37 relates to the Protection and Enhancement of Biodiversity.

5.2.10 Policy GN.37 aims to ensure that:

....species and their habitats in countryside and urban environments are protected from the potentially adverse effects of development, and where possible enhanced. Potentially adverse effects may include disruption to species and habitats prior to, during and/or after construction, or the cumulative impacts of a development, for example unacceptable noise, lighting or traffic impacts.

5.2.11 A further aim of this policy is to:

....protect and maintain ecological connectivity corridors and 'stepping stone' habitats, such as road verges, gardens, rivers and green spaces, and where possible to extend these in order to safeguard biodiversity and habitats and prevent their fragmentation and/or species isolation.

5.2.12 Pembrokeshire County Council Biodiversity Supplementary Planning Guidance 2021 references the Biodiversity and Resilience of Ecosystems Duty: Section 6 under Part 1 of the Environment (Wales) Act 2016. Specific references of relevance to the locality of the Proposed Development are:

- Protect and enhance biodiversity creating and reinforcing linkages between related habitats ie strong green infrastructure, such as along watercourses, hedgerows, woodland and moorland/heath.
- Increase biodiversity to improve resilience to climate change with native species tolerant of the likely extremes of weather.
- Conserve and enhance hedgerows by removing gaps, encouraging widening and thickening at bases, encouraging headlands adjacent and hedgerow trees where in character. Use hedgerows to minimise and slow run off on slopes.
- Conserve and enhance pasture minimising run off with appropriate stock and grazing regimes.

5.3 Assessment methodology

Predicting effects

- 5.3.1 The assessment follows the Guidelines for Ecological Impact Assessment (EclA) in the UK and Ireland, terrestrial, freshwater and marine published by the Chartered Institute of Ecology & Environmental Management (CIEEM) in 2018.
- 5.3.2 The value of habitats, species and other ecological features has been assigned at a geographic scale (site, local, county, region, national). The assessment has considered all potential effects in order to recognise the accumulative value of habitats of value for biodiversity. This comprehensive approach has informed the total losses and gains and formed the baseline for the delivery of Net Benefit for Biodiversity consistent with Welsh biodiversity planning guidance.
- 5.3.3 Furthermore, the appraisal of effects within the EclA has considered all effects from the Proposed Development at a geographic scale and defining whether they are significant in the same geographic context.
- 5.3.4 The purpose of this approach is to allow the ES and the assessments within this Chapter to be focused on significant effects, whilst the EclA provides a full assessment of all effects.
- 5.3.5 The assessment methodology stages, can be outlined as follows:

Table 5-1: Value/sensitivity assessment

Receptor value / sensitivity	Receptor type
Very High	Sites of international or greater than UK or Welsh significance Sites of International Importance (Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites) Resident, or regularly occurring, populations of species which may be considered at an International or European level where: • the loss of these populations would adversely affect the conservation status or distribution of the species at this geographic scale; or • the population forms a critical part of a wider population at this scale; or • the species is at a critical phase of its life cycle at this scale.
High	Sites of UK or National (Welsh) Importance (Sites of Special Scientific Interest (SSSI) & National Nature Reserves (NNR)) and Ancient woodland. Resident, or regularly occurring, populations of species which may be considered at an International, European, UK or National level where: • The population exceeds 1% of published data for national populations. The loss of the population would adversely affect the conservation status or distribution of the species at this scale; or • the population forms a critical part of a wider population at this scale; or • the species is at a critical phase of its life cycle.
Medium	Sites of regional importance in South Wales, sites of County Importance (SINCs) or sites of equivalent to county value. Priority habitats (Section 7 habitats) of County / Regional importance.

Receptor value / sensitivity	Receptor type
	Resident, or regularly occurring, populations of species which may be considered at an International, European, UK or National level and key/priority species listed within Local BAPs where: • the loss of these populations would adversely affect the conservation status or distribution of the species at this scale; or • the population forms a critical part of a wider population; or • the species is at a critical phase of its life cycle.
Low	Features of Local or District Importance. Designated sites including Local Nature Reserves (LNRs) designated in the local context. Priority habitats (Section 7 habitats) of Local / District importance. Areas of habitat; or populations/communities of species considered to appreciably enrich the habitat resource within the local context (such as veteran trees), including features of value for migration, dispersal or genetic exchange.
Negligible	No higher than Parish or very local importance.

5.3.6 Magnitude of impact, based on the change that the Proposed Development would have upon the resource/receptor, is considered within the range of high, medium, low, negligible.

5.3.7 Consideration is given to scale, duration of impact/effect (e.g. for construction, short-term for 1-2 years, medium-term for 3-5 years, long-term for 5 years and greater, and permanent, dependent upon project timeframes) and extent of Proposed Development with reference to the definitions in the Table below.

Table 5-2: Magnitude of impact

Magnitude	Description
High	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements (Adverse). Large scale or major improvement of resource quality; extensive restoration or enhancement; major improvement of attribute quality (Beneficial).
Medium	Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements (Adverse). Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality (Beneficial).
Low	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements (Adverse). Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring (Beneficial).
Negligible	Very minor loss or detrimental alteration to one or more characteristics, features or elements (Adverse). Very minor benefit to or positive addition of one or more characteristics, features or elements (Beneficial).

5.3.8 The predicted level of effect is based upon the consideration of magnitude of impact and sensitivity of the resource/receptor to come to a professional judgement of how important this effect is. Effects are classified as beneficial or adverse.

Table 5-3: Level of effect

Receptor Sensitivity	Magnitude of Impact			
	High	Medium	Low	Negligible
High	Major	Moderate to Major	Minor to Moderate	Negligible
Medium	Moderate to Major	Moderate	Minor	Negligible
Low	Minor to Moderate	Minor	Negligible to Minor	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

5.3.9 Levels of effects which are Moderate or greater are considered to be significant in terms of EIA.

Consultation

5.3.10 Responses to the comments and information provided in the scoping responses from NRW and the Pembrokeshire County Council ecologist are presented in Table 4.2, Chapter 4 of this ES.

Assumption and Limitations

5.3.11 The assessment of species effects is informed by desk study data held by the local biological record centre, and the potential for the habitats present within or adjacent to the site to support legally protected or Priority Species.

5.3.12 The desk study data is third party controlled data, purchased for the purposes of this report only. The applicant and its consultant team cannot vouch for its accuracy and cannot be held liable for any error(s) in these data.

- From this review the following legally protected or notable species have the potential to occur in the vicinity of the proposed main BESS Site and/or the cable corridor.
- Foraging bats (including species that are qualifying features of the Pembrokeshire Bat Sites SAC);
- Roosting bats;
- Dormice;
- Badgers;
- Otter, (a qualifying feature of the Pembrokeshire Marine SAC)
- Wintering birds
- Breeding birds; and
- Reptiles.

- 5.3.13 Following a precautionary approach, the presence of species is assumed presence for movement through the Site where suitable habitat exists within or adjacent to the Proposed Development. Given the small extent of the development and the temporary nature of the works associated with the cable corridor, this approach is considered to be pragmatic and in proportion to the potential effects on individual species.

5.4 Baseline Conditions

Current Baseline

- 5.4.1 The ecological baseline for the Site has been informed by desk study, habitat survey and protected species audit which are presented in the Preliminary Ecological Appraisal (PEA) report Appendix 5.1.

Designated Sites

- 5.4.2 All the internationally designated sites located within 10km of the Proposed Development are listed in Table 5-4. Further details of the criteria for designation for each site are presented in the PEA Appendix 5-1.

Table 5-4: Designated Sites

Designated Sites	Distance from development at closest point		
<i>International sites in bold with the component SSSIs listed below</i>	BESS Facility	Access Road	Cable Route
Pembrokeshire Marine SAC	1.28km E	1.1km E	0.26km E
Milford Haven Waterway SSSI	1.28km E	1.1km E	0.26km E
Freshwater East Cliffs to Skrinkle Haven SSSI (part)	9.67km E	9.86km E	9.06km E
Angle Peninsula Coast SSSI (part)	4.96km W	4.85km W	5.16km W
Castlemartin Range SSSI (part)	3.29km SW	3.24km SW	3.46km SW
Pembrokeshire Bat Sites and Bosherton Lakes SAC	3.2km SE	3.3km SE	2.9km S
Orielton stable block and cellars SSSI	3.2km SE	3.3km SE	2.9km S
Stackpole SSSI and NNR	6.05km SE	6.26km SE	5.82km SE
Stackpole courtyard and flats and walled garden SSSI	6.85km SE	7.0km SE	6.57km SE
Park House Outbuildings SSSI	7.19km SE	7.38km SE	6.89km SE
Skomer, Skokholm and the Seas of Pembrokeshire SPA	6.17km S	6.26km S	6.4km S
West Wales Marine SAC	4.73km W	4.72km W	5.03km W
Castlemartin Coast SPA	2.65km W	2.53km W	2.84km W
Castlemartin Range SSSI (part)	3.29km SW	3.24km SW	3.46km SW
Broomhill Burrows SSSI (part)	2.58km W	2.46km W	2.77km W
Stackpole SSSI and NNR (part)	6.05km SE	6.26km SE	5.82km SE
Limestone Coast of South Wales SAC	2.58km W	2.46km W	2.77km W
Broomhill Burrows SSSI (part)	2.58km W	2.46km W	2.77km W
Stackpole SSSI	6.05km SE	6.26km SE	5.82km SE
Stackpole Quay to Trewent SSSI	8.23km SE	8.38km SE	7.85km SE
Castlemartin Range SSSI (part)	3.29km SW	3.24km SW	3.46km SW
Other SSSIs outside International Designated Sites			
Gweunydd Somerton Meadows SSSI	460m SE	660m SE	570m SE
Castlemartin Corse SSSI	2.61km SW	2.53km SW	2.81km SW
Notes Abbreviations used in Table 5-4: SAC – Special Area of Conservation. SPA – Special Protection Area. SSSI – Site of Special Scientific Interest. NNR – National Nature Reserve			

5.4.3 The Milford Haven Waterway SSSI / Pembrokeshire Marine SAC lies 1.28km east of the BESS at the closest point, while the eastern section of cable corridor lies between 260m and 350m from the intertidal habitats on the boundary of the SSSI/SAC.

5.4.4 The shoreline of the Milford Haven Waterway SSSI/ Pembrokeshire Marine SAC, located to the west and north of the power station, also lies between 300m and 1,000m from the northern end of the cable corridor, but is over 1.6km from the boundary of the main BESS Site. Other component SSSIs of Pembrokeshire Marine SAC are Castlemartin Range SSSI, 3.29km to the south-west, and Angle Peninsula Coast SSSI 4.96km to the west.

- 5.4.5 The majority of the Pembrokeshire Bat Sites and Bosherton Lakes SAC is located over 6km to the south of the main BESS Site and over 5.8km from the cable corridor. The SAC includes several small sites of high importance for bats. The closest of these Orielson stable block and cellars SSSI, is located 3.2km south-east of the main BESS Site is designated a significant nursery roost of lesser horseshoe bat. All other component SSSIs are located over 6km from the Proposed Development.
- 5.4.6 Gweunydd Somerton Meadows SSSI lies 460m SE of the main BESS Site and over 550m from the cable corridor. This SSSI is a group of unimproved fields, marshy grassland swamp and standing water, woodland, scrub and hedges. It includes areas of very herb-rich vegetation, locally uncommon plants and a diverse range of fungi. Invertebrate species include marsh fritillary butterfly *Euphydryas aurinia*, shrill carder bee *Bombus sylvarum* and a diverse dragonfly fauna.

Priority (Section 7) Habitats

- 5.4.1 The habitats are mapped on the Habitat Plan presented as Figure 1 in the Preliminary Ecological Appraisal, Appendix 5.1 of the ES.

Hedgerows

- 5.4.2 Two hedgerows are present on the boundary of the Proposed Development at the main BESS Site. These are managed densely structured hedgerows, generally 2m high and 2m wide. Both are dominated by blackthorn with other species at only present at very low frequency including hawthorn willow, elder, elm and ash. Bramble and dog rose also grow within the hedgerows. The hedge base ground flora comprises tall ruderals (common nettle, and thistle species), coarse grasses and common woodland ground flora species herb Robert *Geranium robertianum*, wood avens *Geum urbanum*, and hart's-tongue fern.
- 5.4.3 A semi-mature ash tree (T3) is present at the junction between the two of the boundary hedgerows surrounding the field in which the proposed main BESS Site is located. The trunk diameter of the tree is 50cm at the base which splits into multiple stems with a maximum diameter of 30cm; a structure indicative of past management. Ivy was growing on the trunks. No cavities were visible in the structure of the tree from the ground inspection.
- 5.4.4 None of the hedgerows are species-rich and none classify as being of importance under the ecological criteria of the Hedgerow Regulations 1997. Mature trees are absent.
- 5.4.5 The cable corridor crosses seven hedgerows including the eastern boundary of the main BESS Site. Each of the hedgerows bounds fields that have been subject to agricultural improvement and management. Most are regularly managed with a dense structure equivalent to the boundaries of the main BESS Site but one hedgerow is taller, up to 4m in height, with more open shrubby growth.
- 5.4.6 Hawthorn and blackthorn are typically co-dominant. The other woody species present at low frequency are elm willow, elder, ash, sycamore, and hazel, but all of the hedgerows are relatively species-poor with only two or three woody species per 30m section of hedge.
- 5.4.7 The network of hedgerows are a Priority Section 7 Habitat. They provide connectivity for wildlife within and around the Proposed Development with multiple connections to the wooded valley to the south.
- 5.4.8 The hedgerows within and adjoining the main BESS Site and cable corridor have importance in a local context and are classified as having Low sensitivity.

Broadleaved Woodland/Scrub and Watercourses

- 5.4.9 A wooded valley with stream lies between 50m and 100m to the south of one section of the cable corridor. Four 'fingers' of scrub woodland, each associated with springs and small channels extend to the north of the main block of the wooded valley.
- 5.4.10 One of these is a narrow linear block of scrub woodland on the western boundary of main BESS Site is characterised by abundant willow and occasional hawthorn with bramble and gorse are also present in the shrub layer. Mature trees are absent. The small stream channel fed by a spring runs along the eastern edge of this wooded habitat. The base of the channel was less than 1m wide at the northern end widening to 1.5m with shallow water (~10cm deep) at the time of the survey in September 2023. The banks were moderately steep and up to 1m with both woodland and aquatic species present including water cress, soft rush, bittersweet, and hemlock water dropwort.
- 5.4.11 Two further wooded 'fingers' are crossed by the cable corridor. The western woodland 'finger' is dominated by blackthorn while in the eastern wooded 'finger' shrub willows were frequent with occasional hazel and hawthorn.
- 5.4.12 Each of the minor watercourses flows into a larger stream in the base of the main wooded valley. This larger expanse of woodland/scrub is characterised by abundant blackthorn with occasional other shrub species (willows, gorse, hazel, hawthorn, and elder). Immature ash and sycamore trees occur amongst the shrubs along within a small number of semi-mature oak and ash trees.
- 5.4.13 The field layer / ground flora on the edges of the woodland where characterised by bramble, ivy, and bracken. Woodland herb species included herb Robert, hart's-tongue fern, red campion, wood avens, meadowsweet, soft shield fern, and wood sage. Bramble and dog rose occurred rarely. A few locally important bryophyte species have also been recorded within the woodland.
- 5.4.14 The woodland habitat (primarily located outside the boundary of the Proposed Development) has importance in a local context and is classified as having Low sensitivity.

Other Habitats

- 5.4.15 The grass leys / improved grassland and semi-improved grassland are subject to agricultural management and are mostly of recent origin. The habitats have very low diversity (species and structure) and make minimal contributions to ecological connectivity and the ecosystem resilience of the landscape in which they are located. Together the habitats have importance in the context of the Site and have been classified as having Negligible sensitivity.

Fauna

Bats

- 5.4.16 A minimum of 10 bat species have been recorded within 5km of the Proposed Development.
- 5.4.17 There are a limited number of records of bat activity within 2km but it is assumed that all previously recorded species will be resident in the wider area and most of not all would be expected to commute or forage within or close to the Site, at least on an occasional basis including both horseshoe bat species.
- 5.4.18 The closest records of bat activity are pipistrelle and whiskered bat and a Myotis bat species from Gweunydd Somerton Meadows SSSI over 400m to the south of the Site. Within 1km of

Site within the last 10 years: common pipistrelle, noctule, greater horseshoe and Natterers bat around a farm 880m south east of the proposed main BESS Site and brown long-eared bat and common pipistrelle have been recorded 775m to the north west.

- 5.4.19 Soprano pipistrelle, Daubentons, serotine, and lesser horseshoe bat have also been recorded within 2km of the proposed main BESS Site. Locations where multiple bat species were recorded between 1 and 2km from the proposed main BESS Site include buildings, and a waterbody bounded by woodland.
- 5.4.20 Greater horseshoe activity has been recorded over wet grassland 1.4km to the north-west of the main BESS Site with multiple records of individual greater horseshoe and lesser horseshoe bats beyond 2km to the south. The closest known lesser horseshoe maternity colony is 3.2km south of the main BESS Site.
- 5.4.21 The wooded valley to the south of the cable corridor provides a strong connection between Gweunydd Somerton Meadows SSSI and Milford Waterway SSSI with the linear wooded strips adjacent to the main BESS Site boundary and crossed by the cable corridor is also directly connected to this woodland complex.
- 5.4.22 These woodland and woodland edge habitats have high potential value as flight lines and foraging areas for bat species.
- 5.4.23 The managed hedgerows provide additional connectivity within the wooded valley but the high level of management and absence of sections that have been allowed to mature would affect the abundance of invertebrates and prey available for bats.
- 5.4.24 The potential for any bat species to forage over the grass leys / sown improved grassland is low. The frequency of disturbance and the artificial inputs to promote crop growth will limit invertebrate abundance. The semi-improved grasslands crossed by the eastern section of the cable corridor have also been subject to intensive agricultural management and the abundance of airborne insects is also expected to be low.
- 5.4.25 The multi-stemmed ash tree (T3, as shown on the Habitat Plan in Appendix 5.1) on the boundary of the main BESS Site had negligible value as a potential bat roost. Two semi-mature trees (T1 and T2) located within the areas of scrubby woodland adjacent to the cable corridor had a dense ivy cover and were large enough for cavities (potential roost features) to have developed in the main trunk or larger branches. Both have been classified as having low roost potential based on the ground inspection.
- 5.4.26 Following a precautionary approach, it is presumed that the habitats through which the cable corridor crosses will be used to some extent be the species resident in the wider area. Based on the nature of the agricultural fields and distribution of past records, both greater horseshoe and lesser horseshoe bats would be expected to pass close to the proposed main BESS Site and cable corridor on a very infrequent basis. Bat activity surveys will be undertaken in 2024 season to confirm the species assemblage and level of use to ensure that it is consistent with the precautionary assessment or lower than predicted.
- 5.4.27 Two trees have the potential to contain bat roost features. Both are located above the alignment of the HDD section of the cable corridor. There will be further roosting opportunities in trees in the off-site woodland.
- 5.4.28 The habitats within and immediately adjoining the Proposed Development are considered to have local importance for bat species and is classified as having Low sensitivity.

- 5.4.29 The wider woodland habitats and landscape are considered to have county importance for bats. They form part of the sustenance zone for designated bat roosts in Orielson Stable Block and Cellars SSSI. This one of the roosts that form part of the internationally important Pembrokeshire Bat Sites SAC.

Otter

- 5.4.30 Otter have been recorded from 19 different locations within 2km of the Proposed Development with the watercourses and woodland connected to Milford Haven Waterway. Otters have been sighted in each of the 1km squares in which the proposed main BESS Site and cable corridor are located as well as to the south and around the coastline of Milford Haven.
- 5.4.31 Watercourses and woodland provide corridors and cover along which otters can move through the landscape. Watercourses that flow into the marine environment can have very high importance for otters as they require the freshwater to keep their fur free of salt for effective insulation. The wooded valley in which the pill flows is assumed to be used by otter and the likelihood of areas of dense cover within the woodland providing undisturbed daytime laying up places is high. The presence of a holt within the wooded valley is also possible.
- 5.4.32 The managed hedgerows have negligible potential to be used as daytime laying up places by otter. The walkover survey confirmed the absence of otter holts or suitable cover within and adjoining the Proposed Development boundary.
- 5.4.33 The narrow fingers of scrub woodland are set back from the main body of the woodland and watercourse and are bounded by agricultural farm land and trackways. These linear habitats are considered to have low potential value for otter.
- 5.4.34 An otter survey is planned of suitable habitat within and adjoining the site to provide further information on the use of the habitat by the species.
- 5.4.35 The habitats within and adjacent to the Proposed Development boundary have the potential to be of up to local importance for otter and are classified as Low sensitivity.
- 5.4.36 Within the wider area the wooded valley and watercourse are functionally linked to Pembrokeshire Marine SAC and has the potential to have county importance for otter and is classified as having Moderate sensitivity.

Badger

- 5.4.37 Badgers are a commonly occurring species with 27 records from within 2km of the Proposed Development.
- 5.4.38 The walkover survey has confirmed the presence of two active badger setts. Based on the level of activity, the sett on the alignment of the cable corridor is considered to be a main sett. A second lower status badger sett with one active entrance lies over 30m to the south of the cable corridor.
- 5.4.39 There were no signs of badger activity in the proposed main BESS Site. This location has the potential to fall within an active territory, but the absence of field signs suggests it does not have importance for the social group.
- 5.4.40 The badger is a common and widespread species with a large number of records within 2km of the Proposed Development. The presence of a main sett used for breeding will have local importance and is classified as Low sensitivity.

Hazel Dormouse

- 5.4.41 The wooded valley to the south of the cable corridor comprises habitats that have high suitability for dormouse and the extent of connected broadleaved woodland in the local area is of sufficient size to support a self-sustaining population.
- 5.4.42 The hedgerows and scrub woodland with the site have some suitability as a habitat for dormouse, they are considered sub-optimal due to the limited diversity of shrubs, (being largely dominated by blackthorn and or hawthorn) which reduces the abundance and availability of food for dormouse through their active season from spring through to late autumn.
- 5.4.43 Across the local area the network of hedgerows has connection to woodland and would make a contribution to the available resource for a dormouse population, if present.
- 5.4.44 There are no local records of dormouse and the presence of dormouse in the network of hedgerows adjoining the Proposed Development or crossed by the cable corridor. The limited height and width of the regularly flailed hedgerows makes them sub-optimal habitat for dormouse.
- 5.4.45 If present in the off-site woodland the dormouse population would have importance in a county context equating to Medium sensitivity.
- 5.4.46 The managed hedgerow and narrow fingers of woodland within and directly adjoining the Proposed Development boundary are small in total extent but would contribute to the habitats expected to be used by the dormouse population. These habitats have been classified as having up to Low sensitivity for dormouse.

Breeding Birds

- 5.4.47 Past records of Birds of Conservation Concern in Wales (BoCCW) recorded from within or close to the cable corridor are associated with hedgerows and include whitethroat and house sparrow (Red List) and bullfinch and dunnoek (Amber List). Song thrush, a Section 7 species, has also been recorded close to the cable corridor.
- 5.4.48 Several of these species have also been recorded in the block of woodland to the west of the northern end of the cable corridor with willow warbler (Red List) also recorded in this location.
- 5.4.49 In the surrounding area, there are a few records of BoCCW passerine species associated with farmland: skylark, yellowhammer, and fieldfare. There are also several records of barn owl which is assumed to be breeding in the locality.
- 5.4.50 The sections of improved grassland and arable fields within the Proposed Development have the potential to support breeding pairs of ground nesting birds, including skylark with a population assumed to be present.
- 5.4.51 The hedgerows, and linear areas of woodland have the potential to fall within a number of breeding territories including BoCCW farmland bird species.
- 5.4.52 There have been multiple sightings of barn owl in the 2km area around the Proposed Development indicating likely presence throughout the year. The sighting of a perched barn owl on a hedgerow on the boundary of the proposed main BESS Site during the site walkover in late September 2023 confirms that the site falls within an active territory. A breeding territory would be expected to comprise a substantial area of agricultural land.

5.4.53 The localised areas of rough grassland supporting small mammals will have highest importance for barn owls especially during the breeding season. The short grazed semi-improved grassland and grass leys within the Site are sub-optimal foraging habitat and will have a very limited abundance of prey species.

5.4.54 The habitats present within and directly adjoining the Proposed Development are predicted to have importance for breeding birds in the context of the local area and are classified as having Low sensitivity.

Wintering birds

5.4.55 The Proposed Development is located in area with recognised value for an assemblage of wintering bird species.

5.4.56 Flocks of passerine bird species (including the BoCCW species yellowhammer, skylark, linnet, meadow pipit and starling) will also forage on farmland in winter and there are records of all these species within the 2km area around the Proposed Development. Fieldfare and redwing are also anticipated winter visitors.

5.4.57 The fields and hedgerows crossed by the cable corridor form part of the extensive winter foraging areas used by these species with the potential these habitats to make a small contribution to the status of the populations. The scrub woodland will also provide food for a range of bird species outside the breeding season.

5.4.58 In the adjoining Pembroke River (within Milford Haven Waterway SSSI)

there are past records of the following BoCCW species within 1km:

- Wintering and or passage migrant waders - jack snipe, turnstone, bar-tailed godwit, black tailed godwit, greenshank, redshank, and whimbrel;
- Wildfowl - wigeon and pintail;
- Passerines - water pipit; and,
- Gulls and seabirds - common gull and gannet.

5.4.59 A wider range of bird species have been recorded in the 1km square covering the intertidal habitats towards the mouth of the Pembroke River with the additional records of BoCCW being:

- Wintering and or passage migrant waders - golden plover, curlew, dunlin, and oystercatcher;
- Wildfowl – mallard, goldeneye, shelduck, and teal; and,
- Gulls and seabirds - herring gull, great black backed gull and shag.

5.4.60 The majority of these species are primarily associated with the intertidal habitats would be unlikely to feed or roost in elevated agricultural fields over 300m from the shoreline.

5.4.61 Some of the wintering waterfowl and wader species will use farmland in the local area and this activity has been assumed for the assessment. Of the previously recorded BoCCW, herring gull and common gull would be expected to frequently roost/loaf/feed in fields. Curlew, and golden plover would also be expected to regularly feed on invertebrates in fields when overwintering around the Pembroke River section of the Milford Haven Waterway. Lapwing (BoCCW Red List) is also assumed to regularly feed on farmland in the local area.

5.4.62 Following a precautionary approach, it is assumed that the fields crossed by the cable corridor will be frequently used by gull species and has the potential to be occasionally used by wader species.

- 5.4.63 In contrast use of the single grass ley/ pasture field in which the proposed main BESS Site is located by wintering waterfowl and wader species is considered very unlikely because of the more enclosed nature of the L-shaped field with hedgerows and the wooded stream field located relatively close to the centre of the field.
- 5.4.64 Overall the habitats within the Proposed Development Site, cable corridor and immediately adjoining agricultural fields are considered to have local importance for wintering birds and have been classified as having Low sensitivity.
- 5.4.65 The wider farmland (fields, hedgerows) and woodland across the local area will have up to county importance (Medium sensitivity) for the wintering bird assemblage.
- 5.4.66 The farmland adjoining the very extensive Milford Haven Waterway is a foraging resource for bird species that are qualifying features of the Pembrokeshire Marine Special Area of Conservation (SAC). The fields in the 2km area around the site will qualifying species that feed on fields as well as intertidal habitat and the foraging resource they provide will benefit the size and health of these populations. Consequently the intertidal habitats and functionally linked farmland have Very High sensitivity.

Reptiles

- 5.4.67 There are known populations of slow-worm, common lizard and grass snake with a small number of each species in the local area (less than 6 records). The closest records to the Site are for slow-worm and common lizard from Gweunydd Somerton Meadows SSSI.
- 5.4.68 Slow-worm populations utilise a wider range of habitats than the other two species and would be more likely to occur in woodland and scrub edge habitat. These habitats could also support common lizard. The 2m wide hedgerows bounded by agricultural fields on both sites have lower potential to support both this species but wider field margins including patches of bracken will locally have higher potential to support these species.
- 5.4.69 The woodland and stream also have potential value for grass snake which is a species that utilises extensive territories during the active season.
- 5.4.70 The habitats within and adjacent to the Proposed Development including woodland edge habitat, have up to local level importance for reptiles and have been classified as having up to Low sensitivity.

Invertebrates

- 5.4.71 The invertebrate records in the surrounding area 2km search area confirm the presence of locally high invertebrate diversity associated with less improved grassland, wetland and woodland habitats in the surrounding area with colonies of marsh fritillary and shrill carder bee within 500m of the Proposed Development.
- 5.4.72 The intensively farmed grass leys and species-poor semi-improved grassland will have very low potential value for invertebrates. The hedgerows provide the main habitat for invertebrates and the Site would be expected to support a relatively restricted assemblage of species.
- 5.4.73 The habitats within and adjacent to the Proposed Development have up to site level importance for invertebrates and have been classified as having up to Negligible sensitivity and are not considered further in the assessment.

Future Baseline

- 5.4.74 There is no predicted future change to biodiversity value of the Site based on the continuation of the current land management practices.
- 5.4.75 Reseeding of grassland, arable crop production and maintaining the existing stocking densities on pasture would all maintain the existing habitats. The hedgerows are also trimmed annually to relatively short, narrow field boundaries. Aerial photography confirms that negligible change in the network of hedgerows over the last 15 years.
- 5.4.76 Changes in the grazing of permanent pasture or hedgerow management would be expected to alter the habitat structure and biodiversity value of the grassland and hedgerow respectively.
- 5.4.77 No changes in use of the site by faunal species is predicted under the future baseline which is primarily influenced by land management with the network of hedgerows being the key feature.

5.5 Embedded Design Mitigation

Scheme Design

- 5.5.1 The details of the Proposed Development are set out in detail in Chapter 3 of this ES. The construction period will be approximately 12 months. Grassland vegetation will be stripped ahead of the earthworks and construction. The weekday construction working hours will be from 08:00 to 18:00. Artificial lighting will be required for the construction of main BESS Site during these hours. All work areas are to be fenced off with temporary Heras fencing.

Landscape Masterplan - Stepwise Approach

- 5.5.2 Scheme design has evolved to avoid/reduce environmental impacts or provide positive benefits. The main BESS Site has been sited entirely within a habitat of low value for biodiversity with stand offs from the linear woodland, small stream channel and a hedgerows.
- 5.5.3 The main BESS Site has been sited on a flat plateau to limit the amount of cut and fill that be required to create a level development footprint. No material will be taken off-site.
- 5.5.4 The Landscape Masterplan (Appendix 6.2) includes grassland creation, and native shrub and tree planting to mitigate for the small loss of grass ley/improved grassland. A belt of native shrubs will be planted alongside the northern perimeter of the main BESS Site to provide visual screening and establish an additional habitat within the Site.
- 5.5.5 Following the temporary works for the installation of the cable, all the short sections of hedgerow that have been removed will be replanted with a native shrub species. Species selection will include hazel and shrub willows to increase the species diversity of field boundaries currently dominated by blackthorn.
- 5.5.6 The assessment of effects takes into the account the establishment of the landscape features incorporated into the site design.

Cable Route

- 5.5.7 A section of cable will be installed below ground by Horizontal Directional Drill (HDD). The HDD process requires the establishment of a launch pit and receiving pit between which cable is laid without ground level impacts or access.
- 5.5.8 A temporary working corridor width for the cable will be of up to 20m is required for open excavations. It is anticipated that trial digging will be undertaken at various stages and locations

ahead of trenching. The cable will be systematically installed via trenching and backfilling. The open excavation will be approximately 100m at any one time. Top soil and subsoil material will be excavated and stored separately alongside the trench and used to systematically backfill as the cable is laid.

Environmental Protection During Construction

- 5.5.9 For the purposes of the ES, the embedded mitigation is considered to include best practice measures that will be the responsibility of the site contractors to fully implement.
- 5.5.10 Documents that will be produced to define the actions embedded into the construction of the development include a detailed Construction Environmental Management Plan (CEMP), Drainage Strategy and Dust Management Plan. The measures in these documents will adopt standard good practice measures and industry standards and will be subject to LPA approval before being implemented. Full adherence to these standards is assumed in the assessment and as such this is not considered as additional mitigation. An Outline CEMP is submitted as part of the planning application (Appendix 3.1) a detailed CEMP will be prepared pre-construction.
- 5.5.11 Environmental protection measures in the detailed CEMP will be specific to the site locality and conditions. They will contain measures addressing noise, vibration, dust control, light spill, drainage / water runoff, pollution avoidance and clearly define the emergency response procedures.
- 5.5.12 The CEMP will define the mandatory mitigation measures required during construction (e.g. for nesting birds) and the best practice environmental protection measures that are relevant to the locality and context.
- 5.5.13 The CEMP will define the working practices that will be implemented to avoid any adverse effects on woodland/scrub, springs and watercourses as well as sections of hedgerow adjoining the working areas.
- 5.5.14 Avoidance of breeding season and protection of active bird nests during site establishment and cable corridor installation will be built into the programme where practical. Other avoidance / mitigation requirements for legally protected species will include stand offs/exclusion areas from badger setts, woodland edge habitat and trees with bat roost potential.
- 5.5.15 The detailed CEMP will be prepared in conjunction with the lead site contractor team who will have ultimate responsibility for its full implementation of the control measures to ensure that the predicted outcomes detailed in the ES are achieved.

Operational Phase

- 5.5.16 Future landscape management includes a continuation of the existing hedgerow management to allow the two hedgerows on the eastern and southern boundaries to be maintained at a height of 3-4m.
- 5.5.17 An environmentally sensitive lighting design will be detailed in the detailed lighting scheme for site operation to control artificial light spill maintaining light levels below 1 Lux. During standard operations lighting will consist of up to two infra-red lights on the substation with no other lighting present,
- 5.5.18 The wooded stream adjacent to the western boundary and hedgerow adjoining the eastern boundary will remain dark corridors along with the two other hedgerows bounding the field of the main BESS Site.

- 5.5.19 Site design will maintain the context of the boundary hedgerows as dark corridors and functional parts of the network of linear field boundaries with no fragmentation of flight lines or avoidance of the hedgerows adjoining the main BESS Site.

5.6 Potential Effects

Construction (and Decommissioning) Phases

Indirect Effects on Statutory Designated Sites

- 5.6.1 The working areas are located over two hundred metres from the boundaries of the internationally designated site and the two nationally designated sites located within 1km of the Proposed Development.
- 5.6.2 The three small spring-fed tributaries join the watercourse in the wooded valley, to the south of the cable corridor, which flows into the Pembroke River section of the Milford Haven Waterway creating a distant level of hydrological connectivity between the Site and this SSSI. The watercourse in the base of the woodland has a channel approximately 1m wide and relatively shallow water depth with a moderate flow.
- 5.6.3 The small tributary which originates from a spring adjacent to the access road lies 400m upstream of the watercourse running through the base of the wooded valley. A second spring fed stream is located within 5m of the working area for the cable corridor installation, 350m upstream of watercourse in the base of the woodland. A third spring and tributary lies above the HDD section of the cable corridor and will not be disturbed. This spring lies 150m upstream of the watercourse in the wooded valley.
- 5.6.4 These three tributaries join the watercourse in the base of the wooded valley 600m, 800m and 1000m upstream of the boundary of Milford Haven Waterway SSSI and Pembrokeshire Marine SAC.
- 5.6.5 Given the level of separation between the proposed main BESS Site area and the Milford Haven Waterway, embedded mitigation and watercourse protection in the CEMP and the very short duration of the works to install the cable corridor, there are no anticipated adverse impacts on this designated site as a result of the proposed construction activities.
- 5.6.6 There is negligible potential for populations of bird species listed as qualifying features of Pembrokeshire Marine SAC to be adversely affected by the construction of the main BESS Site or cable installation.
- 5.6.7 There are very few past records of greater horseshoe and lesser horseshoe bats within 2km qualifying features of the Pembrokeshire Bat Sites and Bosherton Lakes SAC and there are no potential for any adverse effects on the populations of either species.
- 5.6.8 All other international designated sites and their component SSSIs have very substantial geographic separation with no potential for any effects from activities associated with the construction of the Proposed Development.
- 5.6.9 There are no non-statutory nature conservation sites designated in Pembrokeshire.
- 5.6.10 The magnitude of the impact on features of high sensitivity is Negligible and the level of the effect is Negligible which is not significant.

Effects on Priority Habitats

Hedgerow Structure and Connectivity

- 5.6.11 No hedgerows will be lost during the construction of the Proposed Development. There will however, be a temporary loss of short 5m sections within seven managed field boundary hedgerows and a strip of field boundary bramble scrub.
- 5.6.12 One hedgerow tree (T3) (Figure 1 in Appendix 5.1), a multi-stemmed ash is located in a section cable corridor to be trenched. The excavation of the trench could damage the root system of this tree and undermine its future health and longevity.
- 5.6.13 The embedded mitigation includes the replanting of native woody species to infill gaps created by the cable corridor trenching. The planted shrubs will take time to establish and re-instate a continuous field boundary, but these localised effects will be temporary. Continuous woody growth should reform within five years and the infill planting will continue to mature to fully restore the existing hedgerow structure.
- 5.6.14 The hedgerow management regime will trim back the planted trees encouraging side growth and promoting the quicker re-establishment of a denser structured habitat. The impact on individual hedgerows will be minor and there will be a negligible effect on the connectivity of the hedgerow network.
- 5.6.15 The magnitude of the medium term adverse impact on the hedgerow network, a Low sensitivity feature, is Low. In the long term (10 to 15 years) the existing habitat structure and species diversity would be fully reinstated. The level of the effect is adverse in a geographic context of the Site equating to Negligible which is not significant in EIA terms.

Broadleaved woodland and scrub

- 5.6.16 All areas of broadleaved woodland are separated from the working areas with no potential for habitat loss or fragmentation.
- 5.6.17 A 25m section of cable corridor is located 5m from scrub dominated vegetation (at the northern end of one of the linear wooded 'fingers'.) Trenching and loose stored soils placed close to the woodland edge would have a higher risk of mobilising as sediment in surface water runoff from the working area with the potential for localised adverse change.
- 5.6.18 The habitats, features and soils in the two wooded 'fingers' located above the HDD section of the cable corridor will remain unaffected.
- 5.6.19 The wooded valley lies over 50m to the south of the cable corridor but four linear sections of scrub woodland connected to the wooded valley fall within the Proposed Development or lies adjacent to the boundary,
- 5.6.20 The wooded stream adjoining the BESS development will be located close the construction working area.
- 5.6.21 A new embankment will be constructed on the western side of the main BESS Site to create a level development platform with earthworks required in close proximity to the wooded stream.
- 5.6.22 Measures detailed in the CEMP will limit the extent of the working area to create a stand off from this habitat. Heras fencing will be installed to prevent contractor access.. Full details will be provided in the detailed CEMP.

- 5.6.23 Soils exposed during, and following, the creation of the development platform, will be at risk of being mobilised as sediment in surface water run off during and after periods of heavy or prolonged rainfall. Soils in the agricultural fields will have a much higher nutrient status than the brown earth soil in the woodland soil habitat and the movement of agricultural soils could result in localised adverse changes to woodland ground flora. Silt trap fencing will be installed along the boundary of the wooded stream on the boundary of the working area to prevent any sediment in surface water run off from exposed soils entering the tributary.
- 5.6.24 Dust could also be generated in areas stripped of vegetation in the BESS construction site with the potential for deposition on adjacent vegetation, including the boundary hedgerows and wooded stream. Best practice dust control management (as set out in the CEMP) will minimise the potential magnitude of any effect.
- 5.6.25 Embedded mitigation includes the full implementation of a construction drainage strategy, CEMP and dust management controls which would be integrated into the daily working practices.
- 5.6.26 Following the implementation of all embedded mitigation, the magnitude of the potential localised, temporary, adverse impacts on scrub and woodland is classified as up to Low. The level of the effect is classified as potentially adverse in the geographic context of the Site equating to Negligible, which is not significant in EIA terms.

Watercourses

- 5.6.27 As described previously, there are two small spring fed minor watercourses located in proximity to construction activities. The boundary of the BESS construction working area lies adjacent to the wooded tributary and the construction works for the access road (aligned to an existing unsurfaced farm access track) are in close proximity to the spring from which the watercourse originates. The footprint of the built area of the BESS lies 10-15m from the edge of the woodland. Heras fence will creating a contractor exclusion zone for the wooded stream with the alignment to be defined in the detailed CEMP.
- 5.6.28 A second spring feeding a wooded watercourse lies within approximately 5m of the working area for the cable corridor. Loose soils could be mobilised as sediment in run off from the working area during and after periods of heavy or prolonged rainfall especially where the undisturbed soils are fully saturated.
- 5.6.29 The potential for adverse effects during these very short duration works would be avoided through the full implementation of good practice environmental protection measures by site contractor teams. The robust control measures built into the CEMP and Drainage Strategy will be essential to avoid the spring being affected by site activities.
- 5.6.30 The third spring fed watercourse (Goldborough Pill) lies within scrub woodland under which the section of cable will be installed by HDD. The HDD launch pit and receiving pit will be sited at least 15m from the spring at the closest point.
- 5.6.31 With full implementation of the embedded environmental protection, the potential magnitude of a temporary impact on the watercourse habitat is Low. The level of any effect is classified as potentially adverse in the geographic context of the Site equating to Negligible, which is not significant in EIA terms.

Impacts on roosting bats

- 5.6.32 No potential bat roost features are present in the boundary trees or adjacent scrubby woodland to the south-west.

- 5.6.33 T3 (Figure 1 in Appendix 5.1), a multi-stemmed ash, lies within on the edge of the cable corridor working area. Trenching will avoid excavation in the root protection area (RPA) of this ash tree. The absence of any potential roost features in T3 was confirmed during the ground inspection.
- 5.6.34 Within the fingers of woodland crossed by the HDD section of the cable corridor there are two larger trees on or adjacent to the alignment of the cable (T1 and T2). Neither tree will be affected by the works due to the adoption of HDD beneath the woodland habitat and associated minor watercourses and springs. The HDD will be approximately 18-20m below the ground level in the location of both trees. At this depth, there are no anticipated adverse effects on the root systems or health of these trees.
- 5.6.35 During the construction phase there will be an increase in noise levels, primarily within the main BESS Site with the highest levels of noise associated with piling. The walkover survey confirmed the absence of trees with the potential to be used by roosting bats within 100m of the proposed main BESS Site and in this context there are no construction effects on roosting bats.
- 5.6.36 There are no potential effects on the lesser horseshoe maternity bat roost at Orierton stable block and cellars SSSI, located 3.2km south of the main BESS Site. Although the record centre hold few records of lesser horseshoe bat foraging activity within the 2km area around the Proposed Development, the landscape in which the roost is located forms the core sustenance zone for the breeding colony. Smaller roosts of male bats are expected to be distributed more widely across the local area and it is assumed that this species will be feeding along hedgerows and woodland edge habitat.
- 5.6.37 The embedded habitat protection of woodland and the hedgerow network, retains the key potential flightline features around the Proposed Development. The very small scale temporary loss of short sections of hedgerow should not create flight line fragmentation. There are considered to be no potential adverse effects on conservation status of lesser horseshoe bat population.
- 5.6.38 The potential magnitude of any temporary impact on bat roosts is up to Low. Under a precautionary assessment an effect could occur in the context of the Site if there are temporary minor modifications to the behaviour of individuals. This equates to a Negligible effect which is not significant in EIA terms.

Loss of bat foraging habitat and disturbance of bat activity.

- 5.6.39 A relatively wide range of bat species are active in the local area and any of these could be active at night in the locality for construction works.
- 5.6.40 Construction lighting will be required for the BESS with some light spill onto the boundary hedgerows anticipated during the working hours of 08:00 and 1800. There will be minimal overlap between the construction works hours and times when bats will be active and any change in the behaviour of individual bats.
- 5.6.41 Although the installation of the cable will result in the loss of short sections of hedgerow, these are small scale affects and would not be wide enough to affect their use as bat flight lines. Replanting of all the gaps created in hedgerows with native shrub species within 6 months of their loss will re-instate the continuous boundary. Following the planting of infill native shrubs in all the gaps sufficient connectivity will be re-established for their use as potential flightlines to be unaffected for all species of bats.

- 5.6.42 The magnitude of an impact on bat populations is considered to be up to Low, with a Site level effect of species following the creation of gaps in hedgerows. This effect is classified as Negligible which is not significant in EIA terms.

Disturbance of otters

- 5.6.43 The assessment has been undertaken under the precautionary understanding that individual otters will be moving through the landscape in which the Proposed Development will be located.
- 5.6.44 The primary otter habitat in the vicinity of the Proposed Development is the wooded valley and watercourses to the south of the cable corridor. The edge of the wide block of woodland in the base of the wooded valley lies between 50 and 60m from the edge of the working area but the connected narrow fingers of woodland, with springs and tributaries, located up to 5m from the working area in two locations.
- 5.6.45 During cable installation vehicle movements, surface trenching, and backfilling at this distance from the woodland would not have any adverse effect on night time otter activity. Any otters laying up in the wooded valley during the daytime will be over 50m from the areas of short duration cable installation works.
- 5.6.46 The CEMP includes measures to create a physical barrier between the contractor working area and the woodland to prevent access. There are no human paths through the woodland and the nature of the bramble / bracken field layer makes any access difficult. Any resting places in dense vegetation would remain undisturbed.
- 5.6.47 The section of cable crossing two 'fingers' of woodland each approximately 50m wide, and one with a surface watercourse fed by springs will be installed by HDD. An offset of 5m will be maintained between the cable corridor working area and a third 'wooded' finger. The short duration HDD works below the 'fingers' of woodland will avoid the potential for any adverse effects on otters in these locations.
- 5.6.48 The wooded valley lies over 300m from the BESS and noise generated during construction activities (including piling) would not affect the use of any resting places at this distance. Otters are known to be able to tolerate considerable levels of human disturbance having been recorded in cities and towns throughout the UK (Green and Green, 1997: cited in Chanin, 2003).
- 5.6.49 There is potential for individual otters to move along the wooded 'fingers' between the wooded valley and watercourse and wetland habitats and the Milford Haven Waterway to the north. Any movement of otter across open ground would be at night outside of the construction working hours and construction activities should not alter the way otters use of the landscape.
- 5.6.50 There is a low likelihood of otter crossing through the BESS construction site bounded by Heras fencing. The Proposed Development will not result in the loss of otter resting sites or foraging habitat, and there will be no fragmentation of any potential wildlife corridors.
- 5.6.51 In relation to the otter population as a qualifying feature of Pembrokeshire Marine SAC, in the event of localised effects on the behaviour of individual otters during construction, there would be no adverse effect on the otter population associated with the waterway or its Favourable Conservation Status through the protection of the value and context of key habitats and avoidance of any fragmentation of features with the potential to be corridors long which otters could move through the landscape.
- 5.6.52 The magnitude of the impact on otters is classified as up to Low with a low potential temporary effect in the geographic context of the Local area should otters frequently use the wooded

stream adjoining the construction area and the behaviour of individuals is modified during the construction phase of the development. This potential effect is classified as Minor adverse.

- 5.6.53 The more likely outcome is that otters occasionally or infrequent use the wooded stream and that daytime construction works would not result in changes in the night time activity of otters. This effect would be Negligible which is not significant in EIA terms.

Disturbance to badger setts

- 5.6.54 There is one known badger sett (with a precautionary classification as a main sett) on the alignment of the HDD section of the cable corridor.
- 5.6.55 The HDD design will create a narrow cavity into which the cable will be installed between 18 and 20m below ground level. The below ground chambers of the badger sett will be significantly higher than the cable. Following a precautionary approach it is assumed in this Chapter that the vibration from the HDD will be significant with the potential for disturbance of badgers using a sett and damage to chambers in a badger main sett as a result of below ground vibration during HDD.
- 5.6.56 The timing of the social groups re-use of the sett is unknown and could be delayed. Badgers typically have extensive territories with a single main sett and several lower status setts. It is expected that other setts within the territory would be used by the social group but additional chambers may be dug out to provide a replacement for the current main sett. Effects would be highest in late winter and spring when pregnant females and young dependent badgers would be present in the sett.
- 5.6.57 Installation of the cable corridor will result in open sections of trench up to 120m in length which may need to be left open at night. Measures included in the CEMP include actions that will prevent the potential entrapment of badgers and other wildlife in trenches.
- 5.6.58 The loss of improved grassland within the main BESS Site will result in a negligible reduction in the total extent of potential foraging habitat available to the badger social group.
- 5.6.59 The grassland within the Proposed Development boundary does not have high value for the badger social group as indicated by the limited signs of activity within and adjacent to the Site. The small extent of habitat loss will not significantly affect the badger population.
- 5.6.60 Badgers would be expected to continue foraging outside the fenced BESS construction working area and in fields crossed by the cable corridor. The Proposed Development will not fragment the landscape or block access for badgers to any parts of the territory used by the resident social group.
- 5.6.61 The magnitude of these various potential impacts on badgers could be Medium to High depending on the timing of the works with the potential dispersal of the social group from a breeding sett and damage to chambers as a result of HDD. As a common and widespread species the level of effect is classified as Minor adverse which is not significant in EIA terms.
- 5.6.62 Low vibration options for HDD will be adopted where practical and where potential adverse effects on the badger sett can be incorporated into the scheme design the impact magnitude would be at worst Low with the level of effect being Negligible adverse.

Effects on Dormouse

- 5.6.63 Although the local biological record centre hold no records of dormouse within 2km of the development there are records further from the site confirming the presence of populations in the wider area. The main wooded valley and linear fingers of scrub woodland are the features

with high suitability for dormouse in the context of the Proposed Development and adjacent features.

- 5.6.64 The precautionary assessment has been made on the presence of a resident dormouse population centred on the scrub woodland with the connected network of hedgerows forming part of the active territory.
- 5.6.65 The temporary 5m gaps to be created in low regularly flailed field boundary hedgerows would not be expected to significantly affect the use of the habitat by dormouse which are known to travel across open areas of this size. The replanting of gaps created in hedgerows with native shrub species within six months of their loss will re-instate the habitat connectivity.
- 5.6.66 The hedgerows on the boundaries of the field in which the main BESS Site is to be located will all be retained. Construction activities in close proximity to the wooded stream and hedgerows, would have potential to result in temporary disturbance to dormouse from noise and lighting. The period of the day during which construction lighting will be used (08:00 and 18:00) will limit the potential for effects on the movement of dormouse along hedgerows adjacent to construction activities.
- 5.6.67 The use of HDD to install cabling below the linear fingers of woodland would avoid impacts on dormouse if present within these narrow areas of wooded habitat.
- 5.6.1 Based on the presence of a resident dormouse population, the temporary loss of short sections of hedgerow and the implementation of construction activities close to habitats protected from disturbance is considered to have an the impact magnitude would be at worst Medium. This could have an effect in the geographic context of the Local area and would be a Minor adverse effect, which is not significant in EIA terms.

Effects on Breeding Birds

- 5.6.2 General construction activities for the BESS will result in the loss of habitat very unlikely to be used by nesting birds at any time of year.
- 5.6.3 In contrast there is potential for active bird nests to fall within or adjacent to the working corridor for the cable corridor, both in hedgerows and in fields. Potential effects could include the loss/damage of active nest sites or disturbance/displacement of birds nesting adjacent to the cable corridor working area.
- 5.6.4 The Site falls within a barn owl territory but the habitats permanently and temporarily affected by the Proposed Development have low value as foraging habitat for this species. Potential reduction in foraging around the boundaries of the Site and alongside the western boundary linear woodland.
- 5.6.5 The localised areas of habitat affected mean that the magnitude of effect would be at worst small affecting a very small number of nesting pairs. The cabling works will have a very short duration works undertaken in spring/early summer could result in an effect that would last for the duration of the breeding season.
- 5.6.6 Given the agricultural management of the fields crossed by the cable corridor the potential for indirect disturbance beyond 30m from the working area is unlikely with species nesting in the vicinity of the works expected to become habituated to vehicles and agricultural activities.
- 5.6.7 During periods of higher noise activities, primarily piling at the BESS, the zone of influence will extend to the hedgerows and linear woodland bounding and adjacent to the Proposed

Development. Piling has the potential to result in nesting birds avoiding habitats closest to these activities and the movement to alternative habitat further from the construction site.

- 5.6.8 Some of the birds breeding in the surrounding area could occasionally forage on grassland within the main BESS site. There will be a very small percentage loss of bird foraging habitat with permanent loss associated with the BESS and temporary loss along the line of the cable corridor trench.
- 5.6.9 Overall, the magnitude of the impact during the construction phase on nesting birds is expected to be Low and the level of the effect is classified as up to Minor adverse which is not significant in EIA terms.

Effects on Wintering/Migratory Birds

- 5.6.10 An assemblage of wintering farmland birds (passerines) will be foraging and resting in areas of grassland, arable and scrub habitats.
- 5.6.11 The direct loss of habitat (improved grassland) effects a small area of low value habitat. The loss of this area will have a negligible effect of wintering passerines which will forage widely across the local area to find food.
- 5.6.12 Consequently potential impact pathways on these species relate to indirect effects on habitats located adjacent to the construction area.
- 5.6.13 Some construction activities will result in elevated noise in the vicinity of the working area. In particular noise levels will be highest during periods of piling, with the potential temporary displacement of birds from hedgerow and woodland habitats adjoining the BESS construction site.
- 5.6.14 Wintering flocks of passerines will have extensive winter foraging areas and there are no features of high value in the vicinity of the main BESS Site. All the food sources adjoining the BESS construction area would remain available for bird populations and will form a small proportion of habitat used over the winter months. The potential for indirect effects on bird activity during general construction activities will be minor.
- 5.6.15 Along the cable corridor, the very short-term works will result in a narrow strip of land being exposed. The habitats affected are periodically associated with disturbance from agricultural operations. Immediately on completion of the cable installation the invertebrates in the exposed soil will also provide foraging opportunities for farmland birds.
- 5.6.16 Areas of the fields outside the cable installation working area will be subject to a level of indirect disturbance. Wintering flocks of passerines remain in the locality. Given the very short sections of active works there will be no decline in the level of wintering bird activity as a result of the cable installation.
- 5.6.17 In comparison waders and waterfowl have higher sensitivity to disturbance. A small number of waders and waterfowl species associated with the intertidal habitats of the Pembroke River and Milford Haven Waterway will feed on agricultural fields in the wider area and would be considered to have higher sensitivity to disturbance, particularly people of foot with lower sensitivity to vehicle movements, and consistent levels of construction noise. Fields close to intertidal habitats could also be used as high tide roosts when the mudflats and saltmarsh are covered.
- 5.6.18 However the working periods in each field will be very short term with the phasing of the trenching and cable installation.

- 5.6.19 There will be a temporary very small reduction in the extent of available foraging habitat for wintering birds for the duration of the cable corridor directly a narrow strip 120m in length and indirectly affecting the immediately adjoining habitat. Birds in the locality will be habituated to agricultural activities given the nature of the pasture and grass leys through which the cable will be installed
- 5.6.20 The impact magnitude on gulls and wintering farmland passerine bird species is up to Low and the level of the effect is up to Minor adverse which is not significant in EIA terms.
- 5.6.21 The magnitude of the temporary effects of cable corridor installation on the populations of waders and waterfowl is considered to be at worst Low. The potential impact on the species assemblage included in the reason for designation for the Milford Haven Waterway SSSI is considered to be Negligible.
- 5.6.22 The level of the effect is classified as Negligible (only potentially affecting behaviour within the site and immediate surrounds) with no effect on populations. This is not significant in EIA terms.

Effects on Reptiles

- 5.6.23 The permanent loss of part of the agriculturally improved grassland will not result in any change in the extent of reptile habitat with retention of field boundaries and margins, retaining the limited extent of cover and potential food resources.
- 5.6.24 The disturbance of seven 5m sections of hedgerow and trenching within short grazed pasture have a very low likelihood of resulting in the displacement of reptiles from the working area.
- 5.6.25 Potential indirect effects on any reptiles present adjacent to working areas are possible from noise generating construction activities, human activity and from ground vibration, primarily in the HDD section of cable corridor. Any displacement during the active season would be localised and short-term.
- 5.6.26 The magnitude of the impact is up to Low and the level of the effect is Negligible significance, (i.e. an effect occurring in the context of the site and immediate surrounds with no effect on the local population of the species). This is not significant in EIA terms.

Operational Phase

Statutory Designated Sites

- 5.6.27 The operational BESS would lie 1.2km from Milford Haven Waterway SSSI. The section of the minor watercourse adjacent to the BESS with hydrological linkage to Pembrokeshire Marine SAC which lies 1.5km upstream of the boundary of the designated site.
- 5.6.28 The operational BESS will not have an effect on the otter population, any bird species listed as qualifying species of Pembrokeshire Marine SAC or on the populations of either horseshoe bats species, qualifying species of the Pembrokeshire Bat Sites SAC.
- 5.6.29 It is concluded that the Proposed Development will have no effect on any of the qualifying features of the SACs and the component SSSIs.

Operational Effects on Priority Habitats

Hedgerows

- 5.6.30 The hedgerows on the boundary of the Proposed Development are due to continue to be subject to existing management regime to maintain dense continuous field boundaries.

- 5.6.31 The immediate context of the two hedgerows will change as a result of the BESS but the habitat diversity, structure, condition and connectivity will remain unaffected. The magnitude of the impact is Negligible and level of effect is Negligible which is not significant in EIA terms.

Scrub/Broadleaved Woodland and Watercourses

- 5.6.32 The approximately 10m wide area between the woodland/watercourse and the boundary of the Proposed Development creates sufficient separation to avoid from activities within the operational BESS.
- 5.6.33 The new access road will run adjacent to the spring feeding a minor watercourse. In the absence of protection measures, there would be potential for vehicles to deposit potential pollutants on the road surface with a pathway through which this could enter the watercourse.
- 5.6.34 Managing surface water on the road to prevent run off into the woodland would protect the stream and downstream habitats over the lifetime of the Proposed Development.
- 5.6.35 The magnitude of the impact would have the potential to be Low and will be reliant on the effective management of surface water runoff from the access road over the lifetime of the Proposed Development. The level of effect could be Minor adverse which is not significant in EIA terms.

Operational Effects on Bats

- 5.6.36 All security lighting will be oriented into the site to avoid unnecessary light spill outside the operational site. No floodlights will be used and all lighting will be controlled by passive infra-red (PIR) sensors so that only the necessary lighting needed for specific tasks is used.
- 5.6.37 The maximum use of the emergency lighting would be in use for a very small number of nights on an annual basis and in practice may not be required once. There is potential for a low level of light spill onto adjoining grassland during these times.
- 5.6.38 Protection of off-site grassland and woodland from light spill will maintain the value of flight lines, commuting routes and foraging habitats.
- 5.6.39 Through the retention and protection of flightlines and maintenance of dark corridors adjacent to the Site the operational phase of the Proposed Development will not affect the conservation status of any populations of bat species.
- 5.6.40 The operational site would be located 3.2km north of the lesser horseshoe maternity bat roost at Orielson stable block and cellars designated as a SSSI, and as a part of the Pembroke Bat Sites SAC. The operational site would lie at the edge of the core sustenance zone for the breeding colony. All features of potential value for lesser horseshoes and other bat species will be retained.
- 5.6.41 The wooded valley is significantly offset from the built footprint, but one of the linear fingers of scrub woodland will adjoin the Proposed Development. Light spill from the Proposed Development would have the potential to lead to avoidance by lesser horseshoe bats and create fragmentation in the hedgerow network.
- 5.6.42 The lighting design includes commitments to avoid any light spill onto this feature so that it remains a dark corridor.
- 5.6.43 The Proposed Development will permanently change the field it is located and alter the context of the adjoining hedgerows and wooded stream. The Landscape Masterplan (Appendix 6.2) includes the creation of wildflower grassland alongside native shrub and tree planting. These

habitats have higher potential value as foraging habitat than the improved grassland currently present. In this context, it is predicted that there will be only minor changes in the behaviour of bats

- 5.6.44 The Proposed Development will have a Negligible magnitude permanent impact on bat foraging activity during the operational life and the level of effect will be Negligible adverse (occurring at the geographic scale of the site and immediate surrounds) which is not significant in EIA terms.
- 5.6.45 In the mid to long term, following maturation of shrubs and growth of trees and increased abundance of wildflowers the effect will be Negligible beneficial.

Operational Effects on Otter

- 5.6.46 The Proposed Development is a significant distance from the wooded valley and main watercourse over 300m and lies over 70m from the northern end of a 40m wide 'finger' of woodland connected to the wooded valley. These distances providing a substantial buffer between all areas in which otters could lay up during the operational life of the Proposed Development.
- 5.6.47 The operational BESS is associated with low levels of noise which will be audible in the narrow linear woodland to the west of the BESS. The wooded habitat will remain unlit (Lux levels below 1 Lux) and its use as a corridor by otters to move through the landscape should not be affected by the low level operational noise.
- 5.6.48 Grassland surrounding the BESS lacks cover for otter, but there is a possibility of individuals passing through the area on occasion while travelling between higher value habitats. The overall connectivity of the habitat will be maintained and changes to individuals use of the Site would be expected to be minor.
- 5.6.49 Overall operational activities would have a Negligible magnitude effect on individual otters and no effect on the local population. The level of effect is classified as Negligible which is not significant in EIA terms.

Operational Effects on Badger

- 5.6.50 During operation, there will be no additional impacts on the badger social group. The small scale loss of part of a grass ley/improved pasture will result in a minimal reduction in the extent of foraging habitat. The boundary fence of the main BESS is set back from the hedgerows, maintaining the accessibility of all the habitats for badgers in the immediate vicinity of the Proposed Development. The low levels of noise associated with the operational BESS is not expected to have any effect on badger activity.
- 5.6.51 The magnitude and level of the impact is Negligible which is not significant in EIA terms.

Operational Effects on Dormouse

- 5.6.52 The avoidance of light spill onto hedgerows within and adjoining the Site will maintain the dark context of the habitat.
- 5.6.53 There will be an increase in noise levels at the eastern hedgerow. If dormouse are present within the adjoining habitat, there is potential for the use of the eastern hedgerow by dormouse to be reduced.
- 5.6.54 Based on the low value of the existing habitat and the low numbers of dormouse which would use the area adjoining the BESS, the conservation status of the dormouse population would be unaffected. Human activity in the operational site will be very low. The potential for the wooded

stream and hedgerow adjoining the BESS to provide nesting sites for dormouse will remain unchanged.

- 5.6.55 The Proposed Development will have up to a Low magnitude adverse impact on dormouse during the operational life and the level of worst case effect will be Negligible, due to the protection of existing habitat, retaining connectivity and minimising the effects on their context, particularly through lighting design. This is not significant in EIA terms.

Operational Effects on Breeding birds

- 5.6.56 The Proposed Development will adjoin two hedgerows and result in a permanent change in their context with adjacent artificial lighting and the low level operational noise.
- 5.6.57 The extent of hedgerow habitat affected has the potential to support only a small number of nesting pairs. It is possible that during operation alternative nest sites could be preferentially selected reducing activity in these two field boundaries. Lighting design minimising/avoiding light spill onto hedgerows and the low level of human activity associated with operation will mean that the level of behavioural change should be small.
- 5.6.58 Bird activity in woodland habitats including the 15m wide wooded stream to the south-east watercourse, set back from the footprint of the BESS by approximately 10m is predicted to remain unaltered as a result of the Proposed Development.
- 5.6.59 Overall, operational activities would be expected to have a magnitude of up to Low with the level of effect of the breeding bird assemblage classified as Negligible significance (a potential adverse effect in the context of the site only) which is not significant in EIA terms.

Operational Effects on Wintering/Migratory birds

- 5.6.60 The operational noise and limited human activity associated with the maintenance of the BESS should not affect the activity of flocks of farmland passerines using the local landscape to forage during winter months when available food resources are most restricted.
- 5.6.61 The operational BESS will have no effects on wintering bird populations using intertidal habitats over 1200m from the site at the closest point.
- 5.6.62 The effect is classified as no change.

Operational Effects on Reptiles

- 5.6.63 The bases of the hedgerows adjoining the BESS have very low value as potential reptile habitat. The change in the context of the habitat will not affect habitats in which reptile species will be resident.
- 5.6.64 The linear scrub woodland to the south-west has higher potential value and this would remain unaffected due to the 10-15m stand between the woodland edge and development boundary.
- 5.6.65 The magnitude of the impact on reptiles is Negligible and the level of effect is Negligible which is not significant in EIA terms.

5.7 Additional Mitigation

Pre-construction Works

Inaccessible Land

- 5.7.1 The section of the cable corridor that was inaccessible, due to landowner permission not being granted, will be subject to a pre-construction walkover survey to confirm the value of the grassland and confirm the presence/absence of badger setts and other features with the potential to support legally protected or priority species. Any additional requirements for species protection or grassland restoration will be incorporated into form part of the CEMP.

Badgers

- 5.7.2 The status of setts below the alignment cable corridor will be further assessed in advance of the preparation of the application for a badger disturbance licence. The dense scrub vegetation will be accessed through the cutting back of selected branches and bramble to create narrow walking routes through the habitat with the objective of confirming the presence / absence of additional sett entrances within the zone potentially affected by vibration and noise. This would be ideally undertaken in late winter when badgers are active but before the start of the bird nesting season. The results of the survey will be presented in the baseline section of the licence application and inform the detailed mitigation measures.

Dormouse

- 5.7.3 Where there is potential for the works to affect the species, a dormouse licence will be sought for the development. The assessment of impacts and effects has been made on the basis of a population occurring in the woodland and network of hedgerows.

Construction Phase

- 5.7.4 All construction activities with the potential to affect legally protected species would be subject to precautionary measures to be consistent with environmental good practice and to comply with wildlife legislation. At the outset of ecologically sensitive works, an Ecological Clerk of Works (ECoW) will deliver a toolbox talk to the site construction team, briefing them on all ecology and nature conservation requirements on site.

Badgers

- 5.7.5 The HDD works will need to be completed between July and November, outside the badger breeding season and at a time of year when there are no dependent young.
- 5.7.6 Any works with the potential to damage a sett or adversely affect badgers within a sett would be carried out under a badger disturbance licence within this period.
- 5.7.7 The duration of drilling below the sett will be no more than a few days and at a depth of 18m the drilling should be significantly deeper than all the sett chambers. If acceptable (where HDD design can reduce the potential effect) it is proposed that the entrances would be left open and undisturbed maintaining the ability for badgers to disperse from the main sett into alternative active setts as a response to noise and vibration when the HDD is closest proximity. Monitoring of badger sett and badger activity would be ongoing throughout the HDD works through the use of trail cameras and site inspections.

- 5.7.8 The alternative would be to attempt temporarily close each sett entrance using badger gates to exclude all the individuals from the main sett under the badger disturbance licence. Where the closure of sett entrances is unavoidable, they would all be reopened on completion of HDD activities within 30m of the sett.
- 5.7.9 All the structure of all sett entrances will need to be protected to maintain the functionality of the sett and restricting options for the installation of temporary badger gates. If exclusion is attempted there would be a high probability of badgers excavating new entrances to gain access the main sett chambers. Given the very short duration of the HDD works, low vibration techniques and the monitoring of the sett entrances will be preferentially adopted to avoid the stress that would be created by temporary exclusion.
- 5.7.10 Additional protection measures for badger during construction will be the covering of open excavations overnight and provision of escape routes through ramps or planks to prevent badgers becoming entrapped.
- 5.7.11 During construction, the working area will be kept clear of food debris and rubbish to prevent attracting badgers into the construction site.

Dormouse

- 5.7.12 Where there is potential for works to affect individual dormouse or habitats supporting dormice, these works would be carried out under a Welsh Government dormouse mitigation licence.
- 5.7.13 Activities that would be specifically covered would include the cutting down of the 5m sections of hedgerow and excavation of the cable trench below the hedgerow.
- 5.7.14 Hedgerow clearance works would be overseen by an ecologist under the dormouse mitigation licence and would be timed to avoid impacts on dependent young and the hibernation period.
- 5.7.15 The re-planting of sections of hedgerow along the cable corridor with selected native woody species (during the first planting season following completion of the installation) will minimise the duration of localised effects of loss and increase the diversity of species within the hedgerows that will provide food for dormice.
- 5.7.16 Native shrub planting within the landscaping around the BESS includes mixed species shrub planting which will develop into a scrub habitat with linkage to adjoining wooded stream.

Breeding Birds

- 5.7.17 Wherever practical, the removal of the short 5m wide sections of hedgerow for the installation of the cable will be completed outside of the bird breeding season.
- 5.7.18 Vegetation clearance during the breeding season (typically running from late February to the end of August) will be subject to inspections by a suitably experienced ecologist to confirm the presence/absence of active nests. This will include all hedgerows, grassland and arable. In the event that an active nest is present (including ground nesting species), the nest will be protected with a suitable stand-off until the young have fledged or the nest is no longer in use.

Reptiles

- 5.7.19 The stripping of grassland ahead of earthworks, during times of the year when reptiles will be active, will be carried out following a precautionary working method statement. Grassland will be stripped systematically, working towards the boundary of the working areas. The noise and disturbance from the enabling works should encourage movement into cover outside of the construction working area.

- 5.7.20 The stripping of any areas of longer vegetation, the cutting down of hedgerow shrubs and the clearance of hedge base vegetation will be directly supervised by a suitably experienced Ecological Clerk of Works (ECoW).
- 5.7.21 Prior to the stripping of the ground, any herbaceous vegetation or bramble over 300mm in height will be initially cut to 100mm above ground level. All arisings and potential refuges within the working area should be lifted and removed. The areas will be searched for features with the potential to be used as refuges.
- 5.7.22 The measures adopted for reptiles would also help to protect other common amphibian species and small mammals.

Operational Phase

Management of BESS Habitats

- 5.7.23 The following habitats will be subject to management to meet biodiversity objectives as part of the BESS development:
- Neutral grassland;
 - Boundary hedgerows; and,
 - Scattered shrubs and trees.
- 5.7.24 A low intensity management approach will be adopted for these habitats.
- 5.7.25 The management regime will be adapted to promote flowering and encourage the spread of positive indicator neutral grassland species.
- 5.7.26 Grassland management will avoid cutting or grazing between the start of May and mid-July to maximise flowering and the provision of nectar and pollen. Given the high nutrient status of the agriculturally improved soils, grass growth is expected to be vigorous during at least the first years. Cutting management would involve two with all arisings removed between August and October and potentially a third cut in early April, depending on the level of grass growth over winter.
- 5.7.27 Negative indicator species including perennial ruderals will be subject to control to prevent them becoming dominant.
- 5.7.28 Hedgerows will be cut every 2-5 years to maintain a dense structure. The replacement planting for the removed sections along the cable corridors will be inspected to assess its establishment. New whips will be planted if required to fill gaps.
- 5.7.29 The wooded stream would be subject to low intervention management to promote biodiversity management informed by monitoring.
- 5.7.30 Details of the ecological monitoring programme for the operational life will be detailed in the Landscape and Ecology Management Plan.
- 5.7.31 The Landscape and Ecology Management Plan will define measurable targets for each feature assigned biodiversity value. The monitoring will document the outcomes against these targets. This will define the extent to which the management actions are working and, facilitate changes to ensure appropriate and successful management for biodiversity.

5.8 Residual effects

Construction Phase

- 5.8.1 The effects on most receptors during the construction period is classified as Negligible equating to effects that will only have significance to the individual receptor in the geographic context of the Site and immediate surrounds with no effects of significance in a local context. This includes designated sites, habitats and all species with the exception of otter and badger.

Statutory Designated Sites

- 5.8.2 The sensitivity of the SAC designated sites is High. The magnitude of change is considered to be Negligible. Therefore, any adverse residual effects will be Negligible.
- 5.8.3 This effect is considered to be Not Significant.

Priority Habitats

Hedgerows

- 5.8.4 The sensitivity of the hedgerows network is Low. The magnitude of change is considered to be Negligible. Therefore, any adverse residual effect will be Negligible. This effect is considered to be Not Significant.

Scrub, Woodland and Watercourses

- 5.8.5 The sensitivity of the woodland and watercourses is Low. The magnitude of change following the implementation of additional mitigation is considered to be Negligible. Therefore, any adverse residual effect will be Negligible. This effect is considered to be Not Significant.

Bats

- 5.8.6 The sensitivity of the bat populations utilising the site as foraging habitat is classified as Low. The magnitude of change is considered to be Negligible. Therefore, any adverse residual effect will be Negligible. This effect is considered to be Not Significant.

Otter

- 5.8.7 The sensitivity of the site as a habitat for otters is classified as Low. The magnitude of change is considered to be Negligible. Therefore, any adverse residual effect will be Negligible. This effect is considered to be Not Significant.

Badger

- 5.8.8 The sensitivity of the badger social group utilising the site is classified as Low. The magnitude of change is considered to be Medium. Therefore, any adverse residual effect will be Minor. This effect is considered to be Not Significant.

Dormouse

- 5.8.9 The sensitivity of the site as a habitat for dormouse is classified as Low. The magnitude of change is considered to be Low. Therefore, any adverse residual effect will be Negligible. This effect is considered to be Not Significant.

Breeding Birds

- 5.8.10 The sensitivity of the potential breeding bird assemblage using habitats within the site is classified as up to Low. The magnitude of change is considered to be Negligible. Therefore, any adverse residual effect will be Negligible. This effect is considered to be Not Significant.

Wintering Birds

- 5.8.11 The sensitivity of the potential wintering bird assemblage using habitats within the site is classified as up to Low. The magnitude of change is considered to be Negligible. Therefore, any adverse residual effect will be Negligible. This effect is considered to be Not Significant.

Reptiles

- 5.8.12 The sensitivity of the potential reptile populations using the primarily sub-optimal habitats located within the site is classified as Negligible. The magnitude of change is considered to be Negligible. Therefore, any adverse residual effect will be Negligible. This effect is considered to be Not Significant.

Operational Phase

Statutory Designated Sites

- 5.8.13 The sensitivity of the SAC designated sites is High. There are no predicted effects if the operational development on designated sites. The effect is classified as no change and is Not Significant.

Priority Habitats

Hedgerows

- 5.8.14 The sensitivity of the hedgerows network is Low. The magnitude of change is considered to be Negligible. Therefore, any adverse residual effect will be Negligible. This effect is considered to be Not Significant.

Scrub, Woodland and Watercourses

- 5.8.15 The sensitivity of the woodland and watercourses is Low. The magnitude of change is considered to be Negligible. Therefore, any adverse residual effect will be Negligible. This effect is considered to be Not Significant.

Bats

- 5.8.16 The sensitivity of the bat populations utilising the site as foraging habitat is classified as Low. The magnitude of change is considered to be Negligible. Therefore, any adverse residual effect will be Negligible. This effect is considered to be Not Significant.

Otter

- 5.8.17 The sensitivity of the site as a habitat for otters is classified as Low. The magnitude of change is considered to be Negligible. Therefore, any adverse residual effect will be Negligible. This effect is considered to be Not Significant.

Badger

- 5.8.18 The sensitivity of the badger social group utilising the site is classified as Low. The magnitude of change is Negligible. Therefore, any adverse residual effect will be Negligible. This effect is considered to be Not Significant.

Dormouse

- 5.8.19 The sensitivity of the site as a habitat for dormouse is classified as Low. The magnitude of change is considered to be Negligible. Therefore, any adverse residual effect will be Negligible. This effect is considered to be Not Significant.

Breeding Birds

- 5.8.20 The sensitivity of the potential breeding bird assemblage using habitats within the site is classified as up to Low. The magnitude of change is considered to be Negligible. Therefore, any adverse residual effect will be Negligible. This effect is considered to be Not Significant.

Wintering Birds

- 5.8.21 The sensitivity of the potential wintering bird assemblage using habitats within the site is classified as up to Low. There are no predicted effects of the operational development on wintering birds. The effect is classified as no change and is Not Significant.

Reptiles

- 5.8.22 The sensitivity of the potential reptile populations is classified as Negligible. The magnitude of change is considered to be Negligible. Therefore, any adverse residual effect will be Negligible. This effect is considered to be Not Significant.

5.9 Cumulative and In-combination effects

- 5.9.1 All the approved and potential developments considered in the cumulative impacts assessment are detailed in Table 4.1 and are listed below.
- 5.9.2 The potential for cumulative or in-combination impacts to occur on receptors as a result of the construction or operation of the development have been considered in the context of the nature of the Proposed Development.
- 5.9.3 The total extent of the permanent development footprint of the Goldborough Road BESS (the main BESS Site) is small (1.7 ha). The BESS and associated infrastructure Proposed Development will be constructed over a short timescale (12 months) scheduled to start in 2025.
- 5.9.4 The installation of the cable is due to be completed over a period of approximately 3 months with the extent of open excavation less than 120m long and 5m wide at any one time. Short gaps created in hedgerows on the alignment of the cable will be replanted with native shrub species within 6 months of the installation during the first planting season. HDD will be completed over approximately a 2 month period in late summer and autumn.
- 5.9.5 Operation – low noise, minimised lighting maintaining dark corridors, low levels of human activity, establishment of biodiversity features including the Landscape Masterplan (Appendix 6.2).

Brownfield Developments

- 5.9.6 Two of the developments are located within Pembroke Power Station

- Pembroke Power Station, (Planning application reference: 23/0349/PN) a proposed Synchronous Condenser on previously developed land
- Green hydrogen project at Pembroke Power Station, (Planning application reference: 23/0795/SO)M a development forming part of Pembroke Net Zero Centre on previously developed land.

5.9.7 Both developments will be sited on brownfield land and will affect different habitats from those present within and adjoining the Proposed Development. Although there may be some overlap between species utilising the Proposed Development and features in these development sites, this would be expected to be limited to commonly occurring birds and bat species that are widespread in the local area (including pipistrelles).

5.9.8 Developments in Pembroke Power Station are located over 100m from the boundary of the BESS development footprint. The design of the Proposed Development avoids and minimises potential effects on habitats and species. Given the different conditions and context there will be no potential for cumulative impacts on habitats and should the construction periods of these developments overlap, there would be no significant cumulative impacts on any protected or priority species.

5.9.9 With very low level potential effects from the operation of the Goldborough Road BESS no cumulative adverse effects would occur as a result from the combined effects of the different developments.

Greenfield Developments

Six developments primarily located in greenfield locations are considered in the cumulative impact assessment.

5.9.10 Two developments relate to floating offshore wind developments in the Celtic Sea are considered in relation to the on-shore cabling and associated infrastructure.

- Land to south of power station & cable corridor across Angle Peninsula, Erebus (Planning application reference: 22/1148/NS)
- Land to south of power station and cable corridor across Angle Peninsula, Llŷr (Planning application reference: CO/0035/22)

5.9.11 The indicative boundaries of the Llŷr and Erebus floating offshore wind developments are located 0m and 85m from the Proposed Development (including the Proposed Development cable corridor) respectively.

5.9.12 Both these developments will involve permanent infrastructure with very small development footprints (landfall and sub-stations). The larger scale effects would be expected to relate to the underground cable corridors between the landfall, substations and grid connection point, requiring open trenching, construction haul roads and sections of HDD. Scoping information for the developments recognised that the installation of the onshore infrastructure will result in disruption to existing habitats and wildlife along the route. Baseline information on habitats and species will be carried out to categorise the potential effects and inform embedded and additional mitigation/compensation measures. The potential for cumulative impacts would primarily relate to the cabling works.

5.9.13 The other four approved/potential developments on primarily located on pasture and arable in the surrounding area. These are:

- Lambeeth Farm access road (Planning application reference: 20/0044/PA), involving the installation of underground electricity cables and underground fibre optic cables; temporary construction compound and construction of haul roads
- Land to the south of Pembroke Power Station, Lambeeth Farm, (Planning application reference: 20/0041/PA) covering the development of a converter station and upgraded permanent access road, plus associated landscaping and drainage.
- Land south of Pembroke Power Station (Planning application reference: 23/0497/SC) a large-scale BESS with a grid import and export capacity of 350MW located 700m to the north at the closest point
- Land at Lambeeth, Pembrokeshire (Planning application reference: 23/0330/SO), a 1.39ha BESS on a greenfield site 1km from the Proposed Development.

Designations

- 5.9.14 The Proposed Development will not adversely affect any of the nearby designations, the qualifying features and areas of functionally linked land. There would be negligible potential for aspects of the Proposed Development to contribute to a cumulative impacts on these sites or species.

Habitats

- 5.9.15 These four developments are located in relatively close proximity to the Proposed Development are located on proximity to the Goldborough BESS cable corridor which runs through the Lambeeth Farm landholding.
- 5.9.16 The development boundaries will comprise similar habitats to those found within the Proposed Development, with the majority of the area comprising arable and/or grassland fields bounded by hedgerows with occasional blocks of scrub on field boundaries.
- 5.9.17 The most of the developments the largest extent of habitat loss associated with the developments will relate to the undergrounding of cables with the temporary loss of habitats in linear corridors through the landscape.
- 5.9.18 The agriculturally improved fields are habitats of low biodiversity value. In all cases it is assumed that losses will be temporary and where land is affected it will be subject to restoration the existing habitat type or habitat type of higher biodiversity value with no potential cumulative effect on grassland or arable land.
- 5.9.19 No potential cumulative impact on woodland and wooded habitats or watercourse. The potential for any effects on woodland, scrub, springs and watercourse as a result of the Proposed Development have been avoided through layout and minimised through robust environmental protection during construction (as detailed in the CEMP).
- 5.9.20 For hedgerows, the installation of cabling required for all the above projects has the potential to result in the creation of a large number of small gaps in existing hedgerow network in the district. In relation to the Proposed Development the effects on hedgerows will be localised, short term and low magnitude with full re-instatement. Consequently the Proposed Development will make a negligible contribution to the total effects on hedgerow from all the proposed developments in combination.

Fauna

- 5.9.21 The agriculturally improved fields are habitats of low biodiversity value in themselves but make a contribution to the value of the local area to some faunal species groups, most notably as a

foraging resource for farmland birds in winter and as potential breeding habitat for ground nesting birds.

Bats

- 5.9.22 Across the District the developments, primarily those involving cable corridors, will create breaks in continuous canopy hedgerows. Depending on the width of hedgerow removal, there could be a level of fragmentation of flightlines for bat species that typically fly low close to vegetation.
- 5.9.23 In relation to the Proposed Development effects on hedgerows are localised with only small gaps being created. The creation of temporary 5m gaps in a few heavily managed hedgerows should not create a barrier to the movement of bat species through the landscape, and there is not considered to be any potential for significant cumulative impact on any species of bat involving the Proposed Development.

Otter

- 5.9.24 Following the precautionary assumption that the adjacent woodland forms a regularly used part of an otter territory the narrow connecting woodland fingers with tributaries have the potential to be used by otters to move through the landscape. Site design avoids the potential for adverse effects on the otter population during construction and operation. Potential effects on otter from other developments are not known but the avoidance measures will need to be adopted through design to minimise their potential effect.

Dormouse

- 5.9.25 Following the precautionary assumption that the adjacent woodland and hedgerow network is lies within dormouse territory, the wooded stream and hedgerows adjacent to the operational BESS will maintain the potential value of the habitat and the wider connectivity of features that they could use.
- 5.9.26 The potential effects on dormouse from other developments are not known but avoidance measures will be adopted through project design and precautionary working (potentially under licence) where there is the potential for adverse effects.
- 5.9.27 The replanting of the 5m gaps in a few heavily managed hedgerows will mean that any minor barriers to the movement are temporary. The small-scale effects associated with the Proposed Development would create a Negligible additional effect alongside larger scale temporary impacts associated with landscape scale off-shore wind cable installations. It is very unlikely that cable installation for the BESS and offshore wind would overlap. There is not considered to be any potential for significant cumulative impact on dormouse involving the Proposed Development.

Wintering Birds

- 5.9.28 With a number of developments in the surrounding district, in principle if multiple construction periods overlap there would be greater levels of temporary disturbance in the locality. Off-shore wind farm cable corridors will affect the largest extent of habitat, but even though the footprint is large, under standard working procedures for cable installation the extent of active working areas at any one time will be relatively small.
- 5.9.29 Because of the linear nature of the cable corridor and the proportion of the foraging habitat affected in one locality (either directly and indirectly) would be small, with activity on foot being the anticipated primary source of disturbance.

- 5.9.30 Although there are multiple potential cable corridors in the district, the temporary effects during the construction phase of the Proposed Development have no potential for any significant cumulative impacts on flocks of passerine bird species associated with farmland in winter (skylark, meadow pipit, yellowhammer, linnet, redwing, fieldfare, starling).
- 5.9.31 The Lambeeth Farm access road development (20/0044/PA) is located in close proximity to the Goldborough Road BESS development, though the working area closest to the Goldborough BESS extends along roads limiting the potential for cumulative impacts with this development. Birds in the locality will be habituated to vehicle movements and low-level construction noise.
- 5.9.32 For the wildfowl and waders associated with Milford Haven waterway SSSI, the multiple developments around Lambeeth Farm landholding have the potential to result in influencing the behaviour of flocks of individual species, with construction staff on foot potentially the factor most likely to result in how individual birds select foraging areas in the landscape.
- 5.9.33 There is high confidence that the Proposed Development would not result in a cumulative adverse effect on wintering birds due to the localised, short duration effects that would arise along the cable corridor, if installed outside the bird breeding season.

Breeding Birds

- 5.9.34 Two of the three potential BESS (the Proposed Development and Land at Lambeeth, Pembrokeshire), are both small less than 1.5ha, while the Land south of Pembroke Power Station BESS is a very extensive development with a likely footprint of 20 -25ha. This development lies c160m to the north of the Goldborough BESS permanent development footprint and c130m to the north of the cable corridor.
- 5.9.35 Ground nesting birds could be affected by cumulative impacts across different developments.
- 5.9.36 However, the breeding bird survey of the very extensive potential BESS site recorded no ground nesting birds (skylark or meadow pipit) during the breeding bird survey in field habitat types equivalent to those within the Proposed Development. Linnet was the only breeding farmland BoCCW recorded with a poor breeding bird assemblage characteristic of agricultural land.
- 5.9.37 The permanent loss of approximately 1.5ha of ecologically poor pasture and temporary effects on hedgerows will not result in a cumulative impact on local breeding bird populations.
- 5.9.38 Following a precautionary approach any adverse effects associated with the Proposed Development have
- 5.9.39 There are no any cumulative impacts would be expected to have an overall impact of no more than Moderate magnitude. This would not be significant in EIA terms.

5.10 Summary

- 5.10.1 Table 5-5 provides a summary of the effects based on the Proposed Development detailed in Chapter 3 of the ES and conclusions of significance. This table provides a summary of the effects for each receptor taking into account the embedded mitigation within the scheme design and the residual effects based on the full implementation of additional mitigation detailed in this Chapter.

Designated Sites

- 5.10.2 The working areas are located several hundred metres from the boundaries of statutory designated sites. There are no non-statutory designated sites within Pembrokeshire.

- 5.10.3 Hydrological connectivity between the site and Milford Haven Waterway SSSI and Pembrokeshire Marine SAC is distant. There are no anticipated impacts on the SSSI and SAC.
- 5.10.4 There are very few past records near the site of greater horseshoe and lesser horseshoe bats which are qualifying features of the Pembrokeshire Bat Sites and Bosherton Lakes SAC and there are no potential for any adverse effects on the populations of either species.
- 5.10.5 The effects on designated sites are considered to be Negligible and Not Significant in EIA terms.

Habitats

- 5.10.6 Hedgerows loss will be temporary and limited to 5m sections. Trenching undertaken to install the cable corridor has potential to damage the root system of one tree, a multi-stemmed ash located within a hedgerow.
- 5.10.7 The hedgerow gaps will be replanted with native woody species. The hedgerow will be sensitively managed and the structure should be restored within several years.
- 5.10.8 During operation, hedgerows will continue to be managed as previously.
- 5.10.9 The main area of woodland to the south of the cable corridor lies over 50m from the working area and will not be affected by construction activities.
- 5.10.10 Part of the BESS earthworks and cable corridor laying will be in close proximity to sections of scrub woodland and a stream which flows through the woodland.
- 5.10.11 Embedded mitigation includes the full implementation of a construction drainage strategy, CEMP and dust management controls which would be integrated into the daily working practices. Robust control measures built into the CEMP and Drainage Strategy will be essential to avoid the spring being affected by site activities.
- 5.10.12 Management of surface water on the road adjacent to the stream to prevent run off of pollutants would protect the stream and downstream habitats over the lifetime of the development.
- 5.10.13 With embedded mitigation, the potential effects on habitats are Negligible and Not Significant in EIA terms.

Protected Species

- 5.10.14 There is potential for construction noise to result in disturbance to wintering / migratory birds, reptiles, foraging / commuting bats and dormouse. Disturbance would be temporary and individuals would be expected to move to nearby adjacent habitat. The level of effect would be Negligible. This is Not Significant in EIA terms.
- 5.10.15 The creation of small gaps within the hedgerows to facilitate the cable corridor installation has potential to affect dormouse if present and nesting birds in the absence of mitigation.
- 5.10.16 A dormouse survey will be undertaken in 2024 to assess the presence / likely absence of dormice within onsite hedgerows.
- 5.10.17 Where there is potential for the works to affect the species, a dormouse licence will be sought for the development. With appropriate mitigation implemented, the level of effect on dormouse would be Negligible. This is Not Significant in EIA terms.
- 5.10.18 The use of HDD will avoid potential impacts on woodland trees which have potential suitability for bats and dormouse. There are no trees with potential suitability for bats in close proximity to the BESS.

- 5.10.19 The potential for otters to be affected by the development is considered to be Negligible based on the distance between the development area and habitat of value for the species. This is Not Significant in EIA terms.
- 5.10.20 A badger sett is present on the alignment of the cable corridor and the potential for further setts in adjoining woodland.
- 5.10.21 Following a precautionary approach it is assumed that HDD beneath the badger sett has potential for disturbance of badgers using a sett and damage to chambers in the sett.
- 5.10.22 It is expected that other setts within the territory would be used by the social group during the works.
- 5.10.23 In the absence of mitigation there is potential for a Medium to High magnitude impact which would have a Low level effect. This is Not Significant in EIA terms.
- 5.10.24 Low vibration options for HDD will be adopted where practical and where potential adverse effects on the badger sett can be incorporated into the scheme design the impact magnitude would be at worst Low with the level of effect being Negligible. This is Not Significant in EIA terms.
- 5.10.25 The number of status of setts below the cable corridor will be reassessed in advance of the preparation of the application for a badger disturbance licence.
- 5.10.26 During operation, implementation of a sensitive lighting designs will avoid unnecessary light spill on habitats outside the operational site.
- 5.10.27 There will be low levels of noise associated with the operational BESS. Low levels of noise in adjoining scrub woodland and stream should not affect the use of the habitat by species such as badger, otter, dormouse, wintering / migratory birds, breeding birds or reptiles.
- 5.10.28 Potential displacement from the habitat of nesting birds and dormouse would be limited to small numbers of individuals.
- 5.10.29 Lighting design minimising/avoiding light spill onto hedgerows and the low level of human activity associated with operation will mean that the level of behavioural change should be small. The overall effect on both dormouse and breeding birds would be Negligible and not significant in EIA terms.

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Table 5-5-5: Summary of effects

Receptor	Description of potential impact	Significance prior to additional mitigation	Proposed additional mitigation	Residual effect	Significant / not significant
Construction Phase					
Pembrokeshire Marine SAC	Transport of pollutants and/or sediment downstream from the site with direct hydrological connectivity to Pembroke River Disturbance of qualifying features - Otter population within the SAC	Negligible	Implementation of protection measures in the CEMP Fencing to separate working areas from wooded stream Fencing around the BESS working areas Installation of ramps in open excavations to provide means of escape including the cable corridor trenching and HDD entrance and exit points	Negligible	Not significant
Milford Haven Waterway SSSI	Transport of pollutants and/or sediment downstream from the site with direct hydrological connectivity to Pembroke River Disturbance of wintering / migratory bird species assemblage	Negligible	Implementation of protection measures in the CEMP None	Negligible	Not significant
Pembrokeshire Bat Sites and	Effects on greater and	Negligible	n/a	Negligible	Not Significant

Receptor	Description of potential impact	Significance prior to additional mitigation	Proposed additional mitigation	Residual effect	Significant / not significant
Bosherton Lakes SAC and component SSSIs	lesser horseshoe foraging activity				
Hedgerows	Temporary loss; indirect disturbance	Negligible	Hedgerow restoration Maintenance of new planting during establishment phase Replacement planting for failures Management to reinstate dense hedgerow canopy structure in the created gaps	Negligible	Not significant
Scrub woodland	Indirect damage from surface / sediment run off or dust position	Negligible	Implementation of environmental protection measures detailed in the CEMP	Negligible	Not significant
Watercourses	Indirect effects on springs from adjacent excavations and construction	Negligible	Implementation of environmental protection measures detailed in the CEMP	Negligible	Not significant
Bats	Loss of bat foraging habitat and disturbance of bat activity.	Negligible	Maintenance of new hedgerow planting during establishment phase Management to reinstate dense hedgerow canopy structure in the created gaps	Negligible	Not significant
Otters	Disturbance of individuals moving through the landscape Effects on otters using resting places in the	Up to Minor	Fencing to separate working areas from wooded stream Fencing around the BESS working areas	Negligible	Not significant

Receptor	Description of potential impact	Significance prior to additional mitigation	Proposed additional mitigation	Residual effect	Significant / not significant
	wooded valley over 100m from the working area		Installation of ramps in open excavations to provide means of escape including the cable corridor trenching and HDD entrance and exit points		
Badger	Damage to chambers in a badger main sett as a result of below ground vibration during HDD; disturbance of badgers while using a sett. Disturbance due to trenching.	Minor	HDD to be undertaken between July and November outside the badger breeding season Adoption low vibration HDD techniques where possible. Potential displacement /exclusion of badgers from setts where adverse effects from HDD cannot be avoided. Installation of ramps in open sections of cable corridor trench to provide means of escape	Minor	Not Significant
Dormouse	Loss of active nests, disturbance of dormouse, localised habitat loss	Minor	Sensitive working methods undertaken for the removal of short sections of hedgerow. Hedgerow restoration planting	Negligible	Not Significant

Receptor	Description of potential impact	Significance prior to additional mitigation	Proposed additional mitigation	Residual effect	Significant / not significant
			within 6 months of loss Provision of native shrub planting within the BESS Landscape Masterplan (Appendix 6.2) Where dormice are present, a WG dormouse mitigation licence would be obtained with species protection, habitat loss and habitat creation.		
Breeding Birds	Loss of active nests, disturbance of nesting birds, localised habitat loss	Up to Minor	Timing of habitat removal. Nesting bird inspections and protection of active nest sites	Negligible	Not Significant
Wintering/ migratory Birds	Disturbance of foraging birds from noise, lighting and human activity	Up to Minor	n/a	Negligible	Not Significant
Reptiles	Temporary loss of hedgerow habitat and field margins Disturbance from noise and vibration	Negligible	Implementation of precautionary working methods in advance of and during vegetation clearance	Negligible	Not Significant
Operation Phase					
Pembrokeshire Marine SAC	Disturbance from operational	No effect	n/a	No effect	n/a

Receptor	Description of potential impact	Significance prior to additional mitigation	Proposed additional mitigation	Residual effect	Significant / not significant
and component SSSIs	noise on qualifying features including otters				
Pembrokeshire Bat Sites and Bosherton Lakes SAC and component SSSIs	Effects on greater and lesser horseshoe foraging activity	No effect	n/a	No effect	n/a
Hedgerows	Change in context of hedgerows adjoining development	Negligible	Management to reinstate dense hedgerow canopy structure in the created gaps	Negligible	Not Significant
Scrub, woodland and watercourses	Surface water run off from the access road and operational BESS	Minor	Protection of woodland, watercourse and springs	Negligible	Not Significant
Bats	Reduction in foraging activity around the BESS	Negligible	Detailed lighting design Scrub habitat establishment within the Landscape Masterplan (Appendix 6.2)	Negligible	Not Significant
Badger	Reduction in foraging activity around the BESS	Negligible	n/a	Negligible	Not Significant
Otter	Disturbance of individuals moving through the landscape	Negligible	Protection of woodland, watercourse and springs Detailed lighting design	Negligible	Not Significant
Dormouse	Disturbance from operational noise	Negligible	Protection of woodland and hedgerows Detailed lighting design	Negligible	Not Significant

Receptor	Description of potential impact	Significance prior to additional mitigation	Proposed additional mitigation	Residual effect	Significant / not significant
			Scrub habitat establishment within the Landscape Masterplan (Appendix 6.2)		
Breeding birds	Effects on nesting activity adjacent to the BESS	Negligible	Protection of woodland and hedgerows Detailed lighting design Grassland and scrub habitat establishment within the Landscape Masterplan (Appendix 6.2)	Negligible	Not Significant
Wintering/ migratory Birds	Disturbance from operational noise	No effect	n/a	No effect	n/a
Reptiles	Changes to context of habitat	Negligible	n/a	Negligible	Not Significant

6 Landscape and Visual Impact Assessment

6.1 Introduction

6.1.1 This Chapter of the ES considers the significance of potential landscape and visual effects of the Proposed Development.

6.1.2 The Description of the Proposed Development is as follows:

“the installation of a Battery Energy Storage System (BESS) with associated infrastructure on land south of Goldborough Road, Wallaston Cross, Pembroke, near SA71 5SH”

6.1.3 A detailed description of the Site and Proposed Development is provided in Chapters 2 and 3 of this ES.

6.1.4 This Chapter is supported by the following Figures and Appendices:

- Figure 6.1: Site Location Plan;
- Figure 6.2: Environmental Designations Plan;
- Figure 6.3: Screened Zone of Theoretical Visibility;
- Figure 6.4: Viewpoint Location Plan;
- Figure 6.5: Viewpoints 1-1;
- Figure 6.6: Photomontages
- Appendix 6.1: Landscape Character Assessment – Relevant Extracts;
- Appendix 6.2: Landscape Masterplan;
- Appendix 6.3: Green Infrastructure Strategy;
- Appendix 6.4: Landscape Effects Summary Tables; and,
- Appendix 6.5: Visual Effects Summary Tables.

6.2 Legislative and Policy Framework

6.2.1 This Chapter has been carried out with reference to national and local planning policy.

National Planning Policy

Planning Policy Wales, Edition 11

6.2.2 The National Policy is set out within the Welsh Government’s Planning Policy Wales, Edition 11 (PPW11), February 2021. Landscape is addressed within Chapter 6: Distinctive and Natural places of PPW11 which covers environmental and cultural components of placemaking.

6.2.3 PPW11 Paragraph 6.3.3 states that:

“all the landscape of Wales are valued for intrinsic contribution to a sense of places, and local authorities should protect and enhance their special characteristics, whilst paying due regard to the social, economic, and cultural benefits they provide, and to their role in creating valued places.”

6.2.4 Paragraph 6.3.2 acknowledges varied and iconic Welsh landscapes, the character and special qualities of which form designated AONBs and National Parks. The Pembrokeshire Coast National Park is located approximately 1km from the site to the south-west at its closest point.

6.2.5 PPW11 paragraph 6.3.12 states that:

“Planning authorities should provide for the conservation and, where appropriate, enhancement of local landscapes... LANDMAP and any associated landscape character assessments (including the register of historic landscapes in Wales) should be used to inform local landscape policies and SPG and help to identify or revise SLAs”

6.2.6 The Proposed Development is not located within any international or national statutory or non-statutory landscape designations.

6.2.7 PPW11 Paragraph 6.3.20 states that:

LANDMAP is an important information resource, methodology and monitoring baseline for the landscapes of Wales, which can help inform planning for the sustainable management of natural resources in an area. LANDMAP describes and evaluates the physical, ecological, visual, cultural and historic aspects of Wales, and provides the basis of consistent, quality assured approach to landscape assessments.”

6.2.8 This LVIA Chapter includes an assessment of the LANDMAP layers covering the site.

Future Wales: The National Plan 2040

6.2.9 Future Wales – The National Plan 2040, February 2021 is the national development framework for Wales. It aims to address key national priorities through the planning system, including sustaining and developing a vibrant economy, achieving decarbonisation and climate resilience.

6.2.10 Policy 17: Renewable and Low Carbon Energy and Associated Infrastructure states that:

“The Welsh Government strongly supports the principle of developing renewable and low carbon energy from all technologies and at all scales to meet our future energy needs.

In determining planning applications for renewable and low carbon energy development, decision-makers must give significant weight to the need to meet Wales’ international commitments and our target to generate 70% of consumed electricity by renewable energy means by 2030 in order to combat the climate emergency.”

Local Planning Policy

Pembrokeshire Local Development Plan

6.2.11 Of relevance to this LVIA are Policy SP16: The Countryside which states that:

“The essential requirements of people who live and work in the countryside will be met whilst protecting the landscape and natural and built environment of Pembrokeshire and adjoining areas. Development which minimises visual impact on the landscape and relates to one of the following will be promoted:

- 1. Enterprises for which a countryside location is essential...”*

6.2.12 GN.1 General Development Policy also relates to landscape, stating that:

“Development will be permitted where the following criteria are met:

1. *The nature, location, siting and scale of the proposed development is compatible with the capacity and character of the site and the area which it is located;*
2. *It would not result in a significant detrimental impact on local amenity in terms of visual impact...*
3. *It would not adversely affect landscape character, quality or diversity, including the special qualities of the Pembrokeshire Coast National park and neighbouring authorities;*
4. *It respects and protects the natural environment including protected habitats and species..."*

6.2.13 The supporting guidance and evidence base which has informed the relevant policies relating to this chapter include:

- Pembrokeshire Local Development Plan
- Pembrokeshire Coast National Park Management Plan

6.3 Methodology

6.3.1 This Landscape and Visual Impact Assessment (LVIA) has been undertaken with regard to best practice, as outlined published guidance documents, notably the third edition of the Guidelines for Landscape & Visual Impact Assessment (GLVIA3).

6.3.2 The methodology and assessment criteria for the LVIA has been developed in accordance with the principles established in this best practice document. It should be acknowledged that GLVIA3 established guidelines, not a specific methodology.

6.3.3 The approach has therefore been developed specifically for this assessment to ensure that the methodology is fit for purpose. Considerations has also been given to the following documents:

- Landscape Institute (2021) Assessing landscape value outside national designations, Technical Guidance Note 02/21;
- Landscape Institute (2019) Technical Guidance Note 06/19, Visual Representation of Development Proposals;
- Landscape Institute (2019) Technical Guidance Note 02/19, Residential Visual Amenity Assessment;
- Future Wales. The National Plan 2040 (February 2021);
- Pembrokeshire Coast National Park Management Plan 2020-2024;
- Natural Resources Wales (NRW) LANDMAP Information System;
- Cadw for information regarding designated historic assets;
- Digital Terrain Model (DTM) at 5m spatial resolution;
- Ordnance survey mapping at 1:25,000 scale; and,
- Aerial and street view imagery available on Google Earth.

6.3.4 This Chapter concentrates on landscape and visual effects arising from the Proposed Development. For effects on ecology, please refer to Chapter 5.

Assessment of Significance

6.3.5 Landscape and visual effects are assessed through professional judgements on the sensitivity of landscape elements, landscape character, visual receptors and representative viewpoints

combined with the predicted magnitude of change arising from the proposals. The landscape and visual effects have been assessed in the following sections:

- Landscape Effects
- Effects on landscape elements; and
- Effects on landscape character.
- Visual Effects
- Effects on views and visual amenity.

6.3.6 Various factors in relation to the value and susceptibility of landscape elements, landscape character, visual receptors and representative viewpoints are considered below and are cross referenced to determine the overall sensitivity as shown in Table 6.1:

Table 6.1: Sensitivity of Landscape and Visual Receptors

	VALUE			
SUSCEPTIBILITY		HIGH	MEDIUM	LOW
	HIGH	High	High	Medium
	MEDIUM	High	Medium	Medium
	LOW	Medium	Medium	Low

Landscape Effects

6.3.7 The effects on landscape elements are limited to within a given development site and include the direct physical change to the fabric of the land, such as the removal of woodland, hedgerows, or grassland to allow for the proposals.

6.3.8 Different combinations of these elements and their spatial distribution create the distinctive character of landscapes in different places. The effects on landscape character is not just about the physical elements and features that make up the landscape, but also the aesthetic, perceptual and experiential aspects of the landscape that make different places distinctive.

Sensitivity of Receptor – Landscape Elements and Landscape Character

6.3.9 Sensitivity is determined by a combination of the value that is attached to a landscape element or character and its susceptibility to change that would arise as a result of the proposals (See Table 6.1). The criteria for assessing the value of landscape elements and character are shown in Table 6.2:

Table 6.2: Value of landscape elements and character

Receptor value / sensitivity	Receptor type
HIGH	Designated landscape including but not limited to World Heritage Sites, National Parks and National Landscapes considered to be an important component of the country's character experienced by a high number of people. Landscape condition is good, and components are generally maintained to a high standard. In terms of seclusion, enclosure by land use, traffic and movement, light pollution and presence/absence of major infrastructure, the landscape has an elevated level of tranquillity. Rare or distinctive landscape elements and features are key components that contribute to the landscape character of the area.
MEDIUM	Undesignated landscape including urban fringe and rural countryside considered to be a distinctive component of the national or local landscape character. Landscape condition is fair, and components are generally well maintained. In terms of seclusion, enclosure by land use, traffic and movement, light pollution and presence/absence of major infrastructure, the landscape has a moderate level of tranquillity. Rare or distinctive landscape elements and features are notable components that contribute to the character of the area.
LOW	Undesignated landscape including urban fringe and rural countryside considered to be of unremarkable character. Landscape condition may be poor and components poorly maintained or damaged. In terms of seclusion, enclosure by land use, traffic and movement, light pollution and presence/absence of major infrastructure, the landscape has limited levels of tranquillity. Rare or distinctive elements and features are not notable components that contribute to the landscape character of the area.

6.3.10 The criteria for assessing the susceptibility of landscape elements and landscape character are shown in Table 6.3:

Table 6.3: Susceptibility of landscape elements and character

Receptor value / sensitivity	Receptor type
HIGH	Scale of enclosure – landscapes with a low capacity to accommodate the type of development being proposed owing to the interactions of topography, vegetation cover, built form, etc. Nature of land use – landscapes with no or little existing reference or context to the type of development being proposed. Nature of existing elements – landscapes with components that are not easily replaced or substituted (e.g., ancient woodland, mature trees, historic parkland, etc).

	Nature of existing features – landscapes where detracting features, major infrastructure or industry is not present or where present has a limited influence on landscape character.
MEDIUM	Scale of enclosure – landscapes with a medium capacity to accommodate the type of development being proposed owing to the interactions of topography, vegetation cover, built form, etc. Nature of land use – landscapes with some existing reference or context to the type of development being proposed. Nature of existing elements – landscapes with components that are easily replaced or substituted. Nature of existing features – landscapes where detracting features, major infrastructure or industry is present and has a noticeable influence on landscape character.
LOW	Scale of enclosure – landscapes with a high capacity to accommodate the type of development being proposed owing to the interactions of topography, vegetation cover, built form, etc. Nature of land use – landscapes with extensive existing reference or context to the type of development being proposed. Nature of existing features – landscapes where detracting features or major infrastructure is present and has a dominating influence on the landscape.

6.3.11 Various factors in relation to the value and susceptibility of landscape elements are assessed and cross referenced to determine the overall sensitivity (Table 6.1)

Magnitude of Change on Landscape Elements and Landscape Character

6.3.12 Professional judgement has been used to determine the magnitude of change on individual landscape elements within the Site as shown in Table 6.4. This includes the consideration of the scale, design, setting and temporary nature of the development.

Table 6.4: Magnitude of change on landscape elements

Magnitude	Descriptions
HIGH	Total loss of a landscape element.
MEDIUM	Partial loss or alteration to part of a landscape element.
LOW	Minor loss or alteration to part of a landscape element.
NEGLIGIBLE	No loss or very limited alteration to part of a landscape element.

6.3.13 The assessment of effects on landscape character considers how the introduction of new landscape elements physically alters the landform, landcover, landscape pattern and perceptual attributes of a site or how visibility of the proposals changes the way in which the landscape character is perceived. Professional judgement has been used to determine the magnitude of change on landscape character as shown in Table 6.5. Again, including the consideration of the scale, design, setting and temporary nature of the development.

Table 6.5: Magnitude of change on landscape character

Magnitude	Descriptions
HIGH	Introduction of major new elements into the landscape or some major change to the scale, landform, landcover or pattern of the landscape.
MEDIUM	Introduction of some notable new elements into the landscape or some notable change to the scale, landform, landcover or pattern of the landscape.
LOW	Introduction of minor new elements into the landscape or some minor change to the scale, landform, landcover or pattern of the landscape.
NEGLIGIBLE	No notable or appreciable introduction of new elements into the landscape or change to the scale, landform, landcover or pattern of the landscape.

Effects on Views and Visual Amenity

6.3.14 The effects on visual amenity considers the changes in views arising from the proposals in relation to visual receptors identified at: residential properties or settlements; transport routes; recreational facilities and attractions; and representative viewpoints or specific locations within the study area as agreed with the Local Planning Authority.

Sensitivity of Visual Receptors

6.3.15 Sensitivity is determined by a combination of the value that is attached to a view and the susceptibility of the visual receptor to changes in that view that would arise as a result of the proposals (Table 6.1).

6.3.16 The criteria for assessing the value of the view are shown in Table 6.6 below:

Table 6.6: Value of views

Receptor value / sensitivity	Receptor type
HIGH	Views with high scenic value within designated landscapes including but not limited to World Heritage Sites, National Parks, National Landscapes, etc. Likely to include key viewpoints on OS maps or reference within guidebooks, provision of facilities, presence of interpretation boards, etc.

MEDIUM	Views with moderate scenic value within designated or undesignated landscape including urban fringe and rural countryside.
LOW	Views with unremarkable scenic value within undesignated landscape with partly degraded visual quality and detractors.

6.3.17 The criteria for assessing the susceptibility of the visual receptor to the Proposed Development is shown in Table 6.7 below:

Table 6.7: Visual Receptor Susceptibility

Receptor value / sensitivity	Receptor type
HIGH	Major change in the view that has a defining influence on the overall view with many visual receptors affected.
MEDIUM	Some change in the view that is clearly visible and forms an important but not defining element in the view.
LOW	Some change in the view that is appreciable with few visual receptors affected.
NEGLIGIBLE	No notable change in the view.

Magnitude of Change on Visual Receptors

6.3.18 Professional judgement has been used to determine the magnitude of change on visual receptors as shown in Table 6.8. This includes the consideration of the scale, design, setting and temporary nature of the development.

Table 6.8: Visual Receptor Magnitude of Change

Magnitude	Description
HIGH	Major change in the view that has a defining influence on the overall view with many visual receptors affected.
MEDIUM	Some change in the view that is clearly visible and forms an important but not defining element in the view.
LOW	Some change in the view that is appreciable with few visual receptors affected.

NEGLECTIBLE

No notable change in the view.

Significance of Landscape and Visual Effects

- 6.3.19 The likely significance of effects is dependent on all of the factors considered in the sensitivity and the magnitude of change, upon the relevant landscape and visual receptors. These factors are assimilated to assess whether or not the Proposed Development will have a likely significant effect or non-significant. The variables considered in the evaluation of the sensitivity and the magnitude of change is reviewed holistically to inform the professional judgement of significance.
- 6.3.20 In the assessment, in accordance with GLVIA3, a distinction is drawn between what are considered to be the significant and non-significant effects. A likely significant effects will occur where the combination of the variable results in the Proposed Development have a definitive effect on the landscape or view. A non-significant effect will occur when the appearance of the Proposed Development is not definitive, and the effect continues to be defined principally by its baseline condition. Potential landscape and visual effects are discussed at Appendix 6.4: Landscape Effects Summary Tables and Appendix 6.5: Visual Effects Summary Tables.
- 6.3.21 Within Table 6.9 below, the major effects highlighted in dark grey are considered to be significant in terms of the EIA Regulations. The moderate effects highlighted in light grey are potentially significant, and a summary justification is provided as to whether the effect in question is significant or not significant. It should be noted that whilst an individual effect may be significant in EIA terms, it does not necessarily follow that the Proposed Development would be unacceptable in the planning balance.
- 6.3.22 The cross referencing of the sensitivity and magnitude of change on the landscape and visual receptor determines the significance of effect as shown in Table 6.9 below:

Table 6.9: Significance of Landscape and Visual Effects

Receptor Sensitivity	Magnitude of Impact			
	High	Medium	Low	Negligible
High	Major	Major	Moderate	Negligible
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Minor	Negligible

Nature of effects

- 6.3.23 GLVIA3 includes an entry that states “*effects can be described as positive or negative (or in some cases neutral) in their consequences for views and visual amenity.*” GLVIA3 does not, however, state how negative or positive effects should be assessed, and this therefore becomes a matter of subjective judgement rather than reasoned criteria. Due to inconsistencies with the assessment of negative or positive effects a precautionary approach is applied to the LVIA that assumes all landscape and visual effects are considered to be negative or adverse unless otherwise stated.

Assumptions and Limitations

6.3.24 In undertaking the landscape and visual assessment in relation to the Site, the Proposed Development and surrounding area, there are a number of limitations and constraints affecting the outputs from this work. These include:

- The baseline assessment has been based on information readily available at the time of undertaking the assessment;
- The Screened Zone of Theoretical Visibility (SZTV) (Figure 6.3) does not demonstrate absolute visibility and is therefore refined through field work with the assessed potential visibility of the Proposed Development;
- During the field work, weather conditions, time of day, and seasonal factors have influenced the visual assessment and photographic record of the Site and its surroundings. Every effort has been made to ensure that the photographs and their locations are “representative” of the variety of receptors and views from a range of distances and directions;
- Winter views (illustrating deciduous trees devoid of leaf) have not been obtained for the baseline views, however the assessment assumes winter conditions, unless otherwise stated;
- Access to assess the predicted visual effects from private individual properties outside the site has not been obtained. As a result, the assessment of likely effects has been made from vantage points with representative views taken from the nearest available public viewpoint. GLVIA3 (Paragraph 6.17) suggests that effects of development on private property are dealt with separately from the LVIA as a ‘Residential Amenity Assessment’. This level of assessment has not been part of the scope of this Chapter; and,
- The assessed development is based on planning application drawings that accompany the ES as presented at Figures 6.1 to 6.6 and is assessed on the assumption that the Proposed Development is delivered in line with these drawings and associated timescales.

6.4 Baseline Descriptions

Site Description and Context

- 6.4.1 The BESS site (where the proposed BESS development is located) is centred at approximately OS Grid Reference 192760, 201061, just to the south-east of the Wallaston Cross road junction. Pembroke lies around 5km to the east. This site lies within a pastoral agricultural field, bounded by hedgerows with a tree belt to the south alongside a ditch. The topography of the BESS site is gently undulating, with levels ranging between around 55m AOD and 65m AOD.
- 6.4.2 The immediate surroundings are agricultural in nature with rolling pastoral fields bounded by hedgerows. There are very few residential properties near to the main site, the closest being a pair of bungalows 250m to the northwest.
- 6.4.3 The underground cable corridor from the main site to the POC runs eastwards from the easternmost point of the BESS, crossing beneath Goldborough Road and into the agricultural fields north of Goldborough Road. The cable corridor then runs parallel to the southern borders of these fields until it reaches existing overhead pylons, where it changes direction to run in a north-eastern direction to Lambeeth Farm, pivoting to a northwest direction until it reaches Pembroke Station.
- 6.4.4 The site is not subject to any statutory or non-statutory landscape designation. The Pembrokeshire Coast National Park lies approximately 1km to the southwest.

Baseline Survey Information

Landscape Character

- 6.4.5 This section is to be read alongside Appendix 6.1: Landscape Character Studies – Relevant Extracts, which shows the relevant area on a plan.

National Landscape Character

- 6.4.6 Natural Resources Wales (NRW) published a series of National Landscape Character Areas (NLCA) description in 2013/2014. The site lies towards the southwestern edge of NLCA 48: Milford Haven. This areas is The key characteristics of NLCA 48, of relevance to the Site, are summarised below:

- Complex geology – The geological history of the landscape is complex.
- Mixed fields and hedgerows – a rolling lowland agricultural landscape with a mosaic of mixed fields bounded by hedgerows
- Mixed and conifer plantations fringe the upper ria and estuaries – with frequent copses and riparian (riverside) woodlands found on slopes throughout. Ancient semi-natural sessile oak woodlands are also among the area's valued habitats.
- Industry by the lower ria – Oil refineries and their jetties, and a power station dominate the coastal landscape at the mouth of the haven.
- Tranquil rural upper ria and estuaries – contrasting to the lower ria, the upper ria and estuaries and their surrounding woodland and farmland are intimate and rural.
- Renowned scenic qualities – The upper ria and estuaries have long been admired for its scenic qualities, with the Haven being mentioned in Shakespeare's Cymbeline.

- 6.4.7 The Site and study area has several of the defining characteristics of the NLCA such as mixed fields and hedgerows; mixed plantations fringe the upper ria; influence of industry and an element of scenic quality. The Site however occupies a very small area of the wider NLCA. The value overall is considered to be medium, owing to the mixture of higher value areas near the National Park, and the lower value nearby industrial uses. A low susceptibility has been assessed due to the small area to be potentially affected of a nearby use to local industry such as the power station, resulting in a medium sensitivity.

Local Landscape Character

- 6.4.8 LANDMAP is the formally adopted five-tiered landscape evaluation baseline tool developed by NRW. It comprises five nationally consistent spatial datasets, referred to as Aspect layers. Those in which the site is located are summarised in Table 6.10 below.
- 6.4.9 The Overall Evaluation of each Aspect Area is key to understanding its value in terms of sensitivity, rarity and importance. These evaluation scores are defined as follows:
- Outstanding evaluation – nationally important.
 - High evaluation – regional or county importance.
 - Moderate evaluation – local importance.
 - Low evaluation – little or no importance.
- 6.4.10 The description of each landscape is used as a basis for evaluation to make judgements to guide, for example, development or landscape management.
- 6.4.11 With regard to the study area, the LANDMAP Aspect Areas for all five areas have been mapped and included at Appendix 6.1. These have been reviewed in order to establish those that are

relevant and may be subject to potentially adverse effects. The guidance available on NRW does not specifically advise on how to assess BESS schemes in the context of LANDMAP Aspect Areas. Those assessed and included below cover the whole site (main BESS Site and cable corridor)

Table 6.10: LANDMAP Aspect Areas

LANDMAP Aspect Layer	LANDMAP Description	LANDMAP Overall Evaluation
Geological Landscape: Hundleton PMBRKGL234	<i>No regionally significant sites/ landforms noted during present survey and geology/ geomorphology considered to be typical of feature/ process and is either widespread, better exposed elsewhere or not currently known to be exceptional.</i>	Moderate
Landscape Habitats: North of Castlemartin PMBRKLH608	<i>Generally quite low value habitat but some small areas of more valuable habitat present. Grassland near to the coast may have value for Choughs and it is likely that a considerable variety of bat species are present or move through the area. A number of designations are present but these only cover small slivers of the Aspect Area.</i>	Moderate
Historic Landscape: Rhoscrowther PMBRKHL43920	<i>The value of high assigned to this area reflects the breadth and diversity of the archaeological record, which offers considerable potential for future research.</i>	High
Cultural Landscape: Castlemartin PMBRKCLS122	<i>The overall moderate valuation of the Aspect Area has been reached through consideration of the moderate values for all criteria of scenic quality, integrity, character and rarity which reflect the not uncommon agricultural character of the landscape.</i>	Sense of place: Moderate Visual and sensory landscape evaluation: moderate Scenic quality: Moderate Character: Moderate
Visual and Sensory: Castlemartin PMBRKVS061	<i>Level 1: Lowland Level 2: Rolling Lowland Level 3: Mosaic Rolling Lowland</i>	Scenic quality: Moderate Integrity: Moderate Character: Moderate Rarity: Moderate
	<i>Summary Description: The Aspect Area is largely an attractive rural landscape influenced by farming practices both historically and in the present... Small villages and coastal influences add to the value of the area which is, however, reduced by the impact of large pylons close to Pembroke and views of industrial plants to the north of the area.</i>	Overall Evaluation: Moderate

- 6.4.12 The sensitivity of the LANDMAP aspect areas within the study area are, as a reflection of the overall evaluations, assessed as moderate or medium within the LANDMAP data sheets summarised in Table 6.10

Pembrokeshire County Landscape Character Assessment, 2022

- 6.4.13 A draft Pembrokeshire County Landscape Character Assessment was prepared in 2022. This identified the Site as being located with **Landscape Character Area (LCA) 25: Hundleton and Lamphey**. The area lies to the south of Pembrokeshire and wraps around Pembroke, separating it from Pembroke Dock. It also lies south of the Valero refinery and gas fired power station on the Milford Haven waterway and is bounded by the Pembrokeshire Coast National Park to the north, south and west. A short Summary Description and a list of Key Characteristics are included at Appendix 6.1. Those of relevance to the Site include:

- The area is mainly intensively managed pastoral farmland/improved grassland in irregular fields ranging from small to medium/large. The fields are bounded primarily by low cut hedges/hedgebanks/stone walls to the south of Pembroke giving an open character. There are more trees on boundaries creating enclosure to the north towards Coshaston Pill.
- Gweunydd Somerton Meadows SSSI east of Wallaston Green is an example of less intensively managed grassland in the area.
- Woodland occurs mainly on valley bottoms or steeper hillsides.
- The majority of the area is rural with small settlements and rural hamlets, with isolated farmsteads with nucleated complexes alongside traditional buildings.
- There are vertical elements in places including power lines with pylons running east west to the Pembroke gas power station, wireless masts and small wind turbines which are noticeable on ridge tops.
- Prominent solar farms with ragged edges in irregular fields to the south and west on south facing slopes bounded by low cut hedges and overlooked from adjoining ridges. Solar farm also lies north of Pembroke located near a substation.
- Intervisibility with the National Park to the south, north-east, east and west with views to the sea from the southern boundary and to Milford Haven to the north giving a near coastal character to the west.
- The series of low escarpment ridges to the south have open slopes and skylines including on the boundary with the National Park.

Landscape Designations

- 6.4.14 The Proposed Development is not located within a nationally or locally designated landscape. The Pembrokeshire Coast National Park lies around 1km from the Site at its closest point. The Pembrokeshire Coast National Park Management Plan 2020-2024 sets out the special qualities of the National Park, as follows:

- Accessibility
- Coastal Splendour
- Cultural Heritage
- Distinctive Settlement Character
- Diverse Geology
- Diversity of Landscape
- Islands
- Remoteness, Tranquillity and Wildness

- Rich Historic Environment
- Richness of Habitats and Species
- Space to Breathe
- The Diversity of Experiences and Combination of Individual Qualities

Landscape Elements and Features

Topography

- 6.4.15 The main BESS Site is located within an area of gently rising land with levels of 55m AOD to 65m AOD. To the north where the cable corridor is located, the topography gently falls away towards the Pembroke Dock and associated coastline.
- 6.4.16 The prevailing site contours within the main BESS Site reflect the sloping, undulating topography of the landscape. However, it is not reflective of the nationally designated coastline of the National Park. The varying topography of the main BESS Site is considered to be of medium value and susceptibility due to the contribution this element makes to the local landscape. The overall sensitivity is considered to be medium.

Land Use

- 6.4.17 The main BESS Site and associated cable corridor forms part of the fabric of pastoral grassland which stretches across the rolling lowland landscape. Hedgerow cover and pattern has been eroded over time with the removal of sections to accommodate more intensive modern farming.
- 6.4.18 The pastoral grassland is considered to be of low value as it contributes a very small area of farmland to the local landscape and aspect area. It is a common element within the wider countryside in which it lies, and only covers approximately half of the field boundary leaving the remainder of the field to be kept as pastoral grassland which is typical of the smaller, historic field pattern. The overall sensitivity of the land use is considered to be low.

Vegetation

- 6.4.19 The main BESS Site is set within a low-cut hedgerow framework, with a line of riparian vegetation (willow trees etc.) stretching along the southwestern boundary extending from the river valley to the east towards the estuary in the north.
- 6.4.20 The vegetation in the local area, including along the cable corridor, reflects these typologies with a degree of enclosure generally managed at a relatively low height. Hedgerows and trees surrounding the main BESS Site and cable corridor are considered to be of medium value due to their size and maturity, with a medium susceptibility to change as they provide a degree of enclosure but could be readily replaced relatively easily. The overall sensitivity of the vegetation is considered to be medium.

Public Rights of Way

- 6.4.21 There are a limited number of publicly accessible footpaths in the vicinity of the Site. A single footpath is located to the north of Goldborough Road (Ref: SP34/6), however this appears to have been terminated in the south nearer to the BESS site to complete construction works west of Lambeeth Farm as a construction compound was found directly upon the footpath.
- 6.4.22 The public footpaths in the area are considered to be of high value throughout the countryside, but have a low susceptibility due to their limited length and number in the local landscape, with interruptions through current construction and industrial activity of a similar nature to the

Proposed Development. The overall sensitivity of the Public Rights of Way are considered to be medium.

Settlement

6.4.23 The main settlements of the area are Pembroke and Pembroke Dock, approximately 4km to the east and north-east. The village of Hundleton is the nearest village, approximately 3km to the east. A large farmstead and several dwellings are located at Wallaston Green approximately 350m to the south-west of the main BESS Site.

6.4.24 The local settlement is considered to be of medium value, with a low susceptibility to change as the number and extent of potential impact on the dwellings is reflective of the industry in the wider countryside and covering a very small area. The overall sensitivity of the Settlement is considered to be medium-low.

Table 6.11: Landscape Receptor Sensitivity

Landscape Receptor	Sensitivity
NLCA 46: Milford Haven	Medium
LCA 25: Hundleton and Lamphey	Medium
Topography	Medium
Land Use	Low
Vegetation	Medium
Public Rights of Way	Medium
Settlement	Medium-Low

Visual Amenity

6.4.25 The approximate visibility of the site has been determined through SZTV and topographic analysis (Figure 6.3: Screened Zone of Theoretical Visibility), and the actual extent of visibility checked in the field to identify and take account of the localised screening effect of buildings, walls, fences, trees, hedgerows and banks. Viewpoints within the area surrounding the Site have been identified (Figure 6.4: Viewpoint Location Plan). These have been agreed and expanded upon with the Landscape Officer through the Scoping Request (Appendices 1.2 and 1.3). The representative viewpoints demonstrate the relative visibility of the Site (and existing features upon it) and its relationship with the surrounding landscape and built forms. The selection of the viewpoints is based on the following criteria.

- The requirement to provide an even spread of representative viewpoints within the visual envelope;
- The requirement to provide representative viewpoints within the visual envelope;
- The requirement to provide representative viewpoints that consider a human's normal field of vision (i.e. panoramic views); and,
- From locations which represent a range of near (local views) and middle-distance views.

6.4.26 Whilst private views are relevant, public viewpoints i.e. from roads and public footpaths and other areas of open public access, are selected since they tend to have a higher incidence of receptors affected.

6.4.27 The visibility of the Site is predominantly influenced by landform, the extend and type of vegetation cover and built elements within the surrounding landscape. To refine and establish the approximate extent from which the Site was visible, field work was undertaken from publicly accessible viewpoints in November 2023 to record a range of potential views representing a range of receptor groups. These winter views provide a worst-case baseline view when vegetation is out of leaf, providing maximum visibility.

6.4.28 Receptor groups represented by the eleven selected viewpoints are summarised below. A description of views experienced, and receptor sensitivity is discussed at Appendix 6.5: Visual Assessment. The photographs of the existing views can be found at Figure 6.5: Viewpoints 1-11 which follows industry best practice (Visual Representation of Development Proposals, Landscape Institute (TGN 06/19)).

Value, Susceptibility to Change and Sensitivity of Visual Receptors

6.4.29 The factors used to determine the value of a visual receptor may include where it is from a heritage asset or area designated under planning, and for views which may have a particular value associated to them by visitors or cultural associations.

6.4.30 The susceptibility to change is primarily a function of the occupation of activity of people experiencing the view, and the extent to which their attention or interest may be drawn. High susceptibility visual receptors include local residents, people engaged in enjoying the landscape whilst carrying out their respective activity, such as walking a public footpath, and visitors to attractions or heritage assets. The susceptibility of those using these modes of transport on either road or rail would depend on the nature of the views, and the awareness of the viewed scenic quality as it may be high for certain sections of the route.

Viewpoints

6.4.31 The Viewpoint Assessment has been provided at Appendix 6.5 and follows industry best practice guidance as set out in GLVIA3.

Viewpoint 1 – View from Wallaston Cross to the north-west

6.4.32 This viewpoint is located approximately 100m northeast of the main BESS Site. It illustrates the enclosure of the Site alongside Goldborough Road and unnamed Road to Wallaston Green, with surrounding topography and low-level hedgerows limiting any views into the main BESS Site. This viewpoint is located to the side of the road and therefore views are fleeting and glimpsed by passing vehicles. This is of low value and susceptibility, resulting in a low sensitivity to change.

Viewpoint 2 – View from Goldborough Road to the north

- 6.4.33 This viewpoint is located on an informal junction between Goldborough Road and an unnamed road which leads towards Lambeeth Farm. The foreground of the view is of the wider hedgerow network north of the main BESS Site. The elevated topography allows for potential views towards the western main BESS Site boundary. This viewpoint is located to the side of the road and therefore views are fleeting and glimpsed by passing vehicles. This is of low value and susceptibility, resulting in a low sensitivity to change.

Viewpoint 3 – View from minor road south of Wallaston Cross, near field gate at main BESS Site entrance

- 6.4.34 This viewpoint is directed straight into the main BESS Site from the field gate along the eastern boundary. The view illustrates the access track into the main portion of the main BESS Site, which extends around the corner of the out of the field of view so that only the northern half of the Site can be seen. The sloping topography is evident in the view. This viewpoint is located to the side of the road and therefore views are fleeting and glimpsed by passing vehicles. This is of low value and susceptibility, resulting in a low sensitivity to change.

Viewpoint 4 – View from Public Footpath SP34/6 to the north of Goldborough Road

- 6.4.35 This viewpoint is slightly further east than Viewpoint 2, at the intersection between Goldborough Road and PRoW SP34/6. This footpath is on elevated ground with views across the landscape to the south. The main BESS Site is nestled in the dip beyond the nearest hedgerow in the foreground. The large farmstead at Wallaston Green can be seen beyond this. The footpath on which the viewpoint is located is a very small section that has a construction compound associated with development at Lambeeth Farm directly behind it. As the footpath terminates at Goldborough Road, with temporary construction to the north, it is isolated and does not connect southwards with any footway, so it is unlikely to be used by many receptors travelling southwards towards the Site. Any receptors using the footpath travelling towards the Site would be enjoying the landscape and considered high value and susceptibility and therefore overall high sensitivity to change.

Viewpoint 5 – View from Bridleway SP37/6 north of Hoplass

- 6.4.36 This viewpoint is located on a bridleway approximately 930m to the west of the main BESS Site. A recently completed solar farm is established in the adjacent field directly in the foreground which limits most views towards the Site resulting in intermittent, channelled views as demonstrated. The main BESS Site is located beyond the dwellings at Sunnyside. The topography falls away from this point around Wallaston Cross which limits any views into the main BESS Site from this location. Any receptors using the bridleway travelling towards the Site would be enjoying the landscape and considered high value and susceptibility and therefore overall high sensitivity to change.

Viewpoint 6 – View from Bridleway SP37/6 north of B4320

- 6.4.37 This viewpoint is located on a bridleway approximately 1.25km to the southwest of the main BESS Site, near the B4320 which forms the boundary to the Pembrokeshire Coast National Park. The main BESS Site is nestled in a dip located between the cluster of dwellings at Wallaston Green and Wallaston Cross. The interplay of topography and the low-level hedgerow heavily restricts views of the main BESS Site, with only a slither being visible adjacent to the unnamed road when travelling north. Any receptors using the bridleway travelling towards the Site would be enjoying the landscape and considered high value and susceptibility and therefore overall high sensitivity to change.

Viewpoint 7 – View from B4320 junction with minor road to Wallaston Cross

- 6.4.38 This viewpoint is located at the roadside junction of the B4320 and the minor road to Wallaston Cross, approximately 1km to the south of the main BESS Site. The northern extents of the main BESS Site can be seen in the view to the east of the cluster of buildings at Wallaston Green. This is a panoramic view from an elevated location and illustrates views towards the Pembroke Dock with the power station and pylons, oil refinery and wind turbines visible in the skyline. This viewpoint is located to the side of the road and therefore views are fleeting and glimpsed by passing vehicles. This is of low value and susceptibility, resulting in a low sensitivity to change.

Viewpoint 8 – View from B4320 junction with minor road to Rhoscrowther

- 6.4.39 This viewpoint is located on a roadside junction of the B4320 and an unnamed road to Rhoscrowther, which forms the boundary to Pembrokeshire Coast National Park, approximately 2km to the south-west of the main BESS Site. Above the hedgebank in the foreground, a recently completed solar farm is established with the power station and pylons, oil refinery and wind turbines visible in the skyline. The main BESS Site is located to the southeast of the dwellings at Sunnyridge which appears to be the highest point around Wallaston Cross. The topography falls away from this point which limits any views into the main BESS Site from this location. Although the value would be medium to high owing to the location of the viewpoint just beyond the National Park boundary, the susceptibility to change would be low as the experience from this roadside location would be fleeting and glimpsed from taller vehicles above the hedgebank. The overall sensitivity to change would be medium.

Viewpoint 9 – View from Wales Coast Path, west of Hundleton

- 6.4.40 This viewpoint is located on the Wales Coast Path long distance route, nearly 2km to the east of the main BESS Site near Hundleton. This is a panoramic view towards Pembroke Dock and the landscape around the estuary. Views towards the main BESS Site are not evident resulting from the interplay between the undulating topography and vegetation along tributaries east of the Site leading towards the estuary. Any receptors using the footpath travelling towards the Site would be enjoying the landscape and considered high value and susceptibility and therefore overall high sensitivity to change.

Viewpoint 10 – View from Military Road (Footpath SP32/76), Pembroke Dock

- 6.4.41 This viewpoint is located beyond the Pembroke River estuary, to the west of Pembroke, nearly 2km away from the main BESS Site. The panoramic views of the landscape looking south is available above a recently flailed hedgerow. The riparian vegetation leading from Goldborough Pill running near the eastern boundary of the main BESS Site is evident in the view. Views towards the main BESS Site are not evident resulting from the interplay between the topography and dense vegetation. Any receptors using the footpath would be enjoying the landscape and considered high value and susceptibility and therefore overall high sensitivity to change.

Viewpoint 11 – View from B4320, north of Corston Beacon

- 6.4.42 This viewpoint is located along the B4320, approximately 1km away to the south-east of the main BESS Site. It represents a panoramic cross-valley view of the landscape looking north-west towards Milford Haven. The major industrial plant can be seen in the skyline of the view. Views towards the main BESS Site are evident resulting from the sloping topography in this direction. These are channelled views through a fieldgate which creates a gap between the hedgerow vegetation. This is not a publicly accessible location or resting stop, so any views are fleeting and glimpsed whilst travelling west at high speed along the B4320 in a vehicle. Any receptors using the road will be focussed on their travel with a low susceptibility and therefore overall low sensitivity to change.

6.5 Embedded Design Mitigation

- 6.5.1 Primary mitigation measures have been developed through the iterative design process to reduce the landscape and visual impact of the Proposed Development. These are shown at Appendix 5.2: Landscape Masterplan.
- 6.5.2 A Construction & Environment Management Plan (CEMP) (outline CEMP Appendix 3.1) will ensure good working practices that minimise adverse impacts on landscape character and visual amenity. This includes measures such as fencing to protect those landscape features that are to be retained, and the sensitive location of site cabins, lay down areas, and compounds to minimise impact.
- 6.5.3 The siting of the BESS platform has been sensitively located to reduce its impact on the surrounding countryside; allow space for planting around the perimeter of the Site to include creation of native scrub habitat and trees; and minimise topographical changes. These buffers to the boundary include a mixture of planting typologies including trees (specimens and groups); native scrub/hedgerow stock; and grassland. Where slopes have arisen as part of the ground modelling to create a flat BESS platform, these will be planted using native scrub/hedgerow stock to soften built features at the boundary and provide biodiversity enhancements.
- 6.5.4 Additional tree and woodland planting has been introduced to the south of the Site to mitigate the impact on elevated views from this direction, particularly from the Pembrokeshire Coast National Park. This includes a mixtures of large, specimen trees and riparian suitable woody vegetation around the pond and along the ditch.
- 6.5.5 Existing hedgerows have also been bolstered using scrub and hedgerow stock to safeguard the protection of these boundary features over the long term, creating a dense linear corridor for visual mitigation and providing valuable habitat.
- 6.5.6 The construction stages will proceed in accordance with industry standard best practice techniques and that all legislative requirements will be met. This is anticipated to commence in 2025 and complete in 2026 over the course of 12 months, with elements of the Proposed Development being phased during this period (i.e. site preparation/establishment, laying foundations, installation of equipment, site testing, demobilisation). It is anticipated that construction vehicles will access the Site via the B4320. The contractor will ensure site security measure (Hoarding/Fencing) around the construction zone are maintained. Construction activities and deliveries will be carried out Monday to Friday 08:00-18:00 and between 08:00 and 13:30 on Saturdays.
- 6.5.7 Standard measures and adoption of construction best practice methods to avoid, minimise or manage adverse environmental effects, or to ensure realisation of beneficial effects, are assured to have been incorporated into the Proposed Development and the methods of its construction from the outset.
- 6.5.8 A sensitive lighting scheme will also be in place to reduce obtrusive light on the environment. Lighting will be limited to infrared security lighting on the substation which is required for emergency health and safety procedures.

6.6 Assessment of Likely Significant Effects

- 6.6.1 This section describes the likely significant effects only and should be read in conjunction with Appendix 6.4: Landscape Effects Summary Tables and Appendix 6.5 Visual Effects Summary Tables.

Construction

- 6.6.2 The construction methodology and phasing are detailed in Chapter 3 of this ES and has been used to inform the assessment of likely effects. The assessment of construction works has considered the enabling, ancillary and remedial works. This section describes the likely significant effects only and should be read in conjunction with Appendix 6.4: Landscape Effects Summary Tables and Appendix 6.5: Visual Effects Summary Tables.

Landscape Elements and Landscape Character

- 6.6.3 The effects on landscape elements are limited to within the boundaries of the Site and include the direct physical change to the fabric of the land such as the removal of site topography, pastoral grassland and vegetation to allow for the construction of the BESS facilities, access track, grid connections and fencing as outlined in the Proposed Development description.
- 6.6.4 The prevailing contours within the Site reflect the sloping, undulating topography of the wider landscape. The overall sensitivity of the topography is considered to be medium. These would remain to some degree throughout the construction phase, with the exception of the remodelling required for the flat BESS platform and a degree of cut and fill on the perimeter. On balance, the magnitude of change is considered to be medium. With a medium sensitivity and medium magnitude of change, the construction phase would result in a moderate adverse effect on site topography.
- 6.6.5 The Site is currently pastoral farmland used for sheep grazing. This is considered to be low susceptibility and medium value due to the commonality of the landscape element within the LANDMAP Aspect areas. The overall sensitivity of the pastoral grassland is considered to be medium. The construction phase and remodelling of the ground would change the perception of the primary land use from pastoral grassland to a developed context. The magnitude of change is considered to be medium due to the perceived change in land use. With a medium sensitivity and a medium magnitude of change, the construction phase would result in a moderate adverse effect on the pastoral land use.
- 6.6.6 The design seeks to minimise the loss of existing trees and other vegetation, which would be protected throughout the construction phase. A limited number of gateway widening and very minor hedgerow breaches would be required to allow for the implementation of the access tracks and cable connections. The proposed main BESS Site, including security fencing have generally been located away from boundary vegetation as far as possible to ensure their retention. Vegetation across the Site is generally considered to be medium value, susceptibility and sensitivity due to the contribution these landscape elements make to the character. With minimal losses, the magnitude of change would be low throughout the construction phase, resulting in a minor adverse effect on vegetation.
- 6.6.7 The effects on landscape character considers how the introduction of new landscape elements physically alters the landform, landcover, landscape pattern and perceptual attributes of the Site. The sensitivity of the NLCA, LCA and LANDMAP Aspect Areas within the study area are, as a reflection of their overall evaluations and published data sheets (See Appendix 6.1) are considered to have a medium sensitivity.
- 6.6.8 The landscape elements that constitute the LANDMAP geological, habitats, historic or cultural aspect areas within the Site would remain largely unaffected through the construction phase in physical terms. It is also expected the short term, localised enabling and ancillary works / construction activities would introduce a low magnitude of change on the identified landscape character areas including NLCA 46: Milford Haven and LCA 25: Hundleton and Lamphey due to the scale of development in relation to the large areas covered within the published areas.

With a medium sensitivity and a low magnitude of change, the construction phase would result in a minor adverse effect on landscape character areas.

Views and Visual Amenity

- 6.6.9 It is expected that the short term, localised enabling and ancillary works / construction activities would not cause significant effects on views experienced by the identified visual receptors (including high and medium sensitivity receptors) and associated representative viewpoints. Potential visibility of the main BESS Site and cable corridor is limited to the immediate surroundings by intervening landform and vegetation. Any views of the proposed construction works would be minor, affecting the Site for a short period of time throughout the construction period (6 months).

Operation

- 6.6.10 Details of the Proposed Development are detailed in Chapter 3 of this ES and have been used to inform the assessment of likely effects. The assessment of operation has considered the ongoing operation of the main BESS Site when fully implemented and established.

Landscape Elements and Landscape Character

- 6.6.11 The overall sensitivity of the topography is considered to be medium. The sloping topography would remain to some degree with the Proposed Development in place, with the exception of the flat BESS platform and its sloping banks along the boundaries. On balance, the magnitude of change is considered to be medium. With a medium sensitivity and medium magnitude of change, the Proposed Development would result in a moderate adverse effect on site topography.
- 6.6.12 The overall sensitivity of the pastoral grassland is considered to be medium. The perception of the primary land use from pastoral grassland to a BESS facility. The magnitude of change is considered to be medium due to the perceived change in land use. With a medium sensitivity and a medium magnitude of change, the Proposed Development would result in a moderate adverse effect on the pastoral land use.
- 6.6.13 The proposed main BESS Site, including security fencing have generally been located away from boundary vegetation as far as possible to ensure their retention in the long term. Vegetation across the Site is generally considered to be medium value, susceptibility and sensitivity due to the contribution these landscape elements make to the character. The landscape strategy introduces a diverse mixture of vegetation, including trees, hedgerow and woodland, which would improve the vegetative context in which the Site lies. Minimal losses and a high degree of proposed vegetation would introduce a beneficial effect on this element.
- 6.6.14 The landscape elements that constitute the LANDMAP geological, habitats, historic or cultural aspect areas within the Site would remain largely unaffected through the Proposed Development in place. It is expected the once operational, the Proposed Development would have a low magnitude of change on the identified landscape character areas including NLCA 46: Milford Haven and LCA 25: Hundleton and Lamphey due to the scale of development in relation to the large areas covered within the published areas. On the contrary, with the introduction of characteristic features such as proposed vegetation, there will be an element of beneficial impact once established. With a medium sensitivity and a low magnitude of change, the Proposed Development would result in a minor adverse effect on landscape character areas.

Visual Receptors

- 6.6.15 Considering the intervening boundary vegetation and low-lying profile of the Proposed Development, it is assessed that views from the surrounding network of public footpaths would be considerably screened. Views from a small section of PRow Footpath SP34/6 to the north of Goldborough Road (Viewpoint 4) would be subject to minor adverse visual effects due to the Proposed Developments proximity causing a medium magnitude of change to existing views at Year 1.
- 6.6.16 The visibility of the Proposed Development from the surrounding road network would be largely limited to the areas located on the immediate periphery. There are glimpsed elevated views to the south east (B4320 Viewpoint 11) due to the sloping topography in this direction combined with low managed hedgerows which provide a view of this part of the Site. The trees proposed to be planted around the Site, particularly in the south/south-east, would heavily filter views from passing vehicles. Although some parts of the Site would be visible, it is important to reiterate that at such distance, the Proposed Development would form a very small and inconspicuous element in these composite views, especially with the major industry at Milford Haven in the backdrop and skyline of all views from this direction. The effects on road users would be minor adverse at most with the Proposed Development in place.
- 6.6.17 There would be limited to no effects on the majority of residential receptors due to factors such as orientation, intervening landform, built form and vegetation.
- 6.6.18 The assessment of viewpoints and associated receptors (including high and medium sensitivity receptors) concluded that the Proposed Development would not cause likely significant effects. Potential effects on PRow users, other footpath users and road users were found to be negligible to minor adverse. This is due to a combination of factors including limited availability of views and screening caused by intervening landform and vegetation. The Proposed Development will introduce change to the main BESS Site which may be experienced in the immediate environs.

Decommissioning

- 6.6.19 Details of the decommissioning have not been assessed. However, the effects would be similar to those at the construction period, but in reverse, and would be in accordance with an approved decommissioning plan. This would result in beneficial effects with the restoration of the Site to its existing baseline.

6.7 Mitigation and Residual Effects

Mitigation

- 6.7.1 The further measures outlined below will be incorporated into the Proposed Development.
- 6.7.2 General mitigation measure (outlined in the Construction Environmental Management Plan / CEMP; Appendix 3.1) to minimise/avoid potential temporary landscape and visual effects during the construction phase include:
- Controlling the lighting of the construction compound and machinery to minimise upward and outward light pollution through lantern design, directing, and baffling, ensuring that the minimum area only is lit for the minimum period;
 - Limiting the compaction and disruption to the soil structure, so that soil permeability is not reduced;
 - Restricting the movement of materials to minimise vehicle tracking across the Site; and

- Protection of trees and hedgerows during construction by approved tree protection fencing, installed before the commencement of construction, in compliance with *BS5837:2012 – Trees in relation to design, demolition and construction*.

6.7.3 No significant effects were identified. It is therefore concluded that no further mitigation or enhancement measures are required.

6.8 Residual Effects

6.8.1 No significant residual landscape and visual effects would arise.

6.9 Cumulative and in-Combination Assessment

6.9.1 This section comprises assessment of the combined effects of the Proposed Development with other development designated in the local planning framework.

6.9.2 Pembrokeshire County Council (PPC) confirmed in the EIA Scoping Opinion (Appendix 1.3) that there would be eight nearby schemes that have the potential to cumulatively interact with the Proposed Development. The significance of potential cumulative effects has been determined considering the proximity of the Proposed Development, the temporal nature of any such effects and whether effects are temporary or permanent.

6.9.3 Any cumulative landscape effects would be likely to be greatest in areas that are of greater susceptibility to change and of higher value, all other factors being equal. Other factors that would determine the level of cumulative effects include the size or scale of the cumulative effects, the extent of the geographical area influenced by the cumulative effects, and the duration of the cumulative effects.

6.9.4 High levels of adverse cumulative landscape impacts are more likely to occur where similar development schemes would be close to the Proposed Development, resulting in energy developments becoming a greater characteristic of the landscape, ultimately changing the landscape character.

6.9.5 The identified 'Cumulative Schemes 1-8' fall within the same NLCA (48: Milford Haven); LCA (25: Hundleton and Lamphey); and most of the same LANDMAP Aspect Areas as the Site. The cumulative developments considered, would have been brought forward with a similar landscape approach to the Site, retaining existing landscape features, such as trees, hedgerows and woodland to actively contribute to the published landscape character objectives at a local level. This is particularly evident for Sites 1-5 with above-ground prospective development to the north of Goldborough Road of a similar nature, which is illustrated in their Scoping Requests for Sites 1, 2 & 5, as well as illustrative material that accompanies the application for Sites 3 & 4. There would be a land use change caused by the cumulative schemes; however, this would not alter the assessed effects of the Proposed Development within the relevant Landscape Character Areas identified above. Due to the limited potential effects upon landscape character of the Proposed Development, and the relationship of the Site to the potential cumulative developments, it is concluded that no significant cumulative effects on the assessed landscape areas would arise.

6.9.6 The study of cumulative effects concerns the effects on views and visual amenity enjoyed by people, which may result either from adding the effects of the development to other developments, or their combined effect.

6.9.7 Highly adverse visual effects are anticipated to be more likely in areas where more than one energy development is visible at the same time and in the same field of view as the Proposed

Development, and/or particularly where the developments are within close distance to the viewer and their open views.

- 6.9.8 The cumulative schemes are all to the north of the Site, stemming from Goldborough Road. Intervisibility between the cumulative sites may be possible from higher ground to the south, particularly the B4320 (Viewpoints 6, 7 & 11) but would be barely perceptible given the separation distances, intervening vegetation and topography, and the backdrop of industrial development of the power station and oil refinery complexes at Milford Haven. As a result, it is considered that where both developments can be seen together that it would not give rise to significant views. Closer distance views from Goldborough Road (Viewpoints 2 & 4) would be near to the site boundaries of Site 2, 6 & 7, but for the purposes of access only as opposed to any substantial built development.
- 6.9.9 Therefore, no significant cumulative effects are anticipated in relation to either Landscape or Visual receptors.

6.10 Summary

- 6.10.1 This Landscape and Visual Chapter, in conjunction with Appendix 6.4 Landscape Effects and Appendix 6.5: Visual Effects provides a proportionated level of assessment to determine potential significant effects on the landscape and visual amenity associated with the Site and study area.
- 6.10.2 The Landscape and Visual Impact Assessment as reported in this Chapter has been prepared by Pegasus Group and undertaken with regard to best practice, as outlined in 'Guidelines for Landscape and Visual Impact Assessment (3rd Edition, 2013), carried out by a competent Landscape Architect and reviewed by a Chartered Member of the Landscape Institute (CMLI).
- 6.10.3 Landscape and visual effects have been assessed through professional judgements on the sensitivity of landscape character and landscape features, as well as visual receptors and representative viewpoints identified within the baseline study, combined with the predicted magnitude of change arising from the proposals.
- 6.10.4 The assessment of landscape receptors concludes that the Proposed Development will not result in significant effects on landscape character (NLCA 48: Milford Haven and LCA 25: Hundleton and Lamphey) or landscape features (topography, land use, vegetation, PRoW and settlement) of the main BESS Site or cable corridor during any phase of the Proposed Development.
- 6.10.5 The visibility of the Site is limited to the immediate periphery and influenced by the interplay of topography and dense vegetation that surrounds the main BESS Site. Field work was carried out in November 2023 to record a range of potential views representing a range of receptor groups within the study area, including PRoW users, other footpath users and road users. Potential views of the Proposed Development experienced by the identified receptor groups were represented by the ten selected viewpoints.
- 6.10.6 The assessment of visual receptors concludes that the Proposed Development will not result in significant effects on visual amenity at representative viewpoints towards the main BESS Site from the study area during any phase of the Proposed Development.
- 6.10.7 Regarding the cumulative schemes, the wider landscape benefits from a comprehensive existing green infrastructure network, which when combined with intervening topography and built form, often filters and curtails views, especially those within and across the landscape near the Site. Due to the limited effects upon landscape character, limited visibility of the Proposed

Development, and the relationship of the Proposed Development to cumulative schemes, it is concluded that no significant cumulative landscape or visual effects would arise.

6.10.8 A summary of the assessment is set out in Table 6.12 (landscape) and Table 6.13 (visual) overleaf.

Table 6.12: Summary of landscape effects

Receptor	Description of potential impact	Significance prior to mitigation	Proposed mitigation	Residual effect	Significant / not significant
Construction Phase					
NLCA 48: Milford Haven	Adverse impact on key characteristics such as the mixed fields and hedgerows and mixed plantations (including riparian woodlands) fringing the upper ria; tranquillity; and scenic qualities of the NLCA.	Not significant	Standard measures and adoption of construction best practice methods to avoid, minimise or manage adverse environmental effects (detailed in CEMP (Appendix 3.1)	Minor adverse	Not significant
LANDMAP Geological Landscape Aspect Area: Hundleton	Adverse impact on underlying geology surrounding Hundleton.	Not significant	Standard measures and adoption of construction best practice methods to avoid, minimise or manage adverse environmental effects (detailed in CEMP Appendix 3.1)	Minor adverse	Not significant
LANDMAP Landscape Habitats Aspect Area: North of Castlemartin	Adverse impact on habitat features in network north of Castlemartin.	Not significant	Standard measures and adoption of construction best practice methods to avoid, minimise or manage adverse environmental effects (detailed in CEMP Appendix 3.1)	Minor adverse	Not significant

Receptor	Description of potential impact	Significance prior to mitigation	Proposed mitigation	Residual effect	Significant / not significant
LANDMAP Historic Landscape Aspect Area: Rhoscrowther	Adverse impact on historic or heritage features surrounding Rhoscrowther.	Not significant	Standard measures and adoption of construction best practice methods to avoid, minimise or manage adverse environmental effects (detailed in CEMP Appendix 3.1)	Minor adverse	Not significant
LANDMAP Cultural Landscape Aspect Area: Castlemartin	Adverse impact on the cultural landscape features surrounding Castlemartin.	Not significant	Standard measures and adoption of construction best practice methods to avoid, minimise or manage adverse environmental effects (detailed in CEMP Appendix 3.1)	Minor adverse	Not significant
LANDMAP Visual and Sensory Landscape Aspect Area: Castlemartin	Adverse impact on the rolling lowland landscape surrounding Castlemartin.	Not significant	Standard measures and adoption of construction best practice methods to avoid, minimise or manage adverse environmental effects (detailed in CEMP Appendix 3.1)	Minor adverse	Not significant
LCA 25: Hundleton and Lamphey	Adverse impact on the key characteristics including the existing vegetation, the	Not significant	Standard measures and adoption of construction best practice methods to	Minor adverse	Not significant

Receptor	Description of potential impact	Significance prior to mitigation	Proposed mitigation	Residual effect	Significant / not significant
	Pembrokeshire Coast National Park setting; the pastoral farmland.		avoid, minimise or manage adverse environmental effects (detailed in CEMP Appendix 3.1)		
Topography	Adverse impacts on the topography of the Site.	Not significant	Standard measures and adoption of construction best practice methods to avoid, minimise or manage adverse environmental effects (detailed in CEMP Appendix 3.1)	Minor adverse	Not significant
Land Use	Adverse impact on the current land use (pastoral grassland)	Not significant	Standard measures and adoption of construction best practice methods to avoid, minimise or manage adverse environmental effects (detailed in CEMP Appendix 3.1)	Minor adverse	Not significant
Vegetation	Adverse impact on the existing vegetation surrounding the Site.	Not significant	Standard measures and adoption of construction best practice methods to avoid, minimise or manage adverse environmental effects (detailed	Minor adverse	Not significant

Receptor	Description of potential impact	Significance prior to mitigation	Proposed mitigation	Residual effect	Significant / not significant
			in CEMP Appendix 3.1)		
Public Rights of Way	Adverse impact on the surrounding Public Right of Way network	Not significant	Standard measures and adoption of construction best practice methods to avoid, minimise or manage adverse environmental effects (detailed in CEMP Appendix 3.1)	Moderate adverse	Not significant
Pembrokeshire Coast National Park	Adverse impact the Pembrokeshire Coast National Park and its inherent special qualities.	Not significant	Standard measures and adoption of construction best practice methods to avoid, minimise or manage adverse environmental effects (detailed in CEMP Appendix 3.1)	Minor adverse	Not significant
Operation Phase					
NLCA 48: Milford Haven	Adverse impact on key characteristics such as the mixed fields and hedgerows and mixed plantations (including riparian woodlands) fringing the upper ria; tranquillity; and	Not significant	Retention of existing landscape features; introduction of characteristic features such as hedgerows, trees, riparian woodland. Sensitive siting of development and lighting design to	Minor adverse	Not significant

Receptor	Description of potential impact	Significance prior to mitigation	Proposed mitigation	Residual effect	Significant / not significant
	scenic qualities of the NLCA.		minimise light pollution.		
LANDMAP Geological Landscape Aspect Area: Hundleton	Adverse impact on underlying geology surrounding Hundleton.	Not significant	Sensitive siting to minimise ground modelling within site.	Minor adverse	Not significant
LANDMAP Landscape Habitats Aspect Area: North of Castlemartin	Adverse impact on habitat features in network north of Castlemartin.	Not significant	Retention of existing landscape features; introduction of improved grassland and wildflower areas, additional lengths of hedgerow, individual trees and riparian and native woodland blocks surrounding the main BESS Site.	Minor adverse	Not significant
LANDMAP Historic Landscape Aspect Area: Rhoscrowther	Adverse impact on historic or heritage features surrounding Rhoscrowther.	Not significant	Sensitive siting to minimise ground modelling within site.	Minor adverse	Not significant
LANDMAP Cultural Landscape Aspect Area: Castlemartin	Adverse impact on the cultural landscape features surrounding Castlemartin.	Not significant	Retention of existing landscape features; introduction of characteristic features such as hedgerows, trees, riparian woodland. Sensitive siting of development	Minor adverse	Not significant

Receptor	Description of potential impact	Significance prior to mitigation	Proposed mitigation	Residual effect	Significant / not significant
			and lighting design to minimise light pollution.		
LANDMAP Visual and Sensory Landscape Aspect Area: Castlemartin	Adverse impact on the rolling lowland landscape surrounding Castlemartin.	Not significant	Retention of existing landscape features; introduction of characteristic features such as hedgerows, trees, riparian woodland. Sensitive siting of development and lighting design to minimise light pollution.	Minor adverse	Not significant
LCA 25: Hundleton and Lamphey	Adverse impact on the key characteristics including the existing vegetation, the Pembrokeshire Coast National Park setting; the pastoral farmland.	Not significant	Retention of existing landscape features; introduction of characteristic features such as hedgerows, trees, riparian woodland. Sensitive siting of development and lighting design to minimise light pollution.	Minor adverse	Not significant
Topography	Adverse impacts on the topography of the Site.	Not significant	Sensitive siting to minimise ground modelling within site.	Moderate adverse	Not significant
Land Use	Adverse impact on the current land use	Not significant	Sensitive siting to minimise ground	Minor adverse	Not significant

Receptor	Description of potential impact	Significance prior to mitigation	Proposed mitigation	Residual effect	Significant / not significant
	(pastoral grassland)		modelling within site.		
Vegetation	Adverse impact on the existing vegetation surrounding the Site.	Not significant	Sensitive siting to minimise loss of vegetation. Introduction of vegetative features such as hedgerows, trees, riparian woodland. Sensitive siting of development and lighting design to minimise light pollution.	Minor beneficial	Not significant
Public Rights of Way	Adverse impact on the surrounding Public Right of Way network	Not significant	Sensitive siting and planting to minimise impact on surrounding countryside. Sensitive lighting design to minimise light pollution.	Negligible	Not significant
Pembrokeshire Coast National Park	Adverse impact the Pembrokeshire Coast National Park and its inherent special qualities.	Not significant	Sensitive siting and planting to minimise impact on surrounding countryside. Sensitive lighting design to minimise light pollution.	Negligible	Not significant

Table 6.13: Summary of visual effects

Visual Receptor	Description of potential impact	Significance prior to mitigation	Proposed mitigation	Residual effect	Significant / not significant
Construction Phase					
PRoW Footpath SP34/6 to	Adverse impact on public footpath users.	Not significant	Standard measures and adoption of	Moderate adverse	Not significant

Visual Receptor	Description of potential impact	Significance prior to mitigation	Proposed mitigation	Residual effect	Significant / not significant
north of Goldborough Road (Viewpoint 4)			construction best practice methods to avoid, minimise or manage adverse environmental effects (detailed in CEMP)		
PRoW Bridleway SP37/6 north of Hoplass (Viewpoint 5)	Adverse impact on public footpath users.	Not significant	Standard measures and adoption of construction best practice methods to avoid, minimise or manage adverse environmental effects (detailed in CEMP)	Negligible	Not significant
PRoW Bridleway SP37/6 north of B4320 (Viewpoint 6)	Adverse impact on public footpath users.	Not significant	Standard measures and adoption of construction best practice methods to avoid, minimise or manage adverse environmental effects (detailed in CEMP)	Moderate adverse	Not significant
Wales Coast Path west of Hundleton (Viewpoint 9)	Adverse impact on public footpath users.	Not significant	Standard measures and adoption of construction best practice methods to avoid, minimise or manage adverse environmental effects (detailed in CEMP)	Negligible	Not significant

Visual Receptor	Description of potential impact	Significance prior to mitigation	Proposed mitigation	Residual effect	Significant / not significant
PRoW Footpath SP32/76 along Military Road, Pembroke Dock (Viewpoint 10)	Adverse impact on public footpath users.	Not significant	Standard measures and adoption of construction best practice methods to avoid, minimise or manage adverse environmental effects (detailed in CEMP)	Negligible	Not significant
Wallaston Cross (Viewpoint 1)	Adverse impact on users of local road network.	Not significant	Standard measures and adoption of construction best practice methods to avoid, minimise or manage adverse environmental effects (detailed in CEMP)	Minor adverse	Not significant
Goldborough Road (Viewpoint 2)	Adverse impact on users of local road network.	Not significant	Standard measures and adoption of construction best practice methods to avoid, minimise or manage adverse environmental effects (detailed in CEMP)	Minor adverse	Not significant
Minor road south of Wallaston Cross (Viewpoint 3)	Adverse impact on users of local road network.	Not significant	Standard measures and adoption of construction best practice methods to avoid, minimise or manage adverse	Minor adverse	Not significant

Visual Receptor	Description of potential impact	Significance prior to mitigation	Proposed mitigation	Residual effect	Significant / not significant
			environmental effects (detailed in CEMP)		
B4320 junction with minor road to Wallaston Cross (Viewpoint 7)	Adverse impact on the current land use (pastoral grassland)	Not significant	Standard measures and adoption of construction best practice methods to avoid, minimise or manage adverse environmental effects (detailed in CEMP)	Minor adverse	Not significant
B4320 junction with minor road to Rhoscrowther (Viewpoint 8)	Adverse impact on the existing vegetation surrounding the Site.	Not significant	Standard measures and adoption of construction best practice methods to avoid, minimise or manage adverse environmental effects (detailed in CEMP)	Negligible	Not significant
B4320 north of Corston Beacon	Adverse impact on the surrounding Public Right of Way network	Not significant	Standard measures and adoption of construction best practice methods to avoid, minimise or manage adverse environmental effects (detailed in CEMP)	Minor adverse	Not significant
Sunnyridge and Wallaston Green	Adverse impact on surrounding settlement	Not significant	Standard measures and adoption of construction best practice methods to	Negligible	Not significant

Visual Receptor	Description of potential impact	Significance prior to mitigation	Proposed mitigation	Residual effect	Significant / not significant
			avoid, minimise or manage adverse environmental effects (detailed in CEMP)		
Operation Phase					
PRoW Footpath SP34/6 to north of Goldborough Road (Viewpoint 4)	Adverse impact on public footpath users.	Not significant	Retention of existing landscape features providing screening; Sensitive siting of development away from boundaries; introduction of characteristic features such as hedgerows, trees, riparian woodland to soften views; sensitive lighting design to minimise light pollution.	Moderate adverse	Not significant
PRoW Bridleway SP37/6 north of Hoplass (Viewpoint 5)	Adverse impact on public footpath users.	Not significant	Retention of existing landscape features providing screening; Sensitive siting of development away from boundaries; introduction of characteristic features such as hedgerows, trees, riparian woodland to	Negligible	Not significant

Visual Receptor	Description of potential impact	Significance prior to mitigation	Proposed mitigation	Residual effect	Significant / not significant
			soften views; sensitive lighting design to minimise light pollution.		
PRoW Bridleway SP37/6 north of B4320 (Viewpoint 6)	Adverse impact on public footpath users.	Not significant	Retention of existing landscape features providing screening; Sensitive siting of development away from boundaries; introduction of characteristic features such as hedgerows, trees, riparian woodland to soften views; sensitive lighting design to minimise light pollution.	Negligible	Not significant
Wales Coast Path west of Hundleton (Viewpoint 9)	Adverse impact on public footpath users.	Not significant	Retention of existing landscape features providing screening; Sensitive siting of development away from boundaries; introduction of characteristic features such as hedgerows, trees, riparian woodland to soften views; sensitive lighting design to	Negligible	Not significant

Visual Receptor	Description of potential impact	Significance prior to mitigation	Proposed mitigation	Residual effect	Significant / not significant
			minimise light pollution.		
PRoW Footpath SP32/76 along Military Road, Pembroke Dock (Viewpoint 10)	Adverse impact on public footpath users.	Not significant	Retention of existing landscape features providing screening; Sensitive siting of development away from boundaries; introduction of characteristic features such as hedgerows, trees, riparian woodland to soften views; sensitive lighting design to minimise light pollution.	Negligible	Not significant
Wallaston Cross (Viewpoint 1)	Adverse impact on users of local road network.	Not significant	Retention of existing landscape features providing screening; Sensitive siting of development away from boundaries; introduction of characteristic features such as hedgerows, trees, riparian woodland to soften views; sensitive lighting design to minimise light pollution.	Minor adverse	Not significant

Visual Receptor	Description of potential impact	Significance prior to mitigation	Proposed mitigation	Residual effect	Significant / not significant
Goldborough Road (Viewpoint 2)	Adverse impact on users of local road network.	Not significant	Retention of existing landscape features providing screening; Sensitive siting of development away from boundaries; introduction of characteristic features such as hedgerows, trees, riparian woodland to soften views; sensitive lighting design to minimise light pollution.	Minor adverse	Not significant
Minor road south of Wallaston Cross (Viewpoint 3)	Adverse impact on users of local road network.	Not significant	Retention of existing landscape features providing screening; Sensitive siting of development away from boundaries; introduction of characteristic features such as hedgerows, trees, riparian woodland to soften views; sensitive lighting design to minimise light pollution.	Minor adverse	Not significant
B4320 junction with minor road to	Adverse impact on the current land use	Not significant	Retention of existing landscape	Minor adverse	Not significant

Visual Receptor	Description of potential impact	Significance prior to mitigation	Proposed mitigation	Residual effect	Significant / not significant
Wallaston Cross (Viewpoint 7)	(pastoral grassland)		features providing screening; Sensitive siting of development away from boundaries; introduction of characteristic features such as hedgerows, trees, riparian woodland to soften views; sensitive lighting design to minimise light pollution.		
B4320 junction with minor road to Rhoscrowther (Viewpoint 8)	Adverse impact on the existing vegetation surrounding the Site.	Not significant	Retention of existing landscape features providing screening; Sensitive siting of development away from boundaries; introduction of characteristic features such as hedgerows, trees, riparian woodland to soften views; sensitive lighting design to minimise light pollution.	Negligible	Not significant
B4320 north of Corston Beacon	Adverse impact on the surrounding Public Right of Way network	Not significant	Retention of existing landscape features providing screening;	Minor adverse	Not significant

Visual Receptor	Description of potential impact	Significance prior to mitigation	Proposed mitigation	Residual effect	Significant / not significant
			Sensitive siting of development away from boundaries; introduction of characteristic features such as hedgerows, trees, riparian woodland to soften views; sensitive lighting design to minimise light pollution.		
Sunnyridge and Wallaston Green	Adverse impact on surrounding settlement	Not significant	Retention of existing landscape features providing screening; Sensitive siting of development away from boundaries; introduction of characteristic features such as hedgerows, trees, riparian woodland to soften views; sensitive lighting design to minimise light pollution.	Negligible	Not significant

7 Other Environmental Matters

7.1 Introduction

- 7.1.1 The EIA (Wales) Regulations require an ES to present the description of the likely significant effects of the Proposed Development taking into account the following: accidents, fire and natural disasters; agricultural land and soils, including ground conditions; air quality; human health; heritage; hydrology flood risk and drainage; noise and vibration and transport and access.
- 7.1.2 Through the scoping exercise and the survey work undertaken at the Site, those topics that were identified as having the potential to give rise to significant environmental effects were ecology, and landscape and visual impact. These topics have therefore been assessed as part of the ES and their outcomes are presented in the preceding two chapters. Whilst the remaining topics have the potential to give rise to a small number of effects, both adverse and beneficial, these effects are not deemed to be significant in EIA terms. As such the topics have not been subject to formal assessment in this ES. However, the findings of the work undertaken in relation to them as part of the planning application are summarised here for completeness.
- 7.1.3 Each environmental topic is considered in turn, including an outline of survey work that has been undertaken, any information submitted to inform the planning application, and any design features that have been incorporated in relation to the topic area.

7.2 Accidents, Fire and Natural Disasters

Survey work undertaken

- 7.2.1 A Battery Management Plan (BMP) (Appendix 3.4) has been prepared to accompany the planning application associated with the Proposed Development. The BMP has been prepared by Enso Energy with appropriate input from battery design engineers with sufficient technical expertise to inform the planning application and to offer Pembrokeshire County Council (PCC) comfort within the scope of their planning assessments and considerations.

Inherent Design and Mitigation Measures

- 7.2.2 The BESS is designed to be safe during both construction and operation.
- 7.2.3 The design approach of the Proposed Development includes procuring components and using construction techniques which comply with all relevant legislation.
- 7.2.4 Safety systems, such as automatic shut off and temperature monitoring of battery units are built into the BESS. These are designed to the same electrical safety standards as other proposed high voltage electrical equipment.
- 7.2.5 Early warning systems, automatic fire detection and suppression systems and shut off systems are employed as part of the BESS, which is connected to a 24-hour control room where real-time updates are provided advising of all installed battery faults, heat, smoke or fire alarms status and activation. The control room also has access to the CCTV feeds.
- 7.2.6 The battery storage units are air cooled by Heating, Ventilation and Air Conditioning (HVAC) systems and water can be circulated within a closed system as a coolant to batteries without any discharging of water from the units.

- 7.2.7 Fire risk within the battery containers can be managed in several ways (in addition to the base chemistry of the battery cells) using software and hardware fail safes and fire suppression systems. The battery management system is capable of detecting problems using cell and module voltage and temperature measurements within the batteries and on each rack. Battery cells and racks are typically separated by an air gap and/or a thermal barrier to prevent the propagation of heat between neighbouring components that could result in a cascading effect of thermal runaway events.
- 7.2.8 The battery containers are fitted with monitoring systems to ensure the temperature within each cell of the battery module is monitored. If there is a temperature variation outside optimum operating conditions within an individual module this will trigger a response from the air conditioning units. If temperature increase continues or there is a failure of the air-conditioning units, the battery storage facility container will automatically partially or fully shutdown to mitigate against the risk of thermal runaway and fire. Multiple types of additional fire and gas build up detection systems and electrical isolations are typically deployed within battery storage units. Automatic disconnects will occur if any unusual parameters are measured.
- 7.2.9 Further, the containers making up the BESS are adequately separated from each other, and the layout of the battery storage compound is designed to prevent the spread of fire from one unit to other in the very unlikely event a fire should occur. The BESS is also located away from any residential receptors and public rights of way (PRoW) and will be secured within a fenced area.
- 7.2.10 In the very unlikely event of a battery fire in one of the modules, a fire suppression system would be triggered automatically. The fire suppression system would comprise FM200 gas, Novec 1230 fire suppression gas or similar. The primary function of the gas is to put out flames by physically cooling below the ignition temperature of what is burning and chemically inhibiting the fuel source.
- 7.2.11 An emergency stop system will be installed around the site, located externally on each battery storage container, acting as a manual override emergency stop button for that container. A site-wide BESS manual override emergency stop button will be provided near the BESS access and at the main control unit. Emergency stop buttons will also be located within each container. Activation of the emergency stop button will disconnect all electrical circuits and provide isolations.
- 7.2.12 As with all development that connects to the transmission system, there is a technical requirement for circuit-breakers which allows for a forced lockout to occur, for example if the BESS is not operating to normal conditions.
- 7.2.13 Through the built-in management the risk of a fire occurring from the BESS will be reduced. In the very unlikely event a fire did occur, the risk of it spreading to the point where it became a major incident will be reduced to an acceptable level.
- 7.2.14 Regular inspections and on-site safety testing of the BESS and system equipment (including fire doors, emergency lighting, alarm systems, firefighting systems, etc.) shall be incorporated into the operation and maintenance schedule. The schedule shall meet manufacturers requirements and be undertaken by suitably trained and experienced staff.
- 7.2.15 Additionally, prior to commissioning of the BESS, as is standard practice, the equipment will undergo a range of 'acceptance tests' to ensure the proper functioning of all components.
- 7.2.16 Detailed design of the battery safety systems is not considered to be a planning matter, but a specialist design topic. The Battery Management Plan provides an overview of current design principles and multitude of sensor and fire suppression systems proposed. Should planning

permission be granted the Applicant would work with development partners to use of best available technology reflecting the latest battery storage design and safety systems.

- 7.2.17 Likewise, a Tactical Response Plan in case of an incident to enable an adequate emergency response to a fire or incident could be developed with the local fire and rescue service following the approval of planning permission. A Tactical Response Plan would include the means by which the BESS compound can be closed to prevent any potential source of contamination arising from firefighting appliances in event of an emergency. A “site familiarisation visit” under Section 7(2)d of the Fire and Rescue Services Act 2004 would be facilitated if requested.
- 7.2.18 Another consideration related to inherent design and mitigation measures is the location of the Proposed Development. The Site’s location within the UK is such that natural disasters are not considered to represent a likely risk to the Proposed Development. For example, it is considered that the likelihood of an earthquake with a magnitude sufficient to cause damage to equipment and/or loss of life occurring and impacting the site is extremely low. Furthermore, the topography of the site is not considered to be sufficiently steep such that a major mass movement disaster could arise.
- 7.2.19 It is considered that whilst there is always a potential risk that an accident, fire or natural disaster could result in a significant environmental impact, this risk can be appropriately mitigated through the aforementioned embedded design measures and through compliance with statutory design guidelines.

7.3 Agricultural land and soils, including ground conditions

Survey work undertaken

- 7.3.1 An Agricultural Land Classification (ALC) report has been prepared and will be submitted alongside the planning application. The report is based upon a survey conducted by a chartered surveyor, agricultural valuer, and agricultural consultant, and 1 assistant surveyor on the 4th October 2023.
- 7.3.2 During the inspections, 2 trial pits were dug to a depth of 120cm or as deep as possible if the sample point became impenetrable. In addition, an auger was used to take approximately one sample per hectare on the Proposed Development site to a depth of 120cm with smaller trial pits at some of these locations to confirm soil structure and colour where it was not clear from the auger samples.
- 7.3.3 Further Site information was obtained from the MAGIC website, the Soil Survey of England and Wales, the British Geological Survey, the Meteorological Office and 1:250,000 series Agricultural Land Classification Maps.
- 7.3.4 The collected data was judged against the Ministry of Agriculture, Fisheries and Food Agricultural Land Classification of England and Wales revised guidelines and criteria for grading the quality of agricultural land.

Inherent Design and Mitigation Measures

- 7.3.5 The main BESS Site is located on land that is classified as Grade 3b (moderate quality) according to the Agricultural Land Condition report will be submitted alongside the planning application.
- 7.3.6 During construction of the BESS, agricultural land and soils may be disturbed. However, standard best practice and mitigation methods will be secured through a CEMP which will

ensure that potential impacts from the Proposed Development at the construction phase are mitigated to ensure no significant effects arise.

- 7.3.7 With regard to open-trench laying of the cable corridor, any excavated material and soil will be separated (top soil and subsoil) and stored for a short duration nearby (within 1m) to the trench, which will later be used to backfill. The cable will typically be laid at depths of 1.5m. The cable is typically laid on a bed of sand, in some instances the cable may be laid within ducting. Warning tape is placed above the cable and soil backfilled and compacted. The final surfacing will be reinstated to the previous condition, as agricultural land, grassland or scrub land saved for within the cable corridor footprint.
- 7.3.8 Due to the above, significant effects on agricultural land and soils, including ground conditions are not considered likely to arise due to the Proposed Development. This echoes the Screening Opinion provided by Pembrokeshire County Council.

7.4 Air Quality

Survey work undertaken

- 7.4.1 The UK Air Information Resource has been utilised to survey baseline air quality in proximity to the Proposed Development. The site is not located within an 'Air Quality Management Area' (AQMA), with the nearest AQMA (AQMA No. 2 2012) located approximately 5.5 km to the northeast in Pembroke town centre. Air quality is therefore not considered to be a material environmental constraint of the Proposed Development.

Inherent Design and Mitigation Measures

- 7.4.2 During the construction phase, there would be potential for air quality effects arising from the construction works (such as dust from construction processes and emissions from construction vehicles). Such pollutions will be appropriately controlled such that any potential negative impacts are sufficiently mitigated through a detailed CEMP.
- 7.4.3 In operation, the Proposed Development will not give rise to significant air pollution as limited operational vehicle movements are expected and the operational process does not generate emissions.
- 7.4.4 Further, the Proposed Development will facilitate the deployment of intermittent renewable energy generation through the storage of renewable energy produced nearby which can be released during peak demand, therefore reducing reliance on fossil fuels. As the combustion of fossil fuels releases pollutants into the atmosphere, and the production of energy via renewable technologies such as wind and solar does not, the Proposed Development will result in an improvement in air quality on the macro scale.
- 7.4.5 An Outline CEMP (Appendix 3.1) will be submitted alongside the Planning Application, which will ensure that any potentially significant air quality effects are sufficiently mitigated. A detailed CEMP can be secured as a planning condition, should the application be granted permission.

7.5 Heritage

Survey work undertaken

- 7.5.1 Assessment of heritage impacts was undertaken in accordance with the guidelines set out in The Chartered Institute for Archaeologists' Standards and Guidance for Historic Environment Desk Based Assessment (CIfA 2020).

- 7.5.2 In order to determine the full historic environment potential of the Proposed Development, a broad range of standard documentary and cartographic sources, including results from any previous archaeological investigations within and/or adjacent to the Proposed Development Areas, and a 1km wider study area around the Site, were examined in order to determine the likely nature, extent, preservation and significance of any known or possible buried heritage assets that may be present within or adjacent to the area of the Proposed Development. In addition, designated heritage assets (such as scheduled monuments, listed buildings, and Conservation Areas) were also assessed for potential indirect impacts to their settings and significance.
- 7.5.3 The table below provides a summary of the key data sources. Occasionally there may be reference to assets beyond this study area, where appropriate, e.g., where such assets are particularly significant and/or where they contribute to current understanding of the historic environment.

Table 7-1: Sources consulted

Source	Data	Comment
Cadw	National Heritage List (NHL) with information on statutorily designated heritage assets	Statutory designations (scheduled monuments; statutorily listed buildings; registered parks and gardens; historic battlefields) can provide a significant constraint to development.
Dyfed Archaeological Trust HER	Historic Environment Records (HER)	Primary repository of archaeological information. Includes information from past investigations, local knowledge, find spots, and documentary and cartographic sources.
Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW)	National Monument Record	The RCAHMW maintains and curates the National Monuments Record of Wales (NMRW), an archive with an online Coflein.
Local Planning Authority	Conservation area appraisals	An area of special architectural or historic interest the character or appearance of which it is desirable to preserve or enhance.
Local Planning Authority	Locally listed buildings	Building of local importance designated by the local planning authority due to architectural and/or historic significance and a positive contributor to the character of an area. Whilst not statutorily protected, a building's inclusion on the list means that it is a

Source	Data	Comment
		material consideration in the planning process.
British Geological Survey (BGS)	Solid and drift geology digital map; online BGS geological borehole record data.	Sub-surface deposition, including buried geology and topography, can provide an indication of potential for early human settlement, and potential depth of archaeological remains.
Internet	Historic maps (eg tithe, enclosure, estate), published journals and local history.	Baseline information on the historic environment.

Reproduced from the Heritage Statement

- 7.5.4 A site visit was carried out on 29th September 2023 to confirm the topography and existing land use, the nature of the existing buildings and monuments, identify any visible heritage assets (e.g. structures, buildings and/or earthworks) and assess factors which may have affected the survival or condition of any known or potential assets.
- 7.5.5 The site visit also extended into the outer study area beyond the areas of Proposed Development for the purposes of scoping designated heritage assets and their inter-visibility with the Proposed Development Area and for the settings assessment itself.

Inherent Design and Mitigation Measures

Archaeology

- 7.5.6 Development groundworks within the Site would have a direct impact on any archaeological remains present within the Site. Any impacts from groundworks associated with the Proposed Development could be mitigated through an agreed programme of archaeological works developed in conjunction with the Dyfed Archaeological Trusts Planning Archaeologist. Agreed archaeological mitigation works could then be undertaken prior to and / or during the construction phase.
- 7.5.7 There will be no post-construction effects on archaeology within the Site as any remains within the site will have been preserved in situ or preserved by record if necessary (by process of archaeological fieldwork mitigation) before this stage of the Proposed Development.

Designated assets

- 7.5.8 Following initial assessment, relevant heritage assets within 3km of the Site boundary were scoped in and out of further assessment due to the topography, existing built form, and intervening vegetation which screen these heritage assets from the Site. In addition, no historical or functional connections were identified between the area of the Proposed Development and these assets. It was considered for all those scoped out that the land which constitutes the Proposed Development does not form part of the setting of these assets and therefore the development would have no impact on the setting of these assets and would cause no harm to their significance. The assessment determined that the proposals would have no direct impact on any of these heritage assets, a negligible impact on the present day extended rural setting of the scheduled monuments, and a negligible impact on the wider setting

of the listed building. It was also determined that these impacts to the setting of these heritage assets would result in no harm to their significance.

- 7.5.9 Three designated heritage assets were taken forward for further assessment. These were The scheduled monuments of Wallaston Barrow Cemetery and Corston Beacon Round Barrow, and the Grade II listed Sommerton Farmhouse.
- 7.5.10 The assessment determined that the proposals would have no direct impact on any of these heritage assets, a **negligible** impact on the present day extended rural setting of the scheduled monuments, and a **negligible** impact on the wider setting of the listed building. It was also determined that these impacts to the setting of these heritage assets would result in **no harm** to their significance.
- 7.5.11 A Heritage Statement will be produced as part of the application. The Heritage Statement provides more detail on the above.

7.6 Human health

Survey work undertaken

- 7.6.1 As stated in the Screening Report, a qualitative assessment of health concluded that the Proposed Development will not lead to any risk to human health, nor will it involve the use, storage, transport, handling or production of substances or materials which could be harmful to human health or the environment. Likewise, the Screening Opinion provided by PCC notes that *“Impacts in relation to natural resources and human health are unlikely to be significant and this includes the effects from pollution (including noise, air and water quality).”* It has therefore been determined that no survey work in relation to health impacts were required to be undertaken.

Inherent Design and Mitigation Measures

- 7.6.2 The Proposed Development is not considered to be of the nature and scale to result in a risk to human health or the local population. During the construction phase, there would be potential for minor pollution or nuisance typical of construction works (dust, noise and lighting from construction processes and construction vehicles). The Outline CEMP (Appendix 3.1) and subsequent detailed CEMP will ensure any potential negative impacts on health during construction are controlled and managed.
- 7.6.3 Once operational, the Proposed Development will not give rise to significant noise pollution or air pollutions. The use of batteries (including lithium-ion and other compositions of battery) as a means of energy storage is a maturing technology and emerging practice in the global renewable energy sector, but is based on technological advances and development of energy storage at smaller scales used for decades.
- 7.6.4 Moreover, public access amongst the battery and substation compound will be restricted by security fencing and security cameras will surveil the main site during operation.
- 7.6.5 A Battery Management Plan (BMP) has been prepared to accompany the planning application and includes details of inherent design and mitigation measures to minimise risk of accidents and disasters, and hence to protect human health. These measures include early warning systems, automatic fire detection and suppression systems, the use of Heating, Ventilation and Air Conditioning, security fencing and the Site's location, as outlined above in Section 7.2.

7.7 Hydrology, flood risk and drainage

Survey work undertaken

7.7.1 Assessment of hydrology, flood risk and drainage impacts was undertaken in accordance with the guidance detailed in Planning Policy Wales and Technical Advice Note 15 (TAN15): Development and Flood Risk. Reference has also been made to local flood risk documents and provides an outline of the potential flood risk and hydrological constraints to the site.

7.7.2 The table below provides a summary of the key data sources.

Table 7-2: Sources consulted

Source	Data	Comment
Pembrokeshire County Council	Local Development Plan (2013)	The document outlines local planning policies.
Pembrokeshire County Council	Preliminary Flood Risk Report (2011)	The document identifies areas where there is significant flood risk from local sources.
Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW)	National Monument Record	The RCAHMW maintains and curates the National Monuments Record of Wales (NMRW), an archive with an online Coflein.
Pembrokeshire County Council and Carmarthenshire County Council	Strategic Flood Consequence Assessment (2019)	The document identifies flood risk and sources at borough scale.
Pembrokeshire County Council	Local Flood Risk Management Strategy (2015)	The document identifies sources of flooding and mitigation measures to reduce their impact.
Pembrokeshire County Council	Surface Water Flooding Report	The document assesses the risk of surface water flooding within Pembroke.

7.7.3 A Preliminary Flood Risk Report (PFRR) was produced in 2011 for Pembrokeshire County Council. The PFRR is aimed at providing high level overview of flood risk from all sources of flooding within the local area, including consideration of surface water, groundwater and ordinary watercourses. Relevant information has been used to assess flood risk.

7.7.4 A Local Flood Risk Management Strategy (LFRMS) was produced in 2015 by Pembrokeshire County Council as the Lead Local Flood Authority (LLFA). The LFRMS aims to understand the risks of various flooding sources that the local area may face, take proactive steps to mitigate these risks, raise awareness across communities and prepare for any such event. Local flood risk is any flood risk that derives from surface runoff, groundwater, or ordinary watercourses. Relevant information has been used to assess flood risk.

7.7.5 The Pembrokeshire County Council and Carmarthenshire County Council SFCA (2019) identifies and maps flood risk from all sources at a borough-wide scale as well as providing guidance on producing site specific FRAs. Relevant information from the SFCA has been used to assess flood risk.

- 7.7.6 The Assessment of Surface Water Flooding Report to support the Local Development Plan was adopted in 2021. This report assesses the risk of surface water flooding within Pembroke and identifies options to manage risk to acceptable level. Any relevant information from the report has been used to assess flood risk.

Inherent Design and Mitigation Measures

Fluvial and Sea Flooding

- 7.7.7 In accordance with the Development Vulnerability Categories in Figure 15 of TAN15, BESS developments are classified as 'Highly Vulnerable'.
- 7.7.8 The main BESS Site and associated access roads are located entirely within Zone A and Flood Zone 1. The NRW Flooding from Rivers and Sea mapping shows the BESS to be at very low risk of flooding from these sources.
- 7.7.9 All types of development are considered acceptable within Zone A.
- 7.7.10 In accordance with the Development Vulnerability Categories in Figure 15 of TAN15, the cable corridor is classified as 'Less Vulnerable'. The majority of the cable corridor is located with Zone A and B / Flood Zone 1. The northern extent of the cable corridor is located within Zone C2 / Flood Zone 3.
- 7.7.11 The NRW Flooding from Rivers map considers the cable corridor to be at very low risk of flooding from these sources.
- 7.7.12 The NRW Flooding from the Sea map considers majority of the cable corridor to be at 'very low' risk, however the northern extent of the cable corridor is located in an area at 'low risk'.
- 7.7.13 Whilst all types of development are considered acceptable within Zone A, the Justification Test is required for development proposed within Zone C2. The cable corridor is unable to be routed to Pembroke Substation without crossing areas within Zones C2 and will provide sustainability benefits. As such, the Justification Test is considered to be passed.
- 7.7.14 The site has a very low risk of fluvial and sea flooding; and thus, no mitigation is proposed.

Surface Water Flooding and Ordinary Watercourses

- 7.7.15 The NRW Flood Risk from Surface Water and Small Watercourses mapping indicates the majority of the main BESS Site is located at very low risk of flooding, with a very minimal isolated section being at low risk of surface water flooding.
- 7.7.16 The extents of risk are similar in the Flood Map for Planning with a very small, isolated proportion of the site being located in Flood Zone 2.
- 7.7.17 The NRW Flood Risk from Surface Water and Small Watercourses mapping indicates that the majority of the cable corridor is at a very low risk of surface water flooding. The northern extent where the cable corridor adjoins there is an area of low risk of flooding.
- 7.7.18 The extents of risk are similar in the Flood Map for Planning with majority of the route being located in Flood Zone 1, with the small area of the northern extent being located in Flood Zone 2/3.
- 7.7.19 As the main BESS Site is located at very low- low risk of surface water flooding, no mitigation is proposed. The cable corridor will be situated below ground, and as such no further mitigation is proposed.

Groundwater flooding

- 7.7.20 BGS Geology Viewer indicates that the bedrock geology, in the northern extent of the site is comprised of a Ridgeway Conglomerate Formation (Sedimentary). In the southern land parcel, argillaceous rocks and sandstone (interbedded) belonging to the Milford haven Group make up the bedrock geology.
- 7.7.21 BGS Aquifer Designation mapping shows bedrock deposits are categorised as Secondary A Aquifers.
- 7.7.22 BGS Geology of Britain mapping shows no borehole records for both the main BESS Site. The nearest boreholes are over 1km north however access to their records is restricted. Therefore, no further details have been obtained.
- 7.7.23 British Geological Survey (BGS) online mapping (1:50,000 scale) indicates that the cable corridor is situated on superficial deposits of alluvium. The route is underlain by a bedrock geology of Milford Haven Group, Ridgeway Conglomerate Formation, Skrinkle Sandstone Formation and Avon Group.
- 7.7.24 BGS Aquifer Designation mapping shows bedrock deposits are categorised as Secondary A Aquifers.
- 7.7.25 BGS Geology of Britain mapping shows no borehole records for both the cable corridor. The nearest boreholes are over 1km north however access to them is restricted. Therefore, no further details have been obtained.

Other sources

- 7.7.26 Green Hill reservoir is located north of the site; however, it poses no risk to the site so no mitigation measures to this source are needed.
- 7.7.27 Due to the agricultural nature of the ground at the site, it is assumed there are no complex drainage systems and sewer flooding does not pose a risk to the site meaning no mitigation measures need to be taken.

Surface Water and SuDs Measures

- 7.7.28 The Proposed Development is expected to increase impermeable areas within the site by 5,200m²/0.52ha. A SuDS strategy has been produced to incorporate appropriate management techniques that will mitigate potential increase in runoff from the Proposed Development.
- 7.7.29 SuDS techniques include an attenuation basin provided up 772m³ of storage to help attenuation for the proposed infrastructure and ancillary features. Access tracks will be constructed out of permeable materials. The proposed indicative surface water drainage concept provides attenuation of up to the 1 in 100 year event plus 40% climate change allowance, which will reduce risk of flooding downstream.
- 7.7.30 The surface water and soil management measures incorporated within the Proposed Development will ensure that there is negligible alteration to local drainage patterns, flow directions and will manage suspended sediments from entering the drainage channels.
- 7.7.31 With the above inherent design and mitigation measures taken into account, any residual hydrogeological impacts are likely to be insignificant.
- 7.7.32 A Flood Risk Assessment, including the SuDs strategy (Appendix 3.3) will be provided as part of the application.

7.8 Noise and vibration

Survey work undertaken

- 7.8.1 As outlined within the Noise Impact Assessment, which to be submitted alongside this application, prevailing background noise conditions in the area have been determined by an environmental noise survey conducted during both daytime and night-time periods between the 13th and 16th October 2023, as well as a subsequent 3-dimensional noise modelling exercise.
- 7.8.2 All noise measurements were undertaken by a consultant certified as competent in environmental noise monitoring, and in accordance with the principles of BS 7445.
- 7.8.3 All acoustic measurement equipment used during the noise survey conformed to Type 1 specification of British Standard 61672.

Inherent Design and Mitigation Measures

- 7.8.4 Disturbance arising from construction of the Proposed Development (noise, dust, emissions) and associated traffic movements will be short term and methods to reduce impacts during the construction period will be detailed within the CEMP (outline version available in Appendix 3.1).
- 7.8.5 The operational noise impacts are anticipated to be limited from the inverter/transformer stations, on-site substation and batteries. Inverters may be required to be fitted with a noise reduction kit comprising external acoustic baffles to the air inlets and outlets, or housed within an acoustic enclosure capable of reducing the total sound power level to acceptable levels.
- 7.8.6 Low noise cooling systems should also be employed in the battery containers and the HV Transformer should be designed for low noise emissions, including any necessary cooling system. It will be the responsibility of the contractor/manufacture to provide test documentation confirming that the plant does not exceed the noise specifications set out within the Noise Impact Assessment.
- 7.8.7 It is also recommended that plant equipment is installed on a low plinth with gravel underneath, rather than on a concrete slab to avoid acoustic reflections on the ground.
- 7.8.8 The Noise Impact Assessment identifies that the Proposed Development will give rise to rating sound levels that do not exceed the measured background sound level in the area, thus giving rise to a 'Low Impact'. It also identifies that no significant change in ambient sound level at the identified receptor locations will arise as a result of the Proposed Development in its proposed and assessed form, and that the amenity of residential receptors and operational use of the nearest non-residential receptors will not be compromised
- 7.8.9 During the operational phase, noise levels will typically be below background noise levels. As a result, these are not likely to be perceptible to sensitive receptors above background noise levels.
- 7.8.10 To support the planning application, a noise assessment will also be submitted. The effects of noise during the operation of the Proposed Development will be assessed in accordance with British Standard 4142: 2014 +A1: 2019 '*Method for rating industrial and commercial noise*'.² This standard requires an assessment of operational noise against the prevailing background sound environment for both daytime and night-time periods and will inform the acoustic

² British Standard 4142: 2014+A1:2019 *Method for rating and assessing commercial sound*. BSI

specifications and locations of the noise-generating plant items to be included, such that the amenity of existing receptors in the area will not be significantly adversely affected.

7.9 Transport and Access

Survey work undertaken

- 7.9.1 An Outline Construction Traffic Management Plan (CTMP) will be prepared and submitted with the planning application (Appendix 3.2). Should permission be granted, a final CTMP, based upon the principles set out within the Outline CTMP will be agreed with the local highway authority prior to construction commencing, and will be implemented during the construction phase.
- 7.9.2 The aim of the CTMP is to set out traffic management measures that would be adopted during the construction phase to reduce the effect of the construction phase on the highway network. It will contain all the required information for the construction phase, including construction vehicle access, construction vehicle routing as well as package of agreed mitigation measures.
- 7.9.3 To produce the CTMP, a survey of anticipated vehicle movements was undertaken, including HGV movements to deliver construction components to site, as well as construction worker trips.

Inherent Design and Mitigation Measures

- 7.9.4 Vehicles will enter the Site via an existing gated field access located to the west of the Site. The access will be widened and formalised for use by construction vehicles and banksmen will be deployed at the Site access whenever construction vehicles are accessing or egressing the Site to ensure the safety of all road users. Additionally, temporary signage will be erected in the vicinity of the junction during the construction phase to notify road users of construction works.
- 7.9.5 The designated route for all construction vehicles associated with the construction period includes the following roads (the A447; A4075; B4319; Clay Lane; B3420; Unnamed Road; Site Access). This accords with the route used for vehicles during the construction of Wogaston Farm Solar Farm (Planning Reference 12/0906/PA and appeal reference APP/N6845/A/13/2203220). The proposed construction vehicle route provides the most appropriate route between the strategic highway network and the Site.
- 7.9.6 Temporary road signage will be implemented along the designated route to inform background traffic of the ongoing construction works and to direct construction traffic to and from the Site. The signs will be located at key points on the route, such as at junctions. The signage strategy will be agreed with the local highway authority. The use of any roads other than the designated and signposted route shall not be permitted and this shall be enforced through the agreement of the CTMP.
- 7.9.7 All deliveries will be scheduled in advance using a booking system. Drivers will be instructed to stop in an appropriate layby or service station and make contact if they are likely to miss their allotted slot to allow the schedule to be adapted in as much as possible. Appropriate management measures will be provided throughout the construction phase in order to manage the arrival and departure of HGVs at the Site.
- 7.9.8 The contractor will introduce measures to manage the impact resulting from construction activities. It will be the responsibility of the Project Manager and Site Manager to oversee the implementation of the management measures. The management measures include: signage to direct construction vehicles associated with the development; avoiding construction deliveries by HGV between the hours of 8:00-9:00 and 17:00-18:00.; the use of banksmen to

indicate to construction traffic when it is safe for them to enter and exit the Site; a booking system to manage arrivals and departures to the Site; advisory signs informing contractors and visitors that parking is not permitted on-street in the vicinity of the Site or on the Site access track; a wheel washing facility will be provided to ensure that construction vehicles are not carrying any residual debris onto the highway; the switching off of vehicle engines when on site and not in use; and sheeted dust suppression measures.

7.9.9 Once operational the Proposed Development would be unmanned and only require limited vehicle movements for routine maintenance by the Site operatives (a handful of movements per month by transit van or similar).

7.9.10 With the above inherent design and mitigation measures taken into account, any residual transport and access impacts are likely to be insignificant.

7.10 Interaction of effects on receptors

7.10.1 The potential for effects caused by a combination of impacts from the Proposed Development on a particular receptor, acting together, may cause a more significant effect collectively than individually, or potentially, a combination of beneficial and adverse effects may be experienced at a particular location. For interaction between effects to be possible, there would need to be an identifiable residual effect from one or more environmental aspects after considering the mitigation proposed.

7.10.2 Based upon the conclusions presented in the preceding technical chapters and taking into account mitigation measures proposed, significant interaction effects are not considered

8 Summary of Mitigation, Residual and Interaction Effects

8.1 Introduction

8.1.1 This chapter presents the overall conclusions of the EIA for the Proposed Development. The chapter follows the topic based structure employed in this ES and ends with a consideration of the cumulative assessment. The mitigation commitments made as part of the ES are provided in tabular format at the end of the chapter.

8.2 Ecology

8.2.1 Assessment was undertaken to determine the significance of any residual environmental effects following mitigation. The assessment has been based on a precautionary approach and has identified that with the implementation of appropriate embedded and additional mitigation measures no significant ecological effects will occur within or beyond the site boundary, during both the construction and operational phases of the Proposed Development.

8.2.2 The mitigation strategy for the construction phase would be controlled via the CEMP which is provided in outline as part of this application (Appendix 3.1) and will be further developed in detail prior to construction. The post construction enhancement strategy will be controlled by a LEMP to manage post development habitat for the benefit of biodiversity, this will be secured via planning condition.

8.2.3 Residual effects are set out in the Table below, none of which are categorised as significant.

Table 8-1 Summary of ecology receptors and residual effects assessed

Receptor	Residual effect	Significant?
Construction		
Pembrokeshire Marine SAC	Negligible	No
Milford Haven Waterway SSSI	Negligible	
Pembrokeshire Bat Sites and Bosherton Lakes SAC and component SSSIs	Negligible	
Hedgerows	Negligible	
Scrub woodland	Negligible	
Watercourses	Negligible	
Bats	Negligible	
Otters	Negligible	
Badger	Negligible	
Dormouse	Negligible	
Breeding Birds	Negligible	
Wintering / migratory birds	Negligible	
Reptiles	Negligible	
Operation		
Pembrokeshire Marine SAC	No effect	No
Pembrokeshire Bat Sites and Bosherton Lakes SAC and component SSSIs	No effect	
Hedgerows	Negligible	
Scrub woodland	Negligible	
Watercourses	Negligible	

Receptor	Residual effect	Significant?
Bats	Negligible	
Otters	Negligible	
Badger	Negligible	
Dormouse	Negligible	
Breeding Birds	Negligible	
Wintering / migratory birds	No effect	
Reptiles	Negligible	

8.3 Landscape and visual impact

- 8.3.1 Assessment was undertaken to determine the significance of any residual environmental effects following mitigation. The likely significant effects covered by this assessment include effects on landscape character as well as visual effects and effects at representative viewpoints.
- 8.3.2 Construction phase impacts will be mitigated through the implementation of the CEMP, which is submitted in outline form as part of the application (Appendix 3.1), and will be completed in detail prior to commencement of construction. With these measures in place the effects arising from the construction phase are considered to be up to minor adverse for landscape receptors and between negligible to moderate adverse for visual receptors, these effects are temporary and not significant.
- 8.3.3 Once operational, embedded design features including: the retention of existing landscape features to provide screening; sensitive siting of development away from boundaries; introduction of characteristic features such as hedgerows, trees, riparian woodland to soften views; and, sensitive lighting design to minimise light pollution, will lessen the impact of the Proposed Development. With these measures in place landscape effects range from minor beneficial to minor adverse and visual effects range from negligible to moderate adverse, these effects in line with the methodology are not significant in EIA terms.
- 8.3.4 Residual effects are set out in the Tables below.

Table 8-2 Summary of landscape residual effects assessed

Receptor	Residual effect	Significant?
Construction		
NLCA 48: Milford Haven	Minor adverse	No
LANDMAP Geological Landscape Aspect Area: Hundleton	Minor adverse	
LANDMAP Landscape Habitats Aspect Area: North of Castlemartin	Minor adverse	
LANDMAP Historic Landscape Aspect Area: Rhoscrowther	Minor adverse	
LANDMAP Cultural Landscape Aspect Area: Castlemartin	Minor adverse	
LANDMAP Visual and Sensory Landscape Aspect Area: Castlemartin	Minor adverse	
LCA 25: Hundleton and Lamphey	Minor adverse	
Topography	Minor adverse	
Land Use	Minor adverse	
Vegetation	Minor adverse	
Public Rights of Way	Moderate adverse	

Receptor	Residual effect	Significant?
Pembrokeshire Coast National Park	Minor adverse	
Operation		
NLCA 48: Milford Haven	Minor adverse	No
LANDMAP Geological Landscape Aspect Area: Hundleton	Minor adverse	
LANDMAP Landscape Habitats Aspect Area: North of Castlemartin	Minor adverse	
LANDMAP Historic Landscape Aspect Area: Rhoscrowther	Minor adverse	
LANDMAP Cultural Landscape Aspect Area: Castlemartin	Minor adverse	
LANDMAP Visual and Sensory Landscape Aspect Area: Castlemartin	Minor adverse	
LCA 25: Hundleton and Lamphey	Minor adverse	
Topography	Moderate adverse	
Land Use	Minor adverse	
Vegetation	Minor beneficial	
Public Rights of Way	Negligible	
Pembrokeshire Coast National Park	Negligible	

Table 8-3 Summary of visual residual effects assessed

Receptor	Residual effect	Significant?
Construction		
PRoW Footpath SP34/6 to north of Goldborough Road (Viewpoint 4)	Moderate adverse	No
PRoW Bridleway SP37/6 north of Hoplass (Viewpoint 5)	Negligible	
PRoW Bridleway SP37/6 north of B4320 (Viewpoint 6)	Moderate adverse	
Wales Coast Path west of Hundleton (Viewpoint 9)	Negligible	
PRoW Footpath SP32/76 along Military Road, Pembroke Dock (Viewpoint 10)	Negligible	
Wallaston Cross (Viewpoint 1)	Minor adverse	
Goldborough Road (Viewpoint 2)	Minor adverse	
Minor road south of Wallaston Cross (Viewpoint 3)	Minor adverse	
B4320 junction with minor road to Wallaston Cross (Viewpoint 7)	Minor adverse	
B4320 junction with minor road to Rhoscrowther (Viewpoint 8)	Negligible	
B4320 north of Corston Beacon	Minor adverse	
Sunnyridge and Wallaston Green	Negligible	
Operation		

Receptor	Residual effect	Significant?
PRoW Footpath SP34/6 to north of Goldborough Road (Viewpoint 4)	Moderate adverse	No
PRoW Bridleway SP37/6 north of Hoplass (Viewpoint 5)	Negligible	
PRoW Bridleway SP37/6 north of B4320 (Viewpoint 6)	Negligible	
Wales Coast Path west of Hundleton (Viewpoint 9)	Negligible	
PRoW Footpath SP32/76 along Military Road, Pembroke Dock (Viewpoint 10)	Negligible	
Wallaston Cross (Viewpoint 1)	Minor adverse	
Goldborough Road (Viewpoint 2)	Minor adverse	
Minor road south of Wallaston Cross (Viewpoint 3)	Minor adverse	
B4320 junction with minor road to Wallaston Cross (Viewpoint 7)	Minor adverse	
B4320 junction with minor road to Rhoscrowther (Viewpoint 8)	Negligible	
B4320 north of Corston Beacon	Minor adverse	
Sunnyridge and Wallaston Green	Negligible	

8.4 Consideration of other potential receptors / impacts

8.4.1 The ES has also considered those other potential environmental topics that are covered through the EIA Regulations, but were not considered likely to give rise to significant environmental effects. These topics have been covered in Section 4.4 and Chapter 7 of this ES, covering the following:

- Greenhouse gas emissions and climate change;
- Accidents, fire and natural disasters;
- Agricultural land and soils including ground conditions;
- Air quality;
- Heritage;
- Human health;
- Hydrology, flood risk and drainage;
- Noise and vibration; and,
- Transport and access.

8.4.2 The qualitative assessment of greenhouse gas emissions identified the potential for a significant adverse construction-stage effect, which is likely to be paid back over the Proposed Development's operational lifetime by greenhouse gas emission reductions compared to the

baseline for energy generation, leading to a net lifetime beneficial effect. In consideration of the IEMA guidance referenced in that section, and to secure the net beneficial effect, further mitigation to minimise the construction-stage was recommended.

8.4.3 This should comprise:

- greenhouse gas emissions performance being incorporated as a factor in the procurement decision for BESS technology/system supplier, on the basis of a verified Environmental Product Declaration (EPD); and
- requiring the construction contractor to implement a proportionate carbon management plan for the construction phase, with consideration given to carbon reduction opportunities such as using low-carbon concrete products for the balance of works.

8.4.4 No other significant adverse effects are considered likely to occur in relation to the above-listed topic areas.

8.5 Interaction of effects on receptors

8.5.1 The potential for effects caused by a combination of impacts from the Proposed Development on a particular receptor, acting together, may cause a more significant beneficial or adverse impact collectively than individually. For interaction between effects to be possible, there would need to be an identifiable residual effect from one or more environmental aspects after considering the mitigation proposed.

8.5.2 It is predicted that the potential for adverse interactive effects would be limited to the construction phase. For example, during construction there could be intermittent minor impacts from construction noise and landscape disturbance having the potential to affect ecological receptors on the Site. These, and other potential and temporary adverse effects are aspects which are managed through the implementation of the control measures set out within the CEMP. With such measures in place temporary effects on receptors from in combination sources are not predicted to result in a combined significant effect.

8.5.3 Based upon the conclusions presented in the preceding technical chapters, and taking into account mitigation measures proposed, significant interaction effects are not considered likely.

8.6 Mitigation commitments

8.6.1 The tables below sets out the mitigation commitments that have been made throughout the ES, including how this will be delivered.

Table 8-4 Ecology Mitigation Commitments

Identified receptor	Type and purpose of additional mitigation measure (prevent, reduce, offset, enhance)	Means by which mitigation may be secured (e.g. planning condition / legal agreement)	To be delivered by	Auditable by
Construction Phase				
Hedgerows	Protection retained hedgerows Offset temporary loss through replanting to restore continuous hedgerows. Planting to diversify the number of locally	Planning condition	Contractor	Applicant

Identified receptor	Type and purpose of additional mitigation measure (prevent, reduce, offset, enhance)	Means by which mitigation may be secured (e.g. planning condition / legal agreement)	To be delivered by	Auditable by
	native shrubs species in hedgerows dominated by single species			
Woodland	Protection woodland adjoining the construction area	Planning condition	Contractor	Applicant
Watercourse and spring	Surface water management on access road and BESS Reduction of potential for damage or pollution of springs	Planning condition	Contractor	Applicant
Badger	Temporary closure of main sett under licence Prevention of disturbance/burial of animals from vibrations caused by HDD	Planning condition	Ecological consultant and contractor	Ecological consultant
Dormouse (if present)	Hedgerow removal under licence Prevention of damage/disturbance to nests or animals during hedgerow removal	Planning condition	Ecological consultant and contractor	Ecological consultant
Nesting birds	Inspections prior to vegetation removal and protection of active nests within the working area Prevention damage to active nests	Planning condition	Contractor / ecological consultant	Ecological consultant
Reptiles	Implementation of precautionary working method statement Prevention of killing or injury to reptiles	Planning condition	Contractor	Applicant/ Ecological consultant
Operation Phase				
Woodland, springs and watercourse	Protection woodland adjoining the operational site to retain value and context Surface water management of run off from the access road and BESS to reduce potential for damage or pollution of springs	Planning condition	Applicant	Applicant
New wildflower grassland	Habitat management Enhancement of biodiversity over a 30 year period	Legal agreement	Applicant	Applicant

Identified receptor	Type and purpose of additional mitigation measure (prevent, reduce, offset, enhance)	Means by which mitigation may be secured (e.g. planning condition / legal agreement)	To be delivered by	Auditable by
New native scrub	Habitat management Enhancement of biodiversity over a 30 year period	Legal agreement	Applicant	Applicant

9 Glossary

Table 9-1: Terms

Term	Definition
[the] Applicant	Pembroke Green Limited, a joint-venture partnership between Enso Energy and Cero Generation, acting as the project company, developing and funding the Proposed Development.
Battery Energy Storage System	Devices that enable energy from renewables, like solar and wind, to be stored and then released when the power is required.
[the] Cable Corridor	The electricity cables running from the main BESS Site to the point of connection (POC) at Pembroke Substation.
[the] Main BESS Site	The approximately 1.7 hectares of land which contains the battery storage area, access, fencing, planting, etc.
National Grid	The company that owns the UK's National Electricity Transmission Network
National Electricity Transmission Network	The high voltage electricity transmission network for England, Scotland and Wales.
[the] Point of Connection	The point at which a scheme can connect to the National Electricity Grid.
[the] Red Line Boundary	The demarcation of land which, for the purposes of the Environmental Impact Assessment contains the land within which the Proposed Development will take place and the Environmental Impact Assessment is based upon.
Scoping	The process of identifying the issues to be addressed by the environmental impact assessment process. It is a method of ensuring that an assessment focuses on the important issues and avoids those that are considered to be not significant.
[the] Scoping Opinion	Pembrokeshire County Council's Scoping Opinion for the Proposed Development, made in response to the Applicant's Scoping Report.
[the] Scoping Report	The Applicant's EIA Scoping Report for the Proposed Development.
Screening	The process of determining whether a development requires an Environmental Impact Assessment.
[the] Screening Opinion	Pembrokeshire County Council's Screening Opinion for the Proposed Development, made in response to the Applicant's Screening Report.
[the] Screening Report	The Applicant's EIA Screening Report for the Proposed Development.

[the] Site	The 6.8 hectares (ha) of land contained within the Red Line Boundary, comprising: : (1) 'the main BESS Site' (containing the battery storage area, access, fencing, planting, etc; approximately 1.7 ha); and (2) 'the cable corridor' from the main BESS Site to the point of connection (POC) at Pembroke Substation
The Proposed Development	The installation of a 120 MW Battery Energy Storage System (BESS) with associated infrastructure on land south of Goldborough Road, Wallaston Cross, Pembroke.

Table 9-2: Abbreviations

Abbreviation	Definition
ALC	Agricultural Land Classification
AOD	Above Ordnance Datum
AONB	Area of Outstanding Natural Beauty
AQMA	Air Quality Management Area
BESS	Battery Energy Storage System
BGS	British Geological Survey
BMP	Battery Management Plan
BoCCW	Birds of Conservation Concern in Wales
CCGT	Combined Cycle Gas Turbine
CEMP	Construction Environmental Management Plan
CifA	The Chartered Institute for Archaeologists
CIEEM	The Chartered Institute of Ecology & Environmental Management
CMLI	Chartered Member of Landscape Institute
CTMP	Construction Traffic Management Plan
DAS	Design and Access Statement
DAT	Dyfed Archaeological Trust
DTM	Digital Terrain Model
EclA	Ecological Impact Assessment
ECOW	Ecological Clerk of Works
EPC	Engineering, procurement, and construction
ES	Environmental Statement
FCS	Favourable Conservation Status
FRA	Flood Risk Assessment
GHG	Greenhouse Gas
GI	Green Infrastructure
GLVIA	Guidelines for Landscape & Visual Impact Assessment
ha	Hectare
HDD	Horizontal Directional Drill
HER	Historic Environment Records
HGV	Heavy Goods Vehicle
HVAC	Heating, Ventilation and Air Conditioning

Abbreviation	Definition
IEMA	Institute of Environmental Management and Assessment
km	Kilometre
kV	Kilovolt
LBAP	Local Biodiversity Action Plan
LCA	Landscape Character Assessment
LEMP	Landscape Ecological Management Plan
LFRMS	Local Flood Risk Management Strategy
LIB	Lithium-ion Batteries
LLFA	Lead Local Flood Authority
LNR	Local Nature Reserve
LPA	Local Planning Authority
LVIA	Landscape and Visual Impact Assessment
m	Metre
MW	Megawatt
NCC	Joint Nature Conservation Committee
NHL	National Heritage List
NLCA	National Landscape Character Areas
NMRW	National Monuments Record of Wales
NNR	National Nature Reserves
NRW	Natural Resources Wales
NTS	Non-technical Summary
OS	Ordnance Survey
PAC	Pre-Application Consultation
PCC	Pembrokeshire County Council
PCNP	Pembrokeshire Coast Natural Park
PFRR	Preliminary Flood Risk Report
PIR	Passive Infra-Red
POC	Point of Connection
PPW	Planning Policy Wales
PRoW	Public Rights of Way
RCAHMW	Royal Commission on the Ancient and Historical Monuments of Wales
RPA	Root Protection Area
SAC	Special Area of Conservation
SFCA	Strategic Flood Consequence Assessment
SINC	Site of Importance for Nature Conservation
SLA	Special Land Area
SPA	Special Protection Area
SPG	Supplementary Planning Guidance
SR	Scoping Report
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Drainage System

Abbreviation	Definition
SZTV	Screened Zone of Theoretical Visibility
TAN	Technical Advice Note
TGN	Technical Guidance Note
UK BAP	UK Biodiversity Action Plan
UKCP	UK Climate Projections
WeBS	Wetland Bird Survey
WSI	Written Scheme of Investigation
ZOI	Zone of Influence