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Prepared for:
Egnedol Wales Limited



Sustainable Energy Facility, Milford Haven Habitats Regulations Assessment



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Summary

This HRA Report (the Report) has been prepared to provide information to the Planning Inspectorate and Welsh Government (the Competent Authority) on the implications of the proposed Egnedol Biomass to Energy facility (BTef) (hereinafter referred to as the Scheme) on European Sites.

The Report sets out the European Sites which are considered in the assessment, and lists the features for which they are designated and the conservation objectives for each feature.

The Report then assesses the potential for Likely Significant Effects (LSEs) on European Site features from the construction, operation and decommissioning of the Scheme.

It was possible to screen out a number of LSEs where it was concluded that there was no significant effect based on factors such as proximity of the European Site to the Scheme, or through consideration of the design and operational parameters of the Scheme.

Following the initial screening, a more detailed appropriate assessment of the LSEs that were screened in was carried out. This considered potential adverse effects on the integrity of the European Sites with reference to the appropriate conservation objectives. Mitigation measures were identified, where appropriate, and residual effects were assessed. In addition, an assessment of potential in-combination effects with other plans and projects was carried out.

The main LSEs which were assessed are:

Bats

Limestone Coast of South West Wales SAC - Greater Horse Shoe Bats – Habitat Fragmentation / Deterioration.

Pembroke Bat Sites and Bosherton Lakes Greater and Lesser Horseshoe Bats Habitat Fragmentation / Deterioration.

Pembrokeshire Marine SAC

Otter

Habitat fragmentation / deterioration during construction, noise, vibration, light, electromagnetic disturbance from cable and Aqueous Emission

Bats

The Scheme incorporates robust mitigation measures and enhancement measures with respect to Greater and Lesser Horseshoe bat habitat. The mitigation will maintain the habitat for Greater and Lesser Horseshoe bats and will enhance the currently steadily declining habitat. The mitigation will enable long-term management of the population at the site and prevent habitat fragmentation or deterioration. Subject to mitigation there will be no LSEs for greater and Lesser Horseshoe bats caused by the Scheme.

Pembrokeshire Marine SAC

Otter

The Scheme site is used by otter to travel, via a culvert and stream, to a man made reservoir. Robust mitigation is designed that will maintain the route and enhancement of the reservoir will maintain

its value with respect to otter. Noise and vibration profiles will not cause habitat deterioration due to the design of the plant layout with respect to the habitat location. Mitigation with respect to lighting is incorporated into the design to avoid spill onto otter habitat. Subject to implementation of the mitigation there will be no residual LSE's with respect to otter.

Grey Seal

The mitigation proposed with respect to otter will ensure that there will be no LSE's with respect to seals.

Sea Lamprey, River Lamprey, Allis Shad, Twaite Shad – The Scheme will cause a slight and sporadic increase in shipping activity. The SAC is over 1.4km wide at the Scheme site and consequently these mobile features will not be impacted by the scheme and no LSE's will be caused. The HDD grid connection cable will be at a depth within the bedrock that will ensure that there is no electromagnetic effect at the bed of the Haven and consequently there will be no LSE's from this activity.

1.0

Introduction and Purpose of Assessment

1.1 Background and Purpose of this Report

This report (the HRA Report) has been prepared to provide information to the Welsh Government (the Competent Authority) on the potential impacts of the proposed Biomass to Energy Facility (BtEF) in Blackbridge and associated Eco Parks (The Development) upon European sites.

European sites include Special Areas of Conservation (SACs), candidate Special Areas of Conservation (cSACs), Special Protection Areas (SPAs), and RAMSAR sites.

The Habitats Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Flora and Fauna (the Directive) provides legal protection for habitats and species of European importance. The Directive is transposed into UK law by the Conservation of Habitats and Species Regulations 2010 (the Habitats Regulations 2010). Regulation 61 of the Habitats Regulations 2010 requires the Competent Authority, before deciding to give consent for a plan or project which: -

- is likely to have a significant effect on a European Site (either alone or in combination with other plans or projects);
- is not directly connected with or necessary to the management of that site;
- to make an “appropriate assessment” of the implications for that site in view of its conservation objectives.

If the conclusions of the assessment are negative in that the development will adversely affect a European Site, despite proposed avoidance or mitigation measures, then the competent authority may only agree to the plan or project if there are no alternative solutions, there are Imperative Reasons of Overriding Public Interest and compensatory measures are secured.

A Habitats Regulations Assessment (HRA) report potentially has four stages that must be considered before a plan or project can be consented. These are summarised in Figure 1 of the Planning Inspectorate’s (PINS) Advice Note 10 (Habitat Regulations Assessment for nationally significant infrastructure projects), and are: -

- **Stage 1:** Screening;
- **Stage 2:** Appropriate Assessment;
- **Stage 3:** Assessment of alternatives;
- **Stage 4:** Assessment of Imperative Reasons of Overriding Public Interest.

This Report provides information on Stage 1 (Screening) and Stage 2 (Appropriate Assessment). A high standard of proof is required at all stages of the assessment. Objective evidence is required to justify the assessment.

Professional judgement has been used in the interpretation of results in relation to assessment of potential impacts, the significance of impacts and consequences for conservation objectives. The reliability of professional judgment can be quantified to some extent by reference to the experience of the professionals concerned.

The approach adopted has been to identify risks on the basis of the precautionary principle which has been applied to ensure that any assessment is cautious. This principle means that the conservation objectives should prevail where there is uncertainty and that harmful effects will be assumed in the absence of evidence to the contrary.

1.2 Guidance Used in Preparing this Report

This report follows the methodology set out in PINS Advice Note 10: Habitat Regulations Assessment for nationally significant infrastructure projects, version 7 dated January 2016.

In addition, Environment Agency guidance (How to comply with your environmental permit. Additional guidance for: Horizontal Guidance Note. H1 - Annex (f) - Air emissions) on the assessment of impacts from aerial emissions on European Sites was followed (Environment Agency, 2010).

Insofar as Greater Horseshoe Bats are a qualifying interest of the Pembrokeshire Bat Sites, Bosherton Lakes SAC and the Limestone Coast of South West Wales SAC, regard was also paid to the guidance of Interim Advice Note (IAN) 116/08(W) Nature Conservation Advice in Relation to Bats (Welsh Government, 2009).

Reference has been made to guidance produced by Tyldesley: Assessing projects under the Habitats Directive: guidance for competent authorities (2011) and Draft Guidance for Plan Making Authorities in Wales: The Appraisal of Plans under the Habitats Regulations (2012).

1.3 Project Description

This HRA is provided to support the proposal by Egnedol Wales Limited (the Applicant), to construct and operate a Biomass to Energy Facility and Eco-parks at Blackbridge and Waterston, Milford Haven.

The site incorporates land occupied by the former Royal Navy Armament Depot (RNAD) and the former Gulf Oil Refinery. The postal address for the site is: –

Egnedol Wales Limited

The White House
Newton Road
Blackbridge
Milford Haven
SA73 1DR.

The location of the proposed development site is shown in Figure 1.1 below.

Figure 1.1 – Location of Proposed Development

The site was formerly in two ownerships, the south western parcel (RNAD Blackbridge) being formerly owned by Pembrokeshire County Council and the north eastern parcel (Waterston) being formerly owned by Welsh Government.

The centre of the Blackbridge site is located at Grid Reference (GR): SM 91630 05169 and the centre of the Waterston site is located at Grid Reference SM 93859 05286.

The site lies adjacent to the Milford Haven Waterway. The Milford Haven Waterway is a registered Site of Special Scientific Interest (SSSI) and Special Area of Conservation (SAC). The site also lies within the registered historical landscape of the Milford Haven Waterway

The proposed development includes the following Key Project Elements, namely: -

- Refurbishment and use of the existing jetty;
- Construction of a 49.9 MW Biomass to Energy facility (BtEf);
- Facility for the advanced conversion of carbon to aviation fuel;
- Aquaculture facility to include Fish farm and Prawn farm;
- Algae production units;
- Cheese production unit;
- Greenhouses;
- Facility for the preparation and sales of farmed produce;
- Research and development facilities;
- New grid connection to Pembroke power station.

The masterplan layout of the facility is provided on Figure 1.2 below.



Figure 1: Location of Proposed Development

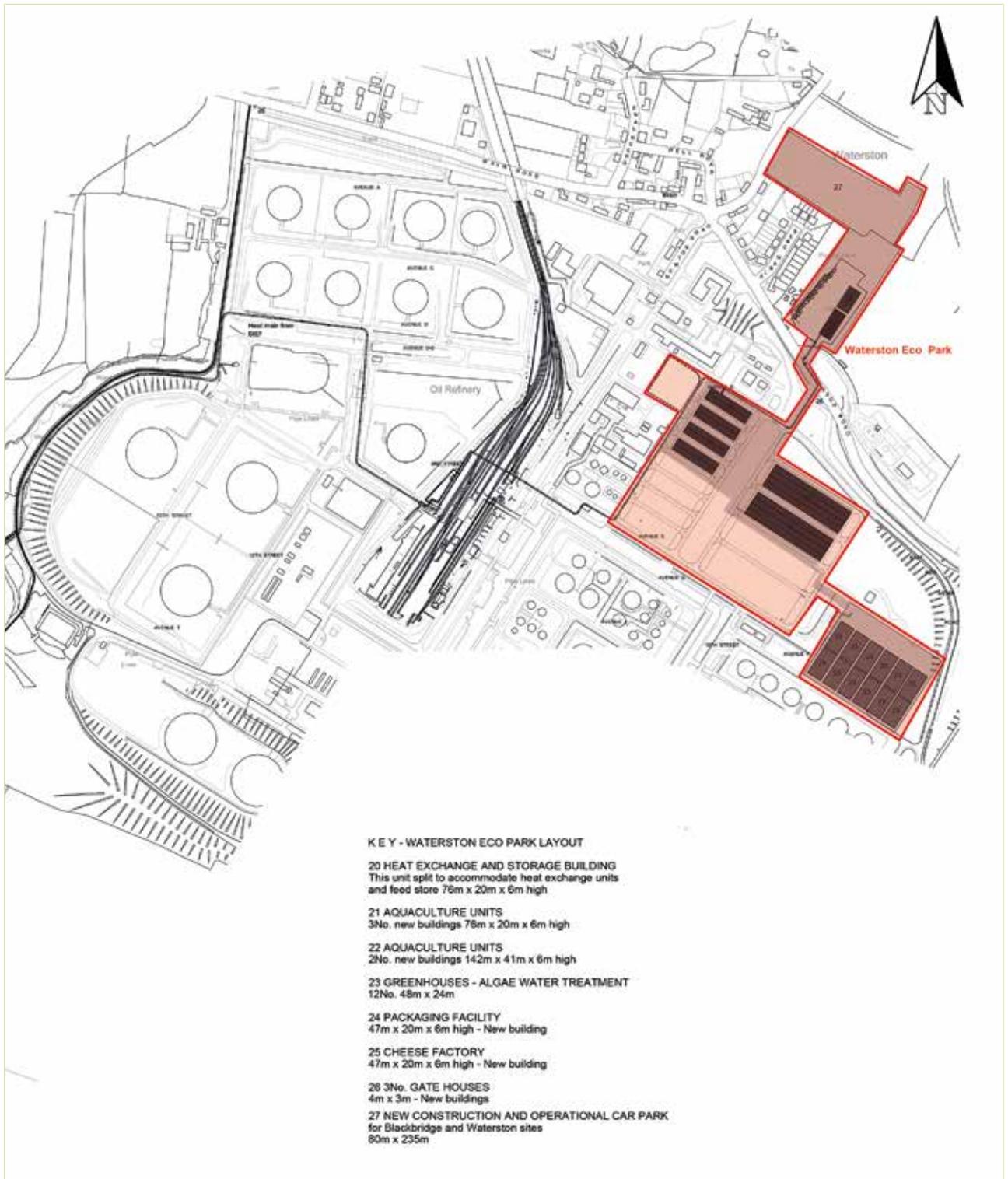


Figure 1: Location of Proposed Development

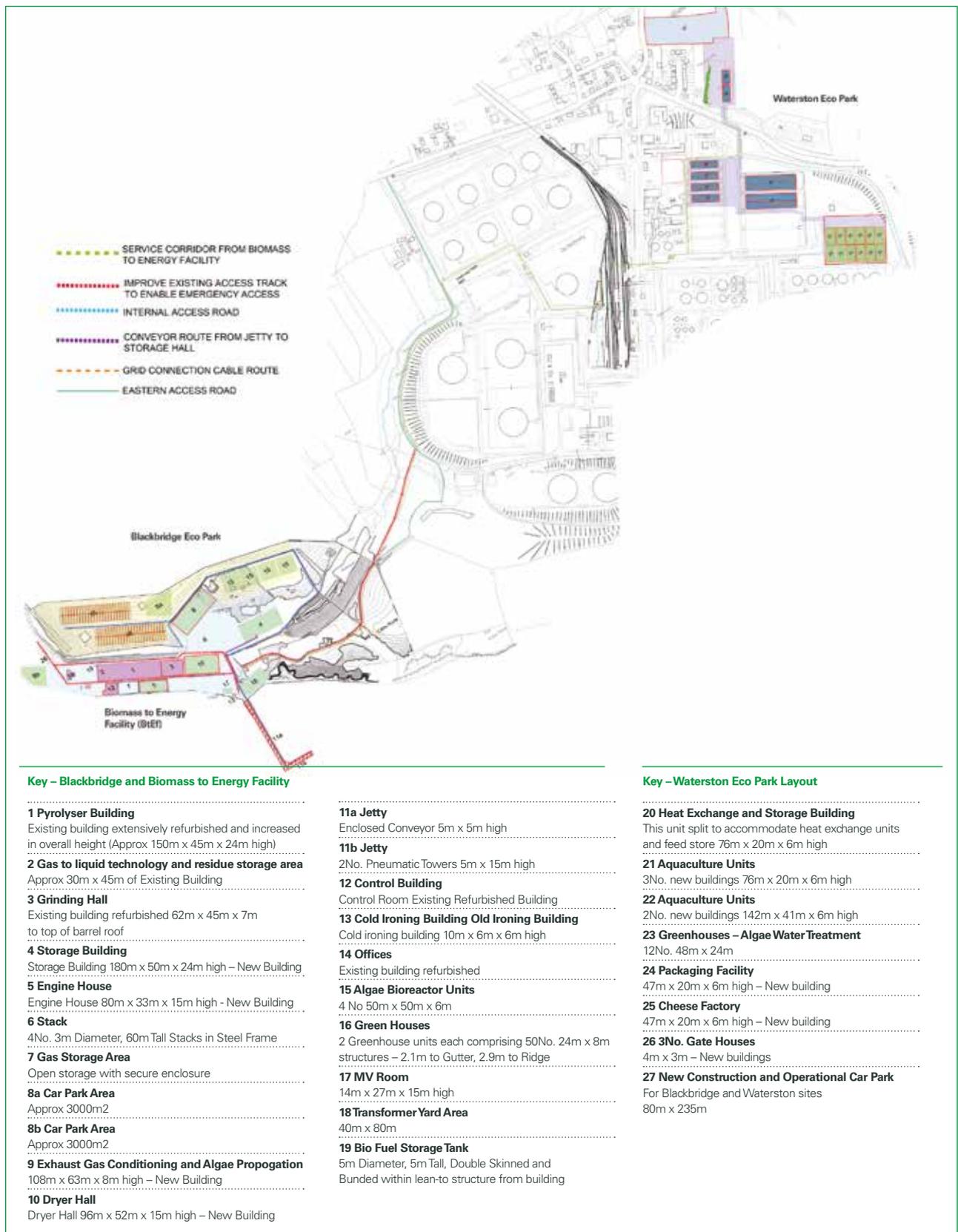


Figure 1.2: Masterplan

The Biomass to Energy Facility has been categorised as a Development of National Significance by the Planning Inspectorate under the Developments of National Significance (Specified Criteria and Prescribed Secondary Consents) (Wales) Regulations 2016. Permission for its development will therefore be determined by the Planning Inspectorate within Welsh Government.

The Eco Park developments have been classified as Secondary Consents, which will also be determined by the Planning Inspectorate.

The refurbishment of the jetty and connection to the national grid at Pembroke Power Station require a Marine Works License which will be subject to a separate consenting process via NRW.

2.0

European Sites Potentially Affected by the Proposals

2.1 Introduction

The list of sites to consider in the HRA was agreed with NRW. Potential effects were considered on all SACs and SPAs within 15km of the Scheme.

No Ramsar Sites are present within 15km.

European Sites are designated for the presence of interest features. An interest feature is a natural or semi-natural feature for which a European site has been selected. This includes Habitats Directive Annex I habitats, Habitats Directive Annex II species or populations of a bird species for which an SPA has been designated under the Birds Directive. The European Sites considered in this report and their interest features and corresponding schedule codes are summarised in Table 2.1 below.

A summary of the interest features for each site is given below.

SPECIAL AREA OF CONSERVATION	SITE CODE	AREA (HA)
Limestone Coast of South West Wales	UK0014787	1588.88
Pembrokeshire Bat Sites and Bosherton Lakes	UK0014793	121.86
Pembrokeshire Marine		
Cleddau River	UK0013116	137501.925205
Yerbeston Tops	UK0030074	750.7
	UK0030305	18.6
SPECIAL PROTECTION AREAS		
Castlemartin Coast	UK9014061	1119.03

Table 2.1: Summary of European Sites within 15 km of the Scheme

2.1.1 Limestone Coast of South West Wales UK0014787

The Limestone Coast of South West Wales SAC has two Annex I qualifying habitats that are a primary reason for the selection of the site, these are: -

- Vegetated sea cliffs of the Atlantic and Baltic Coasts (1230) where the nature of the rock and the warm south-facing slopes have resulted in the occurrence of a sequence of important species-rich plant communities;
- Fixed coastal dunes with herbaceous vegetation ('grey dunes') (2130) where the dunes includes extensive stands of short, species-rich, fixed dune grassland.

The following are also Annex I habitats which are qualifying features but not a primary reason for selection of this site: European dry heaths, semi-natural dry grassland and scrubland facies on calcareous substrates, caves (not open to the public) and submerged or partially submerged sea caves.

This SAC also has two Annex II species that are a primary reason for selection of the site: -

- Greater horseshoe bat (1304) as this site is the main hibernation site for the population associated with Pembrokeshire Bat Sites SAC and therefore may be used by up to 5.5% of the UK population of greater horseshoe bats;
- Early gentian (*Gentianella anglica*) (1654), as this site is the only known place to support this species in Wales.

Petalwort is also an Annex II species that presents a qualifying feature, but not a primary reason for selection.

Conservation Objectives

The 2008 Core Management Plan sets out the conservation objectives for each of the features for which the Limestone Coast of South West Wales SAC is designated. Each conservation objective consists of the following two elements: -

- Vision for the feature;
- Performance indicators

The performance indicators are what make the conservation objectives measurable and are thus part of, and not a substitute for, the conservation objectives.

The visions for, and conservation status of, each SAC feature are set out below, as taken from the 2008 Core Management Plan.

Vegetated sea cliffs of the Atlantic and Baltic coasts

The conservation status of the SAC feature “Vegetated sea cliffs of the Atlantic and Baltic coasts” is considered to be **Unfavourable: Declining** (due to scrub invasion).

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: -

- Cliff and crevice vegetation continues to form a very open cover of deep-rooted crevice dwelling species forming a narrow band along the steep cliff edges. On their seaward edges the cliff and crevice communities grade into the supralittoral lichen zone. Landwards they meet the maritime grassland and thereophyte communities which themselves intermingle with the maritime heaths. Both Golden Samphire and Rock Sea lavenders are typically associated with crevices and ledges and continue to be generally widespread where open and exposed conditions prevail;
- The maritime grasslands range from short open swards with occasional areas of bare ground to taller more closed swards where Red Fescue forms tussocks and “mattresses.”The more strongly maritime influenced grassland communities on this site, for the most part, occur on the exposed south and south westerly facing slopes;
- Elsewhere, in less exposed situations the grasslands show less maritime influence with species such as Cowslips and Bluebells occurring. The grasslands also support important populations of typical invertebrates such as ants and butterflies as well as insects associated with open soils, grass roots or dung such as various cranefly and beetle larvae;
- Maritime heath occurs in exposed locations as stands of low, wind-pruned heath dominated by Heather and Bell Heather. Species such as Spring Squill, milkworts, Pale Dog Violet and sedges are present in stands;

- Cliff and crevice vegetation occurs naturally on suitably exposed rocky ledges and crevices throughout the site. The variety of vegetation types reflecting the degree of exposure to maritime influences - including communities with Thrift, Rock and Golden Samphires, Sea Lavenders, Sea-beet and Sea Plantain;
- Maritime Grassland occupies approximately 15% of the total site area;
- The following plants are common in the maritime grassland: Thrift, Spring Squill and Sea Plantain;
- Maritime Heathland occupies approximately 10% of the total site area;
- The following plants are common in the maritime heathland: Heather, Bell Heather and Spring Squill;
- Populations of nationally rare and nationally scarce vascular and lower plant species, associated with cliff-crevice, maritime grassland and related calcareous grassland swards are maintained;
- Competitive species indicative of under-grazing, particularly Cock s-foot, Tor Grass, Bracken and Western Gorse are kept in check;
- Non-native plants such as Hottentot fig are absent or rare.

Fixed dunes with herbaceous vegetation ('grey dunes')

The conservation status of the SAC feature "Fixed dunes with herbaceous vegetation (grey dunes)" is considered to be Favourable.

The vision for this feature is: -

- The dune complex at Broomhill Burrows, Broadhaven South and Barafundle Bay will demonstrate a fairly complete sequence from fore dunes fringed on the seaward edge by narrow bands of mobile dune, through to fixed dune grassland. There will be small blow-out patches of bare sand and fore-dune and strandline. Elsewhere in the SAC, the perched dunes (such as at Stackpole Warren) may not show this zonation from fore-dune to fixed dune but should none-the-less have some blowouts and areas of bare sand;
- Fixed dunes occupy approximately 20% of the total site area;
- The following plants will be common in a short, open sward: *Asperula cyanica*, *Carlina vulgaris*, *Euphrasia* spp., *Gentianella amarella*, *Linum catharticum*, *Lotus corniculatus*, *Pilosella officinarum*, *Plantago coronopus*, *Sedum acre*, *Thymus polytrichus*, *Viola* spp., *Anacamptis pyramidalis*;
- Distinct patches of open, lichen-rich turf, supporting *Fulgensia fulgens* on *Trichosporum* moss will occur in several mapped locations in management units 2a, 2b, 3b and 3c;
- Alien species will be absent, and other negative indicator species (such as Bracken) will be under control in fixed dune grassland;
- Sea Buckthorn will be absent from all dunes systems within the SAC.

European dry heaths

The conservation status of this the feature "European dry heaths" is considered to be **Unfavourable: Declining** (due to excessive burning and scrub invasion).

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: -

- The current extent of dry heath will be maintained;
- Dry heath will occupy areas of the site where heathland extends beyond the zone of maritime influence;
- As a result dry heath may lack the species characteristic of maritime heath;
- Much of the dry heath will have a short and open structure;
- The dry heaths will support typical species such as the Dark Green Fritillary and the Silver Studded Blue butterfly.

Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia)

The conservation status of the SAC feature “Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia)” is considered to be **Unfavourable: Declining** (due to damage from agricultural operations and over-grazing).

The vision for this feature is that: -

- The Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) / Dry grasslands and scrublands on chalk or limestone will be referable to the NVC communities Festuca – Avenula grassland (CG2) and Festuca – Hieracium – Thymus grasslands (CG7);
- The communities making up this feature will cover at least 14 ha within Castlemartin Cliffs and Dunes SSSI and 10 ha within Stackpole and Stackpole Quay to Trewent Point SSSI, and 18 ha within the Gower Coast SSSI (which also includes NVC community CG1) occurring as small patches along coastal cliff-tops, among the fixed dune grasslands, mainly on shallow soils overlying areas of limestone bedrock;
- The feature will support a range of typical plant and invertebrate species.

Caves not open to the public

The conservation status of the SAC feature “Caves not open to the public” is considered to be **Favourable**.

The vision for this feature is that: -

- These caves continue to be primarily of importance as bat hibernacula and roost sites;
- There is minimal disturbance to the caves by the public;
- The caves remain suitable as bat roost / hibernation sites;
- Caves utilised by breeding choughs remain undisturbed for choughs (see Feature 11);
- The geological interest of the caves will be unconcealed;
- Natural processes such as small rock falls will be tolerated.

Submerged or partially submerged sea caves

The conservation status of the SAC feature “Submerged or partially submerged sea caves” is considered to be **Favourable**.

The vision for this feature is that: -

- These features are cross-boundary features between the Limestone Coast SAC and the Pembrokeshire Marine SAC. Other than prevention of human disturbance to both the caves themselves and any species that may be using them (mainly bats and grey seals), there is little management required or indeed possible for this feature;
- There should be minimal disturbance to the caves and they should remain closed to the public;

- The caves should remain suitable as bat roost/hibernation sites;
- The caves used by grey seal should remain free of human disturbance;
- The geological interest of the caves will be unconcealed;
- Natural processes such as small rock falls will be tolerated;
- The affects of tidal activity in partially submerged caves should have a minimal effect on the internal environment of the cave (where the cave is a bat roost).

Greater Horseshoe Bat (*Rhinolophus ferrumequinum*)

The conservation status of the SAC feature "Greater horseshoe bat (*Rhinolophus ferrumequinum*)" is considered to be **Favourable**.

.....
The vision for this feature is that: -

- Greater Horseshoe Bats will continue to utilize known caves roosts undisturbed by the public;
- Distinctive droppings indicate presence at any time of year but largest numbers of bats are likely to be found in the period November to March;
- The peak winter population in the main Castlemartin Cave is equivalent to approximately 20% of the Pembrokeshire Bat Sites and Bosherton lakes SAC Greater Horseshoe Bat population;
- The Greater Horseshoe Bat population within the caves being monitored is stable or increasing;
- Natural processes such as rock falls will be tolerated but other factors affecting the achievement of these conditions are under control.

Early Gentian

The conservation status of the SAC feature Early Gentian is considered to be Unfavourable: **Declining**.

.....
The vision for this feature is that: -

- The feature will be present at Stackpole in management unit 3d;
- Dune Gentians with three or fewer internodes and a long terminal internode, which contributes between 40-100% of the height of the stem (corresponding to the current definition/description of Early Gentian) occur within at least 4 open dry dune slacks on Stackpole Warren and in other open, herb-rich calcareous grassland areas;
- Further survey/research will confirm that these forms are definitely separable from *Gentianella amarelle*.

Petalwort

The conservation status of the SAC feature "Petalwort (*Petalophyllum ralfsii*)" is considered to be **Favourable**.

.....
The vision for this feature is that: -

- Petalwort will continue to be found at two SSSI sand dune systems within the SAC (Broomhill Burrows & Brownslade Burrows). The Brownslade Burrows population will occur patchily at high densities in successional young, open vegetation in damp, dune slacks.
- Petalwort has a continued presence at Broomhill Burrows SSSI.

- Petalwort occurs at high densities in suitable dune slacks at Brownslade Burrows SSSI.
- At both sites there are areas of open, damp, calcareous dune slacks with patches of suitable and optimal habitat present.
- Suitable dune slacks have patches of bare ground that is being colonised by jelly lichens (*Collema* spp.) and *Barbula* mosses.
- Brownslade Burrows continues to be winter grazed by cattle and sheep, which is helping to maintain the short sward and open conditions required by Petalwort.

2.1.2 Pembrokeshire Bat Sites and Bosherton Lakes SAC (UK0014793)

This 122 ha SAC comprises 3% inland standing and running water bodies, 5 % bog, marshes, fen or water fringed vegetation, 13% heath, scrub, Maquis and Garrigue and *Phygrana*, 3% dry grassland-steppe, 1.8% improved grassland, 29% broad-leaved deciduous woodland, 1% mixed woodland and 0.2 % of other land which include towns, villages, roads, waste places, mines, industrial sites.

The SAC has one Annex I habitat which is a primary reason for the site's selection, the Hard oligo-mesotrophic waters with benthic vegetation of various *Chara* species (3140) which are known as Bosherton Lake. They are an outstanding shallow marl lake system created during the late 18th and mid 19th centuries by damming a limestone river valley. They are also fed by calcium-rich springs and isolated from the sea by a small sand dune ridge. The Charophyte community are represented by *Chara hispida* (bristly stonewort) forming dense beds up to 1 m high and individual plants up to 3.5 m long. The lakes contain extensive beds of white water lily (*Nymphaea alba*), mainly in the western and central arms, while the eastern arm is characterised by variably dense stands of curled pondweed (*Potamogeton crispus*), fennel pondweed (*Potamogeton pectinatus*), spiked water-milfoil (*Myriophyllum spicatum*) and Canadian waterweed (*Elodea Canadensis*). Common reed (*Phragmites australis*), bulrush (*Typha latifolia*), common spike-rush (*Eleocharis palustris*) and branched bur-reed (*Sparganium erectum*) fringe some parts of the lakes.

The SAC has one Annex II species which is a primary reason for selection of this site, namely greater horseshoe bats. The SAC contains nearly 10 % of the national population of greater horseshoe bat (*Rhinolophus ferrumequinum*). The site represents the north-western extremity of its range, and contains a mixture of maternity, transitory and hibernation sites.

The lesser horseshoe bat (*Rhinolophus hipposideros*) and Otter (*Lutra lutra*) are also Annex II species but not a primary reason for site selection.

Conservation Objectives

The 2008 Core Management Plan sets out the conservation objectives for each of the features for which the SAC is designated. Each conservation objective consists of the following two elements: -

- Vision for the feature;
- Performance indicators.

The performance indicators are what make the conservation objectives measurable, and are thus part of, and not a substitute for, the conservation objectives.

The visions for, and conservation status of, each SAC feature are set out below, as taken from the 2008 Core Management Plan.

Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.

The conservation status of the SAC feature "Hard oligo-mesotrophic waters with benthic vegetation of Chara spp." is considered to be **Unfavourable: declining**.

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: -

- Submerged Chara beds (mainly Chara hispida in places up to a metre long) will form the predominant submerged macrophyte vegetation throughout most of Central and Western Arms and Central Lake of Bosherton Lakes (unit 1a) and may be present in the Eastern Arm (unit 1b);
- Chara will occur at more than 50% frequency along regular surveillance transects within the Western and Central arms;
- Chara species (not necessarily hispida) will be present in other embayments and pools, including the Eastern Arm of Bosherton Lakes (unit 1b) and pools in the Mere Pool Valley (unit 1d);
- The Western and Central Arms are spring-fed, so nutrient levels here remain low. One of the main nutrients (phosphorous) will reach no more than 25 micrograms per litre in regular sampling areas. Nitrogen levels in the water will be low (less than 1 milligram per litre) and declining or stable;
- The Western Arm, Central Arm and Central Lake water will be fairly clear, but well vegetated with submerged and marginal plants. In natural openings (e.g. over springs) within otherwise dense Chara beds, a sechii disk will be viewable on the lakebed;
- Water depth will vary from about 3.5 metres OD (winter maximum) to about 0.5 metres or less in places in summer;
- Fringing the Chara beds, are beds of White Water-lily. They will remain fairly abundant in the Western and Central Arms, with smaller populations in Central Lake;
- Reed and swamp and fringing bur-reed will be restricted to shallow zones – covering not more than 10 % of the site;
- All factors affecting the achievement of these conditions are under control.

Greater Horseshoe Bat

The conservation status of the SAC feature "Greater horseshoe bat (Rhinolophus ferrumequinun)" is considered to be **Favourable: maintained**.

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: -

- The Greater Horseshoe Bat population will be capable of maintaining itself on a long-term basis as a viable component of its natural habitats;
- The natural range of Greater Horseshoe Bats will neither be reduced nor will be likely to be reduced for the foreseeable future;
- There will be sufficient habitat to maintain its populations on a long-term basis;
- At least three SSSI maternity roosts will be occupied annually by adult Greater Horseshoe Bats and their babies: Stackpole Courtyard Flats and Walled Garden SSSI; Slebech Stable Yard Loft, Cellars and Tunnels SSSI; and Felin Llwyngwair SSSI;

- Carew Castle SSSI will continue to be used as an intermediate Greater Horseshoe Bat roost, during the spring and autumn, as a male summer roost and an autumn/spring mating roost;
- The Greater Horseshoe Bat population at the component SSSIs will be stable or increasing;
- There will be a sufficiently large area of suitable habitat surrounding these roosts to support the bat population, including continuous networks of sheltered, broadleaved woodland, tree lines and hedgerows connecting the various types of roosts with areas of insect-rich grassland and open water;
- All factors affecting the achievement of these conditions are under control.

Lesser horseshoe bat

The conservation status of the SAC feature „Lesser horseshoe bat (*Rhinolophus hipposideros*) is considered to be **Favourable: maintained**.

.....
The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

The Lesser horseshoe bat population will be capable of maintaining itself on a long-term basis as a viable component of its natural habitats.

The natural range of Lesser Horseshoe Bats will be neither being reduced nor will be likely to be reduced for the foreseeable future, and there will be sufficient habitat to maintain its populations on a long-term basis.

At least four SSSI maternity roosts will be occupied annually by adult Lesser Horseshoe Bats and their babies: Beech Cottage, Waterwynch SSSI, Orierton Stable Block and Cellars SSSI, Park House Outbuildings SSSI and Stackpole Courtyard Flats and Walled Garden SSSI.

The Lesser Horseshoe Bat population at the component SSSIs will be stable or increasing.

There will be a sufficiently large area of suitable habitat surrounding these roosts to support the bat population, including continuous networks of sheltered, broadleaved woodland, tree lines and hedgerows connecting the various types of roosts with areas of insect-rich grassland and open water. All factors affecting the achievement of these conditions are under control.

Otter

The conservation status of the SAC feature “Otter (*Lutra lutra*)” is considered to be **Unfavourable: declining**.

.....
The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: -

- The Otter population will be capable of maintaining itself on a long-term basis as a viable component of its natural habitats;
- The natural range of Otters will neither be reduced nor will be likely to be reduced for the foreseeable future;
- There will be sufficient habitat to maintain its populations on a long-term basis;
- The Otter population will be stable or increasing;

- There will be a sufficiently large area of suitable habitat to support an Otter breeding population, including: open water with sufficient food resources (notably Eels and other fish species) and a continuous network of undisturbed sheltered resting places along the lake shoreline – including swamp, broadleaved woodland and calcareous scrub;
- All factors affecting the achievement of these conditions are under control.

2.1.3 Pembrokeshire Marine SAC (UK0013116)

The Pembrokeshire Marine SAC covers an area of around 1,380 km² and around 96 per cent of its total area is classified as sea inlets, 3.8 per cent tidal river, estuary mud flat, sand flats or lagoon, and 0.2 percent salt marshes, salt pasture or salt steppe.

The Pembrokeshire SAC, which includes the Daugleddau Estuary, has three Annex I qualifying habitats that are a primary reason for the selection of the site: -

- Estuaries (1130); as the Daugleddau Estuary is considered one of the best examples of a ria – a coastal inlet formed by the submergence of an unglaciated valley, in Britain. The estuary has a wide range of environmental conditions and a wide diversity of communities and species;
- Large shallow inlets or bays (1160); the wide, shallow nature of the ria and predominantly sandy embayment of St Brides Bay provides a wide range of environmental conditions, which supports high community and species diversity. The intertidal sandy/muddy areas support extensive beds of narrow-leaved eelgrass (*Zostera angustifolia*). The highly saline water and rocky substrates reach far upstream, as do the fauna and flora communities that are characteristic of fully saline conditions;
- Reefs (1170) as they are largely composed of igneous rock but include areas of more friable Old Red Sandstone and some limestone. There are extensive areas of sublittoral rocky reef stretching offshore from the west Pembrokeshire coast and between the Pembrokeshire islands and the many small rocky islets occurring in the area. The reefs also extend through Milford Haven and into the variable salinity conditions of the Daugleddau estuary. They are subject to an exceptionally wide variation of tidal strength, tidal range, and wave exposure, providing examples of both the most exposed and the most sheltered intertidal rock communities in southern Britain. Offshore there are particularly extensive kelp forests and species-rich red algal populations. The deeper rock reefs have a wide range and abundance of invertebrate animal communities, with hydroid, bryozoan, soft coral and anemone species. The more sheltered reefs, including those with lower salinity and higher turbidity, typically support diverse and species-rich sponge and ascidian dominated communities.

Annex I habitats are also present and are a qualifying feature, but not a primary reason for selection of this site, these are: Permanently submerged, Mudflats and sandflats not covered by seawater at low tide, Coastal lagoons which constitute a priority feature, Atlantic salt meadows and submerged or partially submerged sea caves.

The Annex II species that are a primary reason for selection of this site include: -

- Grey seal (*Halichoerus grypus*) (1364) – the population represents the largest breeding colony south of the Solway Firth accounting for over 2% of annual UK pup production;
- Shore dock (*Rumex rupestris*) (1441).

Other Annex II species present within the SAC as a qualifying feature, but not a primary reason for site selection includes: Sea lamprey (*Petromyzon marinus*), River lamprey (*Lampetra fluviatilis*), Allis shad (*Alosa alosa*), Twaité shad (*Alosa fallax*) and Otter (*Lutra lutra*).

Conservation Objectives

The 2009 CCW Regulation 33 advice document for Pembrokeshire Marine SAC sets out the conservation objectives the features for which the SAC is designated. Conservation objectives are set for a) habitat features and b) species features.

The overall vision statement for the SAC states that:

“Our vision for the Pembrokeshire Marine Special Area of Conservation (SAC) is one of a high quality marine environment, where the protected habitats and species of the site are in a condition as good as or better than when the site was selected; where human activities co-exist in harmony with the habitats and species of the site and where use of the marine environment is undertaken sustainably.”
The conservation objectives for habitat and species features are set out below, as taken from 2009 CCW Regulation 33 advice document for Pembrokeshire Marine SAC.

The habitat features are listed below, with conservation status as supplied by CCW in brackets: -

- Sandbanks which are slightly covered by seawater all the time (**Unfavourable – no change**);
- Estuaries (**Unfavourable – declining**);
- Mudflats and sandflats not covered by seawater at low tide (**Unfavourable – declining**);
- Coastal lagoons (**Favourable – maintained**);
- Large shallow inlets and bays (**Unfavourable – declining**);
- Reefs (**Unfavourable – no change**);
- Submerged or partially submerged sea caves (**Favourable – maintained**);
- Atlantic salt meadows (**conservation status not supplied**).

The species features are listed below, with conservation status as supplied by NRW in brackets where available: -

- Grey Seal (**Favourable – maintained**);
- Otter (**conservation status not supplied**);
- Twaite Shad (**Not assessed**);
- Allis Shad, (**Not assessed**);
- River Lamprey (**Unfavourable: no change**);
- Sea Lamprey (**Unfavourable: declining**);
- Shore dock (**conservation status not supplied**).

2.1.4 Cleddau River SAC (UK0030074)

Cleddau Rivers SAC covers 751 ha and comprises land designated as six component Sites of Special Scientific Interest (SSSIs).

The River Cleddau is one of the most western rivers in Britain which includes catchment which predominantly consists of agricultural land with significant areas of permanent pasture, broadleaved woodland and other semi-natural vegetation. The River Cleddau can be divided into the Eastern and Western arms.

The Eastern Cleddau River - starting at an altitude of 225m and flowing for 26km (74km including tributaries) south to its tidal limit at Blackpool Bridge, where it discharges into the Milford Haven Waterway SAC. The tributaries included within the Eastern Cleddau are the Afon Wern, Llanycefn, Rhyd afallen, Afon Syfynwy, Rhyd-y-Brown Brook, Ty-llosg Brook, Deepford Brook, Cotland Brook, Afon Conin, Pont Shan and Narberth Brook.

The Western Cleddau River main channel starts at an altitude of 112m, stretches for 30km between its source at Mathry to the tidal limit of the Daugleddau Estuary at Haverfordwest, flowing over sands and gravels deposited as the ice sheets from the last glaciation retreated.

The Western Cleddau River main channel stretches for 30km between its source at Mathry, which lies at an altitude of 112m, to the tidal limit of the Daugleddau Estuary at Haverfordwest, flowing over sands and gravels deposited as the ice sheets from the last glaciation retreated. The tributaries included within the Western Cleddau are the Afon Cleddau, Nant-ybugail, Afon Anghof, Nant-y-coy Brook, Spittal Brook, Rudbaxton Water, Camrose Brook and Cartlett Brook.

Conservation objectives

The 2008 Core Management Plan sets out the conservation objectives for each of the features for which the SAC is designated. Each conservation objective consists of the following two elements: -

- Vision for the feature;
- Performance indicators.

The performance indicators are what make the conservation objectives measurable, and are thus part of, and not a substitute for, the conservation objectives.

The ecological status of the Cleddau Rivers watercourse is a major determinant of Favourable Conservation Status (FCS) for all features listed below. The required conservation objectives for the watercourse are defined as: -

- The capacity for the habitats in the SAC to support each feature at near natural population levels, as determined by predominantly unmodified ecological and hydromorphological processes and characteristics, should be maintained as far as possible, or restored where necessary;
- The ecological status of the water environment should be sufficient to maintain a stable or increasing population of each feature. This will include elements of water quantity and quality, physical habitat and community composition and structure;
- Flow regime, water quality and physical habitat should be maintained in, or restored as far as possible to, a near-natural state, in order to support the coherence of ecosystem structure and function across the whole area of the SAC;
- All known breeding, spawning and nursery sites of species features should be maintained as suitable habitat as far as possible, except where natural processes cause them to change;
- Flows, water quality, substrate quality and quantity at fish spawning sites and nursery areas will not be depleted by abstraction, discharges, engineering or gravel extraction activities or other impacts to the extent that these sites are damaged or destroyed;
- The river plan, form and profile should be predominantly unmodified. Physical modifications having an adverse effect on the integrity of the SAC, including, but not limited to, revetments on active alluvial river banks using stone, concrete or waste materials, unsustainable extraction of gravel, addition or release of excessive quantities of fine sediment, will be avoided;
- River SSSI features should be in favorable condition;
- Artificial factors impacting on the capability of each species feature to occupy the full extent of its natural range should be modified where necessary to allow passage, e.g. weirs, bridge sills, acoustic barriers. The reservoir dams on the Syfynwy are excluded;
- Natural factors such as waterfalls, which may limit the natural range of a species feature or dispersal between naturally isolated populations, should not be modified;

- Flows during the normal migration periods of sea and river lamprey will not be depleted by abstraction to the extent that passage upstream to spawning sites is hindered;
- Levels of nutrients, in particular phosphate, will be agreed between EA and CCW for each Water Framework Directive water body in the Cleddau SAC, and measures taken to maintain nutrients below these levels. It is anticipated that these limits will concur with the standards used by the Review of Consents process;
- Levels of all other water quality parameters that could affect the distribution and abundance of all species will be agreed between EA and CCW for each Water Framework Directive water body in the Cleddau SAC, and measures taken to maintain pollution below these levels. It is anticipated that these limits will concur with the standards used by the Review of Consents process. Potential sources of pollution not addressed in the Review of Consents, such as contaminated land, will be considered in assessing plans and projects;
- Potential sources of pollution not addressed in the review of consents, such as contaminated land, will be considered in assessing plans and projects;
- Levels of suspended solids will be agreed between EAW and CCW. Measures including, but not limited to, the control of suspended sediment generated by agriculture, forestry and engineering works, will be taken to maintain suspended solids below these levels.

The visions for, and conservation status of, each SAC feature are set out below, as taken from the 2008 Core Management Plan.

Water courses of plain to montane levels with the Ranuncion fluitantis and Callitricho-Batrachion vegetation

The conservation status of the SAC feature “Water courses of plain to montane levels with the Ranuncion fluitantis and Callitricho Batrachion vegetation” is considered to be **Unfavourable: unclassified**.

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: -

- The conservation objective for the watercourse is met;
- The natural range of the plant communities represented within this feature should be stable or increasing in the SAC;
- The area covered by the feature within its natural range in the SAC should be stable or increasing;
- The conservation status of the feature’s typical species should be favourable condition.

Active raised bogs

The conservation status of the SAC feature “Active raised bogs” is considered to be **Unfavourable: declining**.

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: -

- On the mire expanse there are at least 3 of Calluna vulgaris, Erica tetralix, Eriophorum angustifolium, E. vaginatum & Trichophorum cespitosum constant, with a combined cover not exceeding 80%;

- No single species > 50% cover;
- At least one of *Andromeda polifolia*, *Drosera rotundifolia*, *Empetrum nigrum*, *Narthecium ossifragum* and *Vaccinium oxycoccos* occurs at least frequently;
- On the mire expanse only there are at least 2 of the following spp. constant, with a combined cover > 20%: *Sphagnum capillifolium*, *S. magellanicum*, *S. papillosum*, *S. tenellum*;
- No reduction in extent of microtopographic features (e.g. bog pools).

Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*)

The conservation status of the SAC feature "Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*)" is considered to be **Unfavourable: Unclassified**.

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: -

- The canopy is dominated by single stands of alder *Alnus glutinosa* or willow *Salix* spp. In alluvial woods with free draining soils there may be ash or oak in the canopy, but in the wetter alluvial woodlands ash *Fraxinus excelsior* is more likely to be limited to areas of relatively drier ground;
- The structure of alluvial woodland is recognised as being dynamic therefore the presence of over mature trees is desirable but not essential;
- The river itself should be dynamic to allow for areas of outwash and deposition that trees can regenerate on;
- Lying or standing deadwood (> 20cm diameter and > 1m length) is present at all sites;
- The feature should support alluvial ground flora including two of the following: meadowsweet *Filipendula ulmaria*, yellow flag *Iris pseudacorus*, nettle *Urtica dioica*, common reed *Phragmites australis*, greater tussock sedge *Carex paniculata*, opposite-leaved golden saxifrage *Chrysosplenium oppositifolium*, rushes *Juncus* spp, tufted hair-grass *Deschampsia cespitosa*, hemlock waterdropwort *Onanthe crocata*, and wild angelica *Angelica sylvestris*.

Sea Lamprey *Petromyzon marinus*, Brook lamprey *Lampetra planeri*, River lamprey *Lampetra fluviatilis* and Bullhead *Cottus gobio*

The conservation status of the four fish species SAC features - Sea Lamprey (*Petromyzon marinus*), Brook lamprey (*Lampetra planeri*), River lamprey (*Lampetra fluviatilis*) and Bullhead (*Cottus gobio*) are considered to be **Unfavourable: Unclassified**.

The vision for the features are for them to be in a favourable conservation status, where all of the following conditions are satisfied: -

- The conservation objective for the watercourse as defined above is met;
- The population of the feature in the SAC must be stable or increasing over the long term;
- The natural range of the feature in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future;

- Passage of the feature through the SAC is not to be hindered by artificial barriers such as weirs;
- The characteristic channel morphology provides the diversity of water depths, current velocities and substrate types necessary to fulfill the habitat requirements of the features. The close proximity of different habitats facilitates movement of fish to new preferred habitats with age.

Otter (*Lutra lutra*)

The conservation status of SAC feature "Otter (*Lutra lutra*)" is considered to be **Favourable: Maintained**.

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: -

- The population of otters in the SAC is stable or increasing over the long term and reflects the natural carrying capacity of the habitat within the SAC;
- The SAC will have sufficient habitat, including riparian trees and vegetation and wetlands, to support the otter population in the long term;
- The natural range of otters in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future;
- The otter must be able to breed and recruit successfully in the SAC. The size of breeding territories may vary depending on prey abundance;
- Otter food sources must be sufficient for maintenance of the population;
- The safe movement and dispersal of individuals around the SAC is facilitated by the provision, where necessary, of suitable riparian habitat, and underpasses, ledges, fencing etc. at road bridges and other artificial barriers;
- No otter breeding site should be subject to a level of disturbance that could have an adverse effect on breeding success. Where necessary, potentially harmful levels of disturbance must be managed.

2.1.5 Yerbeston Tops SAC (UK0030305)

Yerbeston Tops covers an area of around 18.6 ha and 51.9% of the site consists of broad-leaved deciduous woodland. 3.7% of bog, marshes, water fringed vegetation and fens, 9.1% of heath, scrub, Maquis and Garrigue, and *Phygrana*, 25.7% humid grassland and mesophile grassland and 9.6% of improved grassland.

The Yerbeston Tops has no Annex 1 qualifying habitats that are a primary reason for selection of this site, but does however present an annex 1 habitat which is a qualifying feature but is not a primary reason for selection of this site: -

- *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinia caerulea*).

The Annex II species that is a primary reason for selection of this site is:

- Marsh fritillary butterfly (*Euphydryas aurinia*) – This isolated metapopulation in southern Pembrokeshire supports over 1500 adult marsh fritillaries and is an important outlier for the conservation of the species in West Wales.

Conservation Objectives

The 2008 Core Management Plan sets out the conservation objectives for each of the features for which the SAC is designated. Each conservation objective consists of the following two elements: -

- Vision for the feature;
- Performance indicators.

The performance indicators are what make the conservation objectives measurable, and are thus part of, and not a substitute for, the conservation objectives.

The visions for, and conservation status of, each SAC feature are set out below, as taken from the 2008 Core Management Plan.

Molinia meadows on calcareous, peaty or clayey-silt-laden soils

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: -

- Molinia meadows will cover at least 4ha;
- The following plants will be common in molinia meadows: purple moor-grass (*Molinia caerulea*); small sedges including *Carex pulicaris* and *hostiana*, and devil's bit scabious (*Succisa pratensis*);
- Soft rush (*Juncus effusus*) and species indicative of agricultural modification, such as perennial rye grass (*Lolium perenne*) and white clover (*Trifolium repens*) will be largely absent from the molinia meadows;
- Scrub species such as willow (*Salix*) and birch (*Betula*) will also be largely absent from the molinia meadows;
- All factors affecting the achievement of these conditions will be under control.

2.1.6 Castle Martin Coast SPA (UK9014061)

Castle Martin Coast consists of Carboniferous Limestone which is of national geological and biological interest. The exposed sea cliffs support characteristic plants as well as rarities such as Goldilocks Aster *A. linosyris* and Small Restharrow *Ononis reclinata*. Species-rich maritime grassland occur behind the cliff edges, which grades into maritime heath and then into gorse scrub. A large calcareous dune system, at the western end, has an extensive natural transition to wet communities in dune slacks. The cliffs, dunes and wetland habitats along this section of coast support a rich invertebrate fauna. The site supports populations of Chough (*Pyrrhocorax pyrrhocorax*) which are a species of European importance which is listed on Annex I.

Conservation Objectives

The Core Management Plan for the Limestone Coast of South and West Wales SAC sets out the conservation objectives for the SPA features. The conservation objective consists of the following two elements: -

- Vision for the feature
- Performance indicators

The performance indicators are what make the conservation objectives measurable, and are thus part of, and not a substitute for, the conservation objectives.

The visions for, and conservation status of, the SAC feature are set out below, as taken from the 2008 Core Management Plan.

Red-billed chough

The conservation status of the SPA feature Red-billed chough (*Pyrrhocorax pyrrhocorax*)” is considered to be **Favourable**.

.....
The vision for the feature is set out below, as taken from the Core Management Plan: -

- A breeding Chough population will occur along the limestone coast, between Freshwater West and Barafundle Bay;
- This population will be maintained at a minimum of 12 breeding pairs (representing 3.5% of the GB population, at the 1993 SPA designation level);
- Choughs will continue to, feed, roost and breed successfully, unhindered by human recreational activities (e.g. climbing);
- The majority of pairs will rear young each year, with an annual average productivity of at least two young per occupied territory;
- Choughs will continue to have access to large amounts of optimal feeding habitat (open areas with very short grassland and heath vegetation <1cm to <3cm in height) within all cliff-top management units and within dune grassland management units at Broomhill Burrows, Brownslade and Linney Burrows and on Stackpole Warren;
- Yellow ant-hills, an important summer food resource, will occur in coastal turf, throughout the SPA, at densities up to approximately 550 ant-hills per ha;
- A non-breeding Chough population (variable in number between 10 and 50 birds) made up largely of juvenile and sub-adult birds will occur at any season.

3.0

Screening

3.1 Introduction

The screening stage assesses the potential effects produced by the proposed development against the interest features of each European Site in order to determine whether there is a Likely Significant Effect (LSE).

The screening for LSEs involves identifying whether the proposed development is a source of potential effects that might affect any of the interest features of the relevant European Sites.

The screening process follows the guidelines set out in the PINS Advice Note 10 and is in accordance with industry best practice. If the proposed development is a source of such an effect, then it is necessary to determine whether there is a potential pathway through which the proposed development could affect the interest features of relevant European Sites, the length of those pathways and what may reduce or prevent the potential effect reaching the relevant European Sites.

When carrying out screening for potential LSEs, account was taken of the avoidance and mitigation measures that have been built into the proposed design. These avoidance and mitigation measures are described in Section 4 below.

The screening for LSEs identified those aspects of the proposed development, and those interest features of each relevant European Site, where there was confidence that they are not likely to be significantly affected, and which therefore need not be considered any further.

Where it could not be concluded with confidence or without further assessment or mitigation that Likely Significant Effects were unlikely, then these LSEs are taken further into the Appropriate Assessment stage and considered in light of the relevant conservation objectives.

3.2 Sources of Information Used in the Assessment

The main sources of information used in the screening exercise for this HRA Report were: -

- CCW Core Management Plans (and Regulation 33 Advice document for Pembrokeshire Marine SAC) for the protected European sites;
- Planning Inspectorate's (PINS) Advice Note 10 (Habitat Regulations Assessment for nationally significant infrastructure projects);
- The Egnedol EIA and associated documents.

3.3 Potential Impacts of the Proposed Scheme

The main elements of the proposed Scheme are described in Section 1.3 of this HRA Report.

Potential direct, indirect or secondary impacts of the scheme (either alone or in combination with other plans or projects) on the relevant European Sites are summarised below in Table 3.1.

IMPACT	POTENTIAL PATHWAY	POTENTIAL EFFECT
CONSTRUCTION		
Building development and land use	Habitat fragmentation	Reduced foraging opportunities for SAC special species. Reduced dispersal opportunity for SAC special features.
Noise and Vibration generated during construction	Disturbance to species	Reduced foraging opportunities for SAC special species. Reduced dispersal opportunity for SAC special features.
Light spill during construction Disturbance to species	Reduced foraging opportunities for SAC special species.	Reduced dispersal opportunity for SAC special features.
Aqueous Emission	Direct discharge to Haven	Deterioration in water quality
Impact on bed of haven	Disturbance of bed by jack up barge	Disruption of habitat
OPERATION		
Aerial Emissions	Increase in atmospheric deposition and atmospheric concentrations of pollutants	Damage to SAC habitat features
Noise generated during operation	Disturbance to species	Reduced foraging opportunities for SAC special species. Reduced dispersal opportunity for SAC special features.
Light spill during operation Disturbance to species	Reduced foraging opportunities for SAC species features.	Reduced dispersal opportunity for SAC special features.
Electromagnetic disturbance	From cable to sea bed	Disruption to features
DECOMMISSIONING		
Noise and Vibration generated during decommissioning	Disturbance to species	Reduced foraging opportunities for SAC special species. Reduced dispersal opportunity for SAC special features.
Light spill during decommissioning	Disturbance to species	Reduced foraging opportunities for SAC special species. Reduced dispersal opportunity for SAC special features.

3.4 Assessment Matrices

The screening study, as summarised in Section 3.3 above, identified potential LSEs that could arise as a result of the development. Further assessment has been carried out to determine whether or not a potential adverse effect on integrity could occur.

Where the assessment concluded that no adverse effect would occur, on the basis of established guidelines and best practice, it was not necessary to refer to the conservation objectives for the feature to assess whether an adverse effect on integrity would occur.

In the absence of guidelines, an assessment was made of the potential effect for each feature on which that effect operated, and regard was paid to the assessment of effect magnitude and significance from the appropriate EIA chapter.

The assessment of impacts for EIA is a different process to the assessment of adverse effects on integrity for Appropriate Assessments. It is not therefore assumed that, for example, an impact of negligible EIA significance equates to a finding of no adverse effect on integrity of a feature.

If a potential adverse effect on integrity, in the absence of mitigation, was identified, then appropriate mitigation measures are considered, followed by an assessment of whether any residual effect would comprise an adverse effect on integrity.

The assessment matrices for each of the areas considered are presented in tables 3.2 to 3.7 below.

LSEs taken forward for further assessment

TABLE 3.2 LIMESTONE COAST OF SOUTH AND WEST WALES SAC DISTANCE FROM DEVELOPMENT SITE – 4.7KM																		
	HABITAT FRAGMENTATION/DETERIORATION			AERIAL EMISSIONS			NOISE AND VIBRATION			LIGHTING			AQUEOUS EMISSIONS			IN COMBINATION (OTHER PLANTS OR PROJECTS)		
SAC FEATURE	CONSTRUCTION	OPERATION	DECOMMISSIONING	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Habitat Features: Vegetated sea cliffs of the Atlantic and Baltic coasts Fixed dunes with Herbaceous vegetation (grey dunes) European dry heaths Semi-natural dry grasslands and scrubland facies: on calcareous substrates (FestucoBrometali)	A	A	A	B	B	B	C	C	C	C	C	C	D	D	D	F	F	F
Greater Horseshoe Bat	✓	✓	✓	B	B	B	C	C	C	C	C	C	D	D	D	F	F	F
Early Gentian and Petalwort	A	A	A	B	B	B	C	C	C	C	C	C	D	D	D	F	F	F

- a. SAC 4.7 km from Scheme; no potential for direct habitat loss or fragmentation to affect habitats
 - b. SAC 4.7 km from Scheme No significant aerial emissions of N or acidity
 - c. SAC 4.7 km from Scheme; no potential for disturbance
 - d. SAC 4.7 km from Scheme and comprises habitats above intertidal; no potential for aqueous discharges to Haven to affect habitats or species within SAC
 - e. There will be no aqueous emissions to any surface or groundwater from the operational development
 - f. No other schemes known which could cause a cumulative effect
- ✓ Screened In

TABLE 3.3 PEMBROKESHIRE BAT SITES AND BOSHERSTON LAKES DISTANCE FROM DEVELOPMENT SITE – 6.8KM																		
	HABITAT FRAGMENTATION/DETERIORATION			AERIAL EMISSIONS			NOISE AND VIBRATION			LIGHTING			AQUEOUS EMISSIONS			IN COMBINATION (OTHER PLANTS OR PROJECTS)		
SAC FEATURE	CONSTRUCTION	OPERATION	DECOMMISSIONING	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Hard oligomesotrophic waters with benthic vegetation of Chara	A	A	A	B	B	B	C	C	C	C	C	C	D	D	D	F	F	F
Greater Horseshoe Bat	✓	✓	✓	B	B	B	C	C	C	C	C	C	D	D	D	F	F	F
Lesser Horseshoe Bat	✓	✓	✓	B	B	B	C	C	C	C	C	C	D	D	D	F	F	F
Otter	A	A	A	B	B	B	C	C	C	C	C	C	D	D	D	F	F	F

- a. SAC 6.8 km from Scheme; no potential for direct habitat loss or fragmentation to affect habitats
 - b. SAC 6.8 km from Scheme No significant aerial emissions of N or acidity.
 - c. SAC 6.8 km from Scheme; no potential for disturbance
 - d. SAC 6.8 km from Scheme and comprises habitats above intertidal; no potential for aqueous discharges to Haven to affect habitats or species within SAC
 - e. There will be no aqueous emissions to any surface or groundwater from the operational development
 - f. No other schemes known which could cause a cumulative effect
- ✓ Screened In

TABLE 3.4 PEMBROKESHIRE MARINE SAC DISTANCE FROM DEVELOPMENT SITE – ADJACENT TO SITE BOUNDARY																												
SAC FEATURE	HABITAT FRAGMENTATION/DETERIORATION			AERIAL EMISSIONS			NOISE AND VIBRATION			LIGHTING			AQUEOUS EMISSIONS			IN COMBINATION (OTHER PLANTS OR PROJECTS)			SEA BED DISTURBANCE JACK UP BARGE			ELECTRO-MAGNETIC FROM CABLE			LIGHT POLLUTION			
	CONSTRUCTION	OPERATION	DECOMMISSIONING	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	
Estuaries	A	A	A	B	B	B	C	C	C	C	C	C	✓	✓	✓	E	E	E	✓	A	A	A	A	A	A	A	A	A
Large shallow inlets and bays	A	A	A	B	B	B	C	C	C	C	C	C	✓	✓	✓	E	E	E	A	A	A	A	A	A	A	A	A	A
Reefs	A	A	A	B	B	B	C	C	C	C	C	C	✓	✓	✓	E	E	E	A	A	A	A	A	A	A	A	A	A
Sandbanks which are slightly covered by sea water all the time	A	A	A	B	B	B	C	C	C	C	C	C	✓	✓	✓	E	E	E	A	A	A	A	A	A	A	A	A	A
Mudflats and sandflats not covered by seawater at low tide	A	A	A	B	B	B	C	C	C	C	C	C	✓	✓	✓	E	E	E	A	A	A	A	A	A	A	A	A	A
Atlantic salt meadows	A	A	A	B	B	B	C	C	C	C	C	C	✓	✓	✓	E	E	E	A	A	A	A	A	A	A	A	A	A
Shore Dock	A	A	A	B	B	B	C	C	C	C	C	C	✓	✓	✓	E	E	E	A	A	A	A	A	A	A	A	A	A
Grey Seal	A	A	A	B	B	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	E	E	E	✓	A	✓	A	✓	A	✓	A	✓	A
Sea Lamprey	A	A	A	B	B	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	E	E	E	✓	A	✓	A	✓	A	✓	A	✓	A
River Lamprey	A	A	A	B	B	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	E	E	E	✓	A	✓	A	✓	A	✓	A	✓	A
Allis Shad	A	A	A	B	B	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	E	E	E	✓	A	✓	A	✓	A	✓	A	✓	A
Twaite Shad	A	A	A	B	B	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	E	E	E	✓	A	✓	A	✓	A	✓	A	✓	A
Otter	✓	A	✓	B	B	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	E	E	E	✓	A	✓	A	✓	A	✓	A	✓	A

- a. No direct habitat loss or fragmentation
- b. No significant aerial emissions of N or acidity (EIA Chapter 8).
- c. Habitat / plant feature and therefore not affected by noise / lighting during construction / operation / decommissioning
- d. There will be no aqueous emissions to any surface or groundwater from the operational development
- e. No other schemes known which could cause a cumulative effect
- ✓ Screened In

TABLE 3.5 HABITAT FRAGMENTATION/DETERIORATION				AERIAL EMISSIONS			NOISE AND VIBRATION			LIGHTING			AQUEOUS EMISSIONS			IN COMBINATION (OTHER PLANTS OR PROJECTS)		
SAC FEATURE	CONSTRUCTION	OPERATION	DECOMMISSIONING	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Water courses of plain to montane levels	A	A	A	B	B	B	C	C	C	C	C	C	D	E	D	F	F	F
Active raised bogs	A	A	A	B	B	B	C	C	C	C	C	C	D	E	D	F	F	F
Alluvial forests with Alnus glutinosa and Fraxinus excelsior	A	A	A	B	B	B	C	C	C	C	C	C	D	E	D	F	F	F
Brook lamprey	A	A	A	B	B	B	C	C	C	C	C	C	D	E	D	F	F	F
River lamprey	A	A	A	B	B	B	C	C	C	C	C	C	D	E	D	F	F	F
Sea lamprey	A	A	A	B	B	B	C	C	C	C	C	C	D	E	D	F	F	F
Bullhead	A	A	A	B	B	B	C	C	C	C	C	C	D	E	D	F	F	F
Otter	A	A	A	B	B	B	C	C	C	C	C	C	D	E	D	F	F	F

- a. SAC 10.5 km from Scheme; no potential for direct habitat loss or fragmentation to affect habitats
- b. No significant aerial emissions of N or acidity.
- c. SAC 10.5 km from Scheme; no potential for disturbance
- d. SAC 10.5 km from Scheme; no potential for aqueous discharges to affect habitats or species within SAC
- e. There will be no aqueous emissions to any surface or groundwater from the operational development
- f. No other schemes known which could cause a cumulative effect

TABLE 3.6 YERBESTON TOPS SAC DISTANCE FROM DEVELOPMENT SITE – 14.5KM																		
SAC FEATURE	HABITAT FRAGMENTATION/DETERIORATION			AERIAL EMISSIONS			NOISE AND VIBRATION			LIGHTING			AQUEOUS EMISSIONS			IN COMBINATION (OTHER PLANTS OR PROJECTS)		
	CONSTRUCTION	OPERATION	DECOMMISSIONING	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Molinia meadows	A	A	A	B	B	B	C	C	C	C	C	C	D	D	D	E	E	E
Marsh fritillary	A	A	A	B	B	B	C	C	C	C	C	C	D	D	D	E	E	E

- SAC 14.5 km from Scheme; no potential for direct habitat loss or fragmentation to affect habitats
- No significant aerial emissions of N or acidity.
- SAC 14.5km from Scheme; no potential for disturbance
- SAC 14.5km from Scheme; no potential for aqueous discharges to affect habitats or species within SPA
- No other schemes known which could cause a cumulative effect

TABLE 3.7 CASTLEMARTIN COAST SPA DISTANCE FROM DEVELOPMENT SITE – 4.8KM																		
SAC FEATURE	HABITAT FRAGMENTATION/DETERIORATION			AERIAL EMISSIONS			NOISE AND VIBRATION			LIGHTING			AQUEOUS EMISSIONS			IN COMBINATION (OTHER PLANTS OR PROJECTS)		
	CONSTRUCTION	OPERATION	DECOMMISSIONING	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Red-billed Chough	A	A	A	B	B	B	C	C	C	C	C	C	D	D	D	E	E	E

- SAC 4.8 km from Scheme; no potential for direct habitat loss or fragmentation to affect habitats
- No significant aerial emissions of N or acidity.
- SAC 4.8km from Scheme; no potential for disturbance
- SAC 4.8km from Scheme; no potential for aqueous discharges to affect habitats or species within SPA
- No other schemes known which could cause a cumulative effect

4.0

Potential Adverse Effects

Following completion of the assessment outlined in section 3.4, potential adverse effects on integrity, in the absence of mitigation, were identified for the following: -

PEMBROKESHIRE BAT SITES AND BOSHERSTON LAKES DISTANCE FROM DEVELOPMENT SITE – 6.8KM			
HABITAT FRAGMENTATION/DETERIORATION			
SAC FEATURE	CONSTRUCTION	OPERATION	DECOMMISSIONING
Greater Horseshoe Bat	✓	✓	✓
Lesser Horseshoe Bat	✓	✓	✓

✓ Screened In

PEMBROKESHIRE MARINE SAC DISTANCE FROM DEVELOPMENT SITE – ADJACENT TO SITE BOUNDARY															
SAC FEATURE	NOISE AND VIBRATION			LIGHTING			AQUEOUS EMISSIONS			JACK UP BARGES			ELECTROMAGNETIC FROM CABLE		
	C	O	D	C	O	D	C	O	D	C	O	C	C	O	D
Sandbanks which are slightly covered by sea water all the time							✓	✓	✓						
Mudflats and sandflats not covered by seawater at low tide							✓	✓	✓						
Atlantic salt meadows							✓	✓	✓						
Shore Dock							✓	✓	✓						
Grey Seal	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓	
Sea Lamprey	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓	
River Lamprey	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓	
Allis Shad	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓	
Twaite Shad	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓	
Otter	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓	

✓ Screened In

Mitigation measures are described in the EIA to address the above concerns and these are summarised below.

4.1 Proposed Mitigation Measures

The measures which have been adopted as part of the design of the Scheme to avoid potential effects and which would be adopted during construction to avoid and mitigate potential effects, are summarised below.

Many of these measures are the subject of requirements that will be need to be agreed with the relevant authorities of the Welsh Government DNS team and Pembrokeshire County Council (PCC) (after consultation with NRW) prior to the commencement of construction and during the preparation of documentation to support an applications for EPSM Licenses.

Measures reflecting the value of the ecological receptors, the nature of the development and best practice are proposed in the EIA and will be implemented prior to commencement of the main works and during each phase of the development process. These may change over time and measures in place during operation and decommissioning will reflect most recent best practice and the relevant legislative requirements.

4.1.1 Limestone Coast of South and West Wales SAC and Pembrokeshire Bat Sites and Bosherton Lakes

The land that contains the habitat for Greater and Lesser Horseshoe bats is derelict. The buildings are in a state of disrepair and have been subject to vandalism, destruction and fires started by trespassers. The tunnels have been visited by vandals and intruders and some of the entrances could become blocked by vegetation.

In the absence of intervention and management of the site there is risk of loss of some of the habitat for Greater and Lesser Horseshoe bats.

These two sites are screened in due to potential LSE's in the event of habitat fragmentation or deterioration caused by the development which could affect Greater Horseshoe bats at Limestone Coast of South and West Wales and to both Greater and Lesser Horseshoe bats at Pembrokeshire Bat Sites and Bosherton Lakes.

Section F of the Bat Survey Report in the Ecology Appendix of the EIA, which analyses bat data collected by licensed specialists over the past 12 months and from previous specialist surveys, provides details of the proposed mitigation with respect to Greater and Lesser Horseshoe bats.

In the absence of mitigation, the impact on these species is anticipated to be moderate negative.

Mitigation has been designed as follows;

- Tunnel enhancement – the access for bats to some of the tunnels is currently constrained due to overgrown vegetation and the lack of vegetation management. The tunnel access is not secure from human intruders and provides convenient access for trespassers, vagrants and vandalism. The tunnels will be preserved by placing new tunnel guards that will be specially designed for the location to maintain airflow, enable easy bat access and prevent unauthorized human access. A vegetation management plan will be implemented to ensure that access is maintained whilst preventing light spill into the entrances.
- Building bat bunker – an existing building will be extended and modified to create a Greater Horse shoe feeding perch, night roost and potential day roost.

- Construction of 2 new bat houses – two new bat houses will be constructed in accordance with BCT guidelines. These will be suitable for both hibernating and maternity colony bats and will have provision for crevice dwelling bats.
- New planting specifically for bat foraging – commuting routes and foraging will be protected and enhanced by new planting
- Specific lighting scheme – a bat sensitive lighting scheme will be designed in accordance with the provisions of BS42020:2013
- Habitat management plan – The Ecological Design Strategy will incorporate a Habitat Management Plan that will have a beneficial effect upon the available habitat for bats
- Monitoring – a monitoring programme and reaction protocol will be implemented to ensure the success of the mitigation strategy.
- Building bat boxes – bat boxes will be incorporated into the building design to enhance the location for crevice dwelling bats.

The mitigation measures will serve to enhance the site for Greater and Lesser Horseshoe bats and will ensure that Habitat Fragmentation or Deterioration is minimised in the short term and through appropriate management the retained habitats on site will be improved. Consequently there is considered to be no residual LSE's with respect to these special features at Limestone Coast of South and West Wales SAC and Pembrokeshire Bat Sites and Bosherton Lakes.

The mitigation works that will be undertaken via a EPSM License will enhance the sustainability of the site with respect to its current environment for Greater and Lesser Horseshoe bats.

The timing of the mitigation works will be designed to ensure that construction of new built habitat is in place prior to any works commencing that could cause fragmentation or deterioration of the existing habitat.

4.1.2 Pembrokeshire marine SAC

This site is screened in due to: -

- Otter - Potential for habitat fragmentation and deterioration for otters during construction and decommissioning, noise and vibration disturbance;
- Noise and vibration to impact upon Grey Seal, Sea Lamprey, River Lamprey, Allis Shad, Twaite Shad.
- Aqueous emissions on the SAC.

4.1.2.1 Otter

Comprehensive otter surveys have been completed to determine current otter usage of the site and of the surrounding zone of interest.

Otters travel through the site via an existing old culvert the travels from the SAC to the stream which crosses the site and into the existing on site reservoir.

Potential for habitat fragmentation and deterioration during construction and decommissioning, and noise and vibration disturbance will be removed by mitigation measures that have been designed.

A EPSM License will be required to undertake this work.

a. Mitigation with respect to Otter

Otter mitigation is proposed during the site clearance and construction phase and in the design of the permanent works to the culvert, stream and reservoirs. A comprehensive monitoring programme is designed to ensure the success of the mitigation.

b. Site Clearance & Construction Phase

All works to provide otter mitigation design features (New Culvert to Outflow, and Stream) will be in place before construction works begin.

c. Culvert

The culvert is to be replaced on a slightly adjusted alignment and the new culvert is to be improved with respect to the existing one with respect to otter access, by provision of well designed access and walkways. The preferred route used by the otters is to be securely fenced off for otter use and a habitat management regime is to be implemented to ensure excellent otter habitat.

The main elements of the culvert design are: -

- Dimensions of the box culvert should be 1.5m wide x at least 1m high (and up to 1.5m if space allows);
- A concrete otter ledge 600mm wide along one side, and approx 300mm high (or whatever height is needed to be above water level).
- At the outflow end the culvert must slope down from inside the culvert at an angle of < 45° so that otter access to the ledge is straightforward;
- Also at the outflow end, a metal grille or wide mesh fence can be installed (approx 1m inside the culvert) to prevent access to people and dogs;
- A solid, 1.8m fence should be erected on the bank above the new culvert outflow to screen the outflow from the site;
- At the upstream end where the stream enters the culvert it will be necessary to re-design the downstream section of the existing concrete channel to provide a wide section that can join the culvert;
- Also at the upstream end, the otter ledge must slope down from inside the culvert at an angle of <45°;
- At the upstream end the aim is to enable otters to either gain access to the stream, or to the bank top (via a ramp);
- The culvert outflow & where the stream flows into the culvert must be devoid of lighting (including low-level over-spill lighting).

d. Stream protection

Complete protection from disturbance will be provided for otters as they travel along the stream. by:

- Leaving a wide buffer zone between the stream and the new road. (see Drawing EGW-01-009 in Appendix A);
- A solid fence of 1.8m high erected along the southern edge of the access road from west of the start of the new box culvert (SS4) up stream to the fence (adjacent to SS9);
- The buffer zone area between the new fence and the stream to be left to develop as scrub;
- The entire length of the stream will be devoid of lighting (including low-level over-spill lighting).

e. Long-term Protection for habitats associated with watercourse & reservoirs.

The design features for otters described above will provide the conditions for otters to continue to travel between the Daugleddau and the stream / reservoirs. Effective screens (solid, high fences) will be placed at the critical sites (the culvert outflow, stream inflow into the culvert, and along the stream). Experience shows that otters will tolerate noise and vibration during the normal operation of the facility.

f. Stream & Reservoirs

Particular attention will be given to the long-term use and management of the stream, woodland and reservoirs, which will be retained as natural habitat with no or limited access. A 10 year Management Plan will be established to secure protection for otters.

g. Jetty Works

Construction works on the jetty are likely to impact otters through disturbance (noise, vibration & light) mainly because the culvert outflow is close by.

Immediately before start of works on the jetty (including preparatory works) the culvert outflow and sprainting sites will be checked for otter signs. If otters are active at these sites the start of work will be delayed for three days, after which the sites should be re-checked. If fresh signs are found after 3 days a further delay to start of works will be necessary until no fresh spraints are found.

h. Monitoring

A comprehensive programme of monitoring will be implemented for the period during construction, and for five years following commencement of the operational phase of the development. Monitoring will focus on an assessment of: -

- Level & frequency of otter activity in each season;
- Otter use of the long otter culvert & outflow;
- Disturbance levels along the stream and foreshore between the jetty & outflow.

Results of monitoring will be assessed regularly and used to modify / improve mitigation measures where necessary.

4.1.2.2

Noise and vibration impact upon Grey Seal, Sea Lamprey, River Lamprey, Allis Shad, Twaite Shad

The terrestrial element of the construction, operation and decommissioning of the BtEf will not produce sufficient noise or vibration to have a LSE on the aquatic species listed in the SAC designation.

Refurbishment of the jetty, by replacement of the bracing, and operation of the jetty by increased shipping will increase noise and vibration in the SAC due to the increased activity of support vessels and activities on the jetty. The effect of noise and vibration caused by localised low intensity shipping and materials handling is considered to be insignificant in terms of its impact upon the SAC fish and aquatic mammal features. The channel is 1.4km wide at the location of the jetty and consequently will not constrain the aquatic features or cause LSE's.

The HDD borehole for the grid connection will be drilled at a depth of around 35m below the bed of the Haven. Noise and vibration from this activity will not propagate to the bed due to the thickness of overburden rock and superimposed sediment that will absorb the energy from the process. No LSEs will be generated by this process.

4.1.2.3 Aquatic Emission

There will be no foul water or process water emissions to the SAC and consequently this LSE can be discounted.

The only aquatic emission will be clean surface water runoff from roofs and hardstandings. The quality of aquatic emissions of surface water will be regulated via an Environmental Permit for the site.

Construction Phase

Surface water runoff will be generated that could contain elevated concentrations of suspended solids and contaminants that arise from earthworks operations.

The Construction Environmental Management Plan that will be implemented will detail techniques to contain surface water emissions within the site boundary. Normal construction environmental protection measures will ensure that the construction phase surface water emission is managed to avoid any emission from active areas of earthworks to the SAC.

Operational Phase BtEF

Surface water currently falls upon the BtEf site and Waterston Aquaculture facility and is collected on the existing hardstanding and roofs and discharged to the Haven. The existing buildings will be refurbished and new buildings will be constructed and consequently it may be anticipated that the amount of surface water runoff would increase. Whilst some of the surface water is to be collected and utilised in rainwater harvesting in the process, the remaining water from the roofs of buildings and from hardstanding will discharge to the Haven.

The design of the facility does not have any outside processes, waste or product storage areas and consequently all of the hardstanding areas will be clean and simply used for occasional access.

A surface water drainage scheme has been designed for the BtEf. Water from roofs will be clean and will be discharged to the Haven. Water from hardstanding will be passed through industry standard interceptors to ensure that sediment and oils are removed prior to discharge.

Operational Phase Blackbridge Eco Park

The rainfall that currently falls on the area of the Blackbridge Eco Park runs off this agricultural parcel to the Haven. The land is often occupied by cattle and receives fertiliser to assist grass growth. The construction of the Blackbridge Eco Park will provide impermeable cover to the whole site where most of the incidental rainfall on roofs will be collected via rainwater harvesting and utilised within the process. Rainfall on the small areas of hardstanding will be directed via interceptor to the SAC. The construction of the Blackbridge Eco Park will improve the quality of surface water runoff discharged from this area to the Haven due to removal of Nitrates from fertiliser and nutrients / bacterial contributions from cattle.

Operational Phase Waterston Eco Park

The site is currently covered by hardstanding and surface water is directed through drainage systems, settlement ponds and interceptors prior to release to Haven. A large proportion of the incidental rainfall will be utilised via rainwater harvesting in the process. The Waterston Eco Park does not contain any outside processes, waste product storage. The discharge of surface water from this element of the project will be from clean roofs and hardstanding.

Decommissioning Phase

The decommissioning phase of the facility will require a Construction Environmental Management Plan to be implemented to ensure that surface water emissions to the SAC are contained.

The design provides robust management of surface water and will improve the quality of surface water that is currently discharged to the Haven, due to removal of Nitrates and effluent from cattle grazing.

Aquatic emissions will be controlled such that no LSE is anticipated.

4.1.2.4 Impact from Jack up Barge Feet

The refurbishment of the jetty will require the use of jack up barges.

The legs of the barges will stand upon the bed of the Haven.

The bed has been inspected in the vicinity of the jetty and no rare or protected species were observed.

Adverse impact upon the fish and mammal features of the sac will be avoided by inspecting the precise location of the jack up barge feet immediately prior to the placement of the barge. This will be done by a qualified dive team at the time of the works and will ensure that there is no LSE with respect to the fish and mammal features of the SAC.

4.1.2.5 Electromagnetic Waves from Grid Connection

The grid connection will be via a 400KV cable that will cross the Haven within a HDD borehole. The EIA confirms that the electromagnetic influence of the cable will not reach the surface of the SAC.

The borehole will be at a depth of 35m below the bed of the haven and consequently the rock and sediment substrate will have sufficient thickness to shield the SAC features from the effects of electromagnetic waves. No LSE is anticipated from electromagnetic interference.

5.0

In-Combination Effects

5.1 Introduction

The potential for in combination effects on the marine environment and marine ecology generated by other plans and projects during the construction and operational life time of the Plant (estimated to be at least 20 years) has also been assessed.

Aquatic Emission

The facility will produce aquatic emission from the residual surface water that is not utilised within the rainwater harvesting process.

The overall quality of the aquatic emission will improve as a result of the development due to removal of farming parcels that currently allow discharge of Nitrates and cattle effluent.

Aquatic emission from adjacent existing industry is controlled via Environmental Permit and the Scheme will also be regulated in this manner by NRW.

The controls placed upon the Scheme by the Environmental Permit and by the good inherent design ensures that there will be no likely significant in combination effects from aquatic emissions.

Aerial Emissions

The ADMS section within the EIA has utilised air emission data from current background, existing planning applications and facilities with planning permission that have not yet been constructed. The potential for in combination effects from aerial emissions has therefore been adequately assessed and does not cause LSE's on within the study zone.

Noise and Vibration

Increased shipping and jetty activity will cause in combination increase in noise and vibration with the Pembrokeshire Marine SAC.

The features that are sensitive to noise and vibration are mobile within the Haven, which is 1.4km wide at the Scheme site. The features will not be adversely impacted by the small increase in ship or jetty noise and vibration caused by the development.

6.0

Summary and Conclusions

An initial screening exercise for LSEs from the proposed Egnedol Development on European Sites within 15 km was carried out.

It was possible at a relatively early stage of the process to screen out a number of LSEs based on factors such as proximity of the European Site to the Scheme, or through consideration of the design and operational parameters of the Scheme.

Following the initial screening, a more detailed assessment of the LSEs that were screened in was carried out. This considered potential adverse effects on integrity of European Sites with reference to the appropriate conservation objectives. Mitigation measures were identified, where appropriate, and residual effects were assessed. In addition, an assessment of potential in-combination effects with other plans and projects was carried out.

In addition, an assessment of potential in-combination effects with other plans and projects was carried out.

An assessment and analysis of potential effects on European Sites from the Egnedol Development has concluded that, following mitigation, there are no residual LSE's on any of features of the European Sites analysed.



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