16 BIODIVERSITY

Introduction

16.1 This chapter is concerned with the impacts of the construction and operation of the proposed development on terrestrial ecology.

16.2 The proposals include extending one of the dock quays, which will affect a small extent of marine habitat. The effects of these works and potential indirect impacts on marine ecology are addressed in Chapter 6: Marine Environment.

Assessment Methodology

Planning Policy Context

16.3 The following national and local planning policy documents and guidance are relevant to the proposed development, and are described briefly the sections below with reference to the particular sections applicable to nature conservation and biodiversity:

- Planning Policy Wales (PPW) Edition 10
- Technical Advice Note (TAN) 5
- Pembrokeshire Local Development Plan (LDP)

Planning Policy Wales

16.4 PPW Edition 10 (Welsh Government, 2018) provides a national policy framework for Wales. Chapter 6 of PPW covers 'Distinctive and Natural Places'. The following objectives are listed in paragraph 6.4.3 of the document, of which all are relevant:

'Support the conservation of biodiversity, in particular the conservation of wildlife and habitats;

Ensure action in Wales contributes to meeting international responsibilities and obligations for biodiversity and habitats;

Ensure statutorily and non-statutorily designated sites are properly protected and managed;

Safeguard protected and priority species and existing biodiversity assets from impacts which directly affect their nature conservation interests and compromise the resilience of ecological networks and the components which underpin them, such as water and soil, including peat; and

Secure enhancement of and improvements to ecosystem resilience by improving diversity, condition, extent and connectivity of ecological networks.'

16.5 The Biodiversity and Resilience of Ecosystems Duty (Section 6 Duty) contained within PPW (paragraph 6.4.5) sates:

'Planning authorities must seek to maintain and enhance biodiversity in the exercise of their functions. This means 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 doing so planning

authorities must also take account of and promote the resilience of ecosystems, in particular the following aspects: diversity between and within ecosystems; the connections between and within ecosystems; the scale of ecosystems; the condition of ecosystems including their structure and functioning; and the adaptability of ecosystems.'

Technical Advice Note 5: Nature Conservation and Planning

16.6 Technical Advice Note (TAN) 5 (Welsh Assembly Government, 2009) provides advice about how the land use planning system should contribute to protecting and enhancing biodiversity and geological conservation. The TAN provides advice for local planning authorities on:

- the key principles of positive planning for nature conservation
- nature conservation and Local Development Plans
- nature conservation in development management procedures
- development affecting protected internationally and nationally designated sites and habitats
- development affecting protected and priority habitats and species.

Local Planning Policy

16.7 The Pembrokeshire LDP (Pembrokeshire County Council, 2013) was adopted by Pembrokeshire County Council (PCC) on 28th February 2013. The plan covers the period 2011 to 2021 and includes several provisions for the protection and enhancement of biodiversity.

16.8 Strategy 'SP1 Sustainable Development' of the policy requires that all development proposals:

'… must demonstrate how positive environmental impacts will be achieved and adverse impacts minimised'.

16.9 General policy 'GN.37 Protection and Enhancement of Biodiversity' requires that all development should:

'…demonstrate a positive approach to maintaining and, wherever possible, enhancing biodiversity. Development that would disturb or otherwise harm protected species or their habitats, or the integrity of other habitats, sites or features of importance to wildlife and individual species, will only be permitted in exceptional circumstances where the effects are minimised or mitigated through careful design, work scheduling or other appropriate measures'.

Biodiversity Frameworks, Action Plans and Management Plans

16.10 The following frameworks and plans are relevant to the ecological assessment of the Proposals.

- UK Post-2010 Biodiversity Framework (Joint Nature Conservation Committee (JNCC, 2012)
- Nature Recovery Action Plan for Pembrokeshire (Pembrokeshire Biodiversity Partnership, 2018)

- The Pembrokeshire Local Biodiversity Action Plan (LBAP) (Pembrokeshire Biodiversity Partnership, 2011)
- The Action Plan for Pollinators in Wales (Welsh Government, 2013)

UK Post-2010 Biodiversity Framework

16.11 The UK Post-2010 Biodiversity Framework supersedes the UK Biodiversity Action Plan. In 2007 the UK Biodiversity Partnership published an updated list of priority UK species and habitats covering terrestrial, freshwater and marine biodiversity to focus conservation action for rarer species and habitats in the UK. The UK priority list contains 1150 species and 65 habitats. The UK list has been used as a reference to draw up the species and habitats of principal importance in Wales under Section 7 of the Environment (Wales) Act 2016.

Nature Recovery Action Plan for Pembrokeshire

16.12 The Nature Recovery Action Plan for Pembrokeshire takes the six objectives of the Nature Recovery Action Plan for Wales (Wales Biodiversity Partnership, 2015), which in turn implements the Strategic Plan for Biodiversity 2011 – 2020 and Associated Aichi Targets adopted by signatories of the Convention on Biological Diversity in 2010.

16.13 The plan identifies 'action themes' to facilitate achieving the objectives. Relevant action themes include embedding biodiversity in public body and private sector decision making, safeguarding species and habitats of principal importance, increasing resilience of species, habitats and ecosystems to climate change.

Pembrokeshire LBAP

16.14 The Pembrokeshire LBAP contains Action Plans for some of the habitats and species recorded within the study area. These have been taken into account in this assessment.

Action Plan for Pollinators in Wales

16.15 The Action Plan for Pollinators in Wales recognises that:

'Pollinators are an essential component of our environment. Honeybees and wild pollinators including bumblebees, solitary bees, parasitic wasps, hoverflies, butterflies and moths and some beetles are important pollinators in Wales, for crops such as fruit and oil seed rape, clovers and other nitrogen fixing plants that are important to improving the productivity of pasture systems for livestock grazing, and wild flowers.'

16.16 The Action Plan recognises the value of pollination as a contribution to the UK crop market and that bee and pollinator health and declining populations have been increasingly highlighted as a cause for concern in the UK and globally. The Welsh Government has thus worked with industry and stakeholders to look in more detail at the evidence and issues around pollinators and their conservation in Wales. The plan describes the current situation in Wales and identifies areas where action is needed. It details the Welsh Government's Vision for Pollinators in Wales and puts that into the context of the Welsh Government's priorities and policies. It also lays out an Agenda for Action comprising the outcomes and areas for action that have been identified and how the Welsh Government will work towards them.

Non-Statutory Designated Sites – Selection Criteria

16.17 Selection of non-statutory sites of local wildlife importance enables the planning system to recognise and thus protect or enhance areas of substantive nature conservation value outside the limited network of statutorily protected SSSIs. Guidance for the whole of Wales is provided in the Guidelines for the Selection of Wildlife Sites in Wales (Wales Biodiversity Partnership, 2008).

16.18 Sites of Importance for Nature Conservation (SINCs) designated on the basis of these guidelines are identified in this chapter and the effects of the proposals on them are assessed.

Relevant Legislation and Guidance

16.19 The following relevant UK legislation has been considered within this assessment:

- The Conservation of Habitats and Species Regulations 2017.
- The Environment (Wales) Act 2016.
- The Countryside and Rights of Way Act 2000.
- Wildlife and Countryside Act 1981 (as amended).
- The Natural Environment and Rural Communities (NERC) Act 2006.
- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003.
- The Well-being of Future Generations Act (Wales) 2015.
- The Protection of Badgers Act 1992.

16.20 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 also relevant. These are implemented in the UK principally through the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017.

16.21 All wild birds, their nests and eggs are protected under Part 1, Section 1 of the Act. Birds listed in Schedule 1 of the Act are subject to special protection. Wild animals listed in Schedule 5 are protected under Section 9. Plants listed in Schedule 8 are protected under Section 13 of the Act.

16.22 The Birds Directive provides a framework for the conservation and management of, and human interactions with, all wild birds in Europe. Birds listed in Annex 1 are afforded special protection.

16.23 The main aim of the Habitats Directive is to promote the maintenance of biodiversity by requiring Member States to take measures to maintain or restore natural habitats and wild species listed in the Annexes to the Directive at a favourable conservation status, introducing robust protection for those habitats and species of European importance. Member States are required to take requisite measures to establish a system of strict protection for the animal species listed in Annex IV (a) and plant species in Annex IV (b).

16.24 The provisions of the Habitats Directive are transposed into UK law by the Conservation of Habitats and Species Regulations 2017. Where species protected by the regulations would be affected by development, a licence may be granted subject to tests set out in section 55 of the Regulations. These are that:

'1) the licence must be necessary for reasons of preserving public health or public safety or other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment;

2) there is no satisfactory alternative; and

3) the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.'

16.25 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).'*

16.26 Part 2 Section 3 of the Act places a well-being duty on public bodies (which include the Welsh Ministers) requiring that:

'(1) Each public body must carry out sustainable development.

(2) The action a public body takes in carrying out sustainable development must include—

(a) setting and publishing objectives ("well-being objectives") that are designed to maximise its contribution to achieving each of the well-being goals, and

(b) taking all reasonable steps (in exercising its functions) to meet those objectives.……'

16.27 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.

16.28 The Act requires public bodies to co-operate, share information, jointly plan for and jointly report on the management of natural resources, of which climate resilience and climate mitigation are key strands.

16.29 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 other 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.

16.30 In regard to promoting the resilience of ecosystems, the Welsh Government must in particular have regard to the United Nations Environmental Programme Convention on Biological Diversity 1992.

16.31 Section 7 of the Act replaces Section 42 of the Natural Environment and Rural Communities Act 2006 and 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' Section 7 Species' or 'Section 7 Habitats'.

Study Area

16.32 The study area for terrestrial ecology extends to 2km from the site boundary for statutory and non-statutory designated sites and species records.

16.33 The study area for the baseline surveys are defined in the individual ecology survey reports appended to this ES.

16.34 The extent of the proposals to which this assessment applies are shown on figures which accompany Chapters 1 and 2 of the ES including the Site Location Plan (Figure 1.1), the Existing Site Plan (Figure 2.1) and the Proposed Masterplan (Figure 2.2).

Baseline Methodology

16.35 The following ecological baseline studies were undertaken to inform this assessment:

- Preliminary Ecological Appraisal (RSK 2018a, and Appendix 16.1)
- Reptile presence / absence survey (RSK 2017a, and Appendix 16.2)
- Inspection of buildings for bat roost potential (RSK 2017b, and Appendix 16.3)
- Bat tree inspections, dusk emergence and activity (summer) surveys (RSK 2018b, and Appendix 16.4)
- Bat hibernation and winter transect surveys (RSK 2018c, and Appendix 16.5)
- Badger monitoring survey (RSK 2017c, and Appendix 16.6)
- Botanical survey (RSK 2018d, Appendix 16.7)

16.36 The survey methodologies employed are described in the relevant survey reports (with reference to the applicable published guidance) included in the appendices to this chapter.

Consultation

16.37 A summary of all consultations in relation to ecology and nature conservation is given in Table 16.1.

Table 16.1: Consultation Responses Relevant to this Chapter

Date	Consultee and Issues Raised	How / Where Addressed
20th February 2018	Pembrokeshire County Council (PCC)	PCC input on ecology was for information only. No significant issues were raised and no defined action arose from the meeting.

PCC explained several surveys had been undertaken with more ongoing and that little of ecological interest had been found.	Potential impacts on bat roosts are addressed in paragraphs: 15.113 to 15.118, 15.161 to 15.170 15.190 to 15.194, 15.215 - 15.224, 15.231 - 15.233 15.208 to 15.209, 15.239
PCC confirmed, 5 buildings with potential bat activity, 1 badger sett and 2 areas of Japanese knotweed. PCC suggested a licence to close the badger sett could be applied for sooner rather than later.	The Habitat Regulations Assesment also specifically addresses potential impacts on Greater Horseshoe Bats Potential impacts on badgers will be addressed with preconstruction checks for setts and closuire of active setts under NRW licence. Information on badgers is given in paragraphs: 15.124 to 15.126, 15.140 to 15.144, 15.175 15.198 to 15.200 15.234 Japanese knotweed will be addressed through preconstruction checks and the preparation and implementation of a method statement for for the control of Japanese knotweed 15.96 to 15.97, 15.145 to 15.146, 15.160, 15.234

Assessment Criteria and Assignment of Significance

16.38 The assessment of the ecological effects of the proposals focusses on 'important ecological features' (IEFs). These are species and habitats that are valued in some way and could be affected by a proposed development. Other IEFs may occur on or in the vicinity of the site of a proposed development but do not need to be considered because there is no potential for them to be affected significantly.

16.39 Each IEF is ascribed a value, and the magnitude of the impact/s on the IEF is quantified. The interaction of IEF sensitivity and impact magnitude informs the overall significance of the impact.

Receptor Value

16.40 The evaluation of IEFs for the purposes of this assessment has been based on the criteria set out in Table 16.2 below.

Table 16.2: Definitions of Ecological Receptor Value

Value	Typical Descriptors
Very High	International Importance. Sites of European or greater than UK or Welsh significance (SAC, SPA, Ramsar Site). 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 (SSSI & National Nature Reserves (NNR)). Priority habitats in UK BAP and NERC Act (2006). Ancient woodland. Resident, or regularly occurring, populations of species which may be considered at an International, European, UK or National level 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 at this scale; or • the species is at a critical phase of its life cycle at this scale.
Medium	Sites of Regional (South East Wales) or County Importance (e.g. Sites of Nature Conservation Importance – SINCs). Priority habitats in Regional BAP. 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	District Importance. Designated sites including Local Nature Reserves (LNRs) designated in the local context. 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	Parish or very local importance only.

16.41 In assigning a value to a site, habitat or species population or assemblage, its distribution and status (including a consideration of trends based on available historical records) are considered. Rarity is considered because of its relationship with threat and vulnerability, and the need to conserve representative areas of habitats and genetic diversity of species populations, although rarity in itself is not necessarily an indicator of value. A species that is rare and declining is assigned a higher value than one that is rare but known to be stable.

16.42 The valuation of sites also takes full account of existing value systems such as SSSIs and Local Wildlife Site designations. Professional judgement is required for the valuation of sites of less than county importance.

16.43 The valuation of habitats takes into account published selection criteria. These include size (extent), diversity, naturalness, rarity, fragility, typicalness, recorded history, position in an ecological or geographical unit, current condition and potential importance.

16.44 Criteria for the valuation of habitats and plant communities include Annex III of the Habitats Directive, guidelines for the selection of biological SSSIs and criteria used by local planning authorities and the Wildlife Trusts for the selection of local sites. Legal protection status is also a consideration for habitats where these are features of statutory designated sites.

16.45 Species populations are valued on the basis of their size, recognised status (such as recognised through published lists of species of conservation concern and designation of BAP status) and legal protection status. For example, bird populations exceeding 1% of published information on biogeographic populations are considered to be of international importance, those exceeding 1% of published data for national populations are considered to be of national importance, etc.

16.46 In assigning importance to species populations, it is important to consider the status of the species in terms of any legal protection to which it is subject. However, it is also important to consider other factors such as its distribution, rarity, population trends, and the size of the population which would be affected. Thus, for example, whilst the great crested newt *Triturus cristatus* is protected under the Habitats Directive, and therefore conservation of the species is of significance at the

international level, this does not mean that every population of great crested newt is internationally important and thus of very high value. It is important to consider the particular population in its context. Thus, in assigning values to species the geographic scale at which they are important has been considered. The assessments of value rely on the professional opinion and judgement of experienced ecologists.

16.47 Due regard has been paid to the legal protection afforded to such species in the development of mitigation measures to be implemented during construction and operation of the proposals. For European protected species there is a requirement that a scheme should not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range, i.e. to maintain favourable conservation status, a scheme should not affect the long-term availability of sufficient habitat required by the population, the long-term viability of the population, or the long term natural range of the species.

16.48 Assessing feature values requires consideration of both existing and future predicted baseline conditions, and therefore, the description and valuation of ecological features takes account of any likely changes, including for example, trends in the population size or distribution of species, likely changes to the extent of habitats and the effects of other proposed developments or land use changes.

Magnitude of Impact

16.49 The likely impacts of the proposals have been assessed in terms of the:

- type of impact i.e. whether the proposals would result in a beneficial or adverse impact on the identified IEFs;
- magnitude of the impact, (size or intensity measured in relevant terms e.g. numbers of individuals lost or gained, area of habitat lost or created);
- extent or spatial scope of the impact;
- likely duration of the impact;
- reversibility of the impact – whether the effect is naturally reversible or reversible through mitigation action; and
- timing and frequency of the impact, in relation to ecological changes.

16.50 Table 16.3 below indicates how the magnitude of impacts has been described within this assessment, taking into account guidance provided in CIEEM (2016).

Table 16.3: Definitions of Impact Magnitude

Sensitivity	Typical Descriptors
High	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements. Detrimental effect on conservation status (Adverse).
	Large scale or major improvement of resource quality; extensive restoration or enhancement; major improvement of attribute quality. Notable improvement in conservation status (Beneficial).

Medium	Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements. Some detriment to conservation status. (Adverse).
	Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality. Some improvement to conservation status (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).
No change	No loss or alteration of characteristics, features or elements; no observable impact in either direction.

16.51 Conservation status is described by the CIEEM guidance (2016) as follows:

'Habitats – conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure and functions as well as its distribution and its typical species within a given geographical area.'

'Species – conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area.'

16.52 The assessment of whether the favourable conservation status of an IEF is likely to be compromised has been made using professional judgement based on an analysis of the predicted impact of the proposals (including consideration of the specific parameters outlined above). For designated sites that are affected by the proposals, the focus has been on the impacts on the integrity of the site, i.e. the ability of the site to continue to maintain conditions which would allow the key species and habitats for which it was designated to flourish. In assessing impacts on these sites, the focus has been on impacts on the key species and those habitats and features of value to them.

16.53 In assessing the magnitude of impacts consideration has been given to the fragility/stability of the habitats and the sensitivity of the species potentially affected by the proposals. Fragile habitats are those which are readily damaged by human activity. Fragility is to some degree the inverse of stability, which can be defined as the ability of an ecosystem to maintain some form of equilibrium in the presence of perturbations. Fragility and stability can be expressed in terms of the degree of change in species abundance and composition following disturbance. Sensitive species are those that are highly susceptible to disturbance. This may be direct disturbance as result of human activity, noise etc, or disturbance as a result of habitat change where a species is particularly associated with a specific habitat and would be lost for the area if that habitat is removed.

16.54 Where likely adverse impacts have been identified, mitigation methods have been incorporated into the proposals where practicable.

Significance of Impacts

16.55 The significance of the impacts on the identified IEFs has been assessed taking into account the value of the sites, habitats and species that would be affected and the predicted magnitude of impact. The nature of the effects has been classified as adverse, beneficial or neutral.

16.56 Following the general approach described in the Assessment Methodology for this ES, levels of significance have been defined as follows.

- Substantial: Only adverse effects are normally assigned this level of significance. They represent key factors in the decision-making process. These effects are generally, but not exclusively, associated with sites or features of international, national or regional importance that are likely to suffer a most damaging impact and loss of resource integrity. However, a major change in a site or feature of local importance may also enter this category.

- Major: These beneficial or adverse effects are considered to be very important considerations and are likely to be material in the decision-making process.

- Moderate: These beneficial or adverse effects may be important but are not likely to be key decision-making factors. The cumulative effects of such factors may influence decision-making if they lead to an increase in the overall adverse effect on a particular resource or receptor.

- Minor: These beneficial or adverse effects may be raised as local factors. They are unlikely to be critical in the decision-making process but are important in enhancing the subsequent design of the project.

- Negligible: No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.

16.57 Effects that are of such low significance that they are not considered material are assessed as 'neutral'. Effects of 'moderate' or greater significance are considered to be significant in terms of the EIA Regulations.

16.58 Beneficial effects, where present, are described within the text and should also be considered within the decision-making process.

16.59 The assessment has been undertaken on the basis of the guidance referred to above. Table 16.4 below provides a guide to assessment based on this approach.

Table 16.4: Assessment of Significance Matrix

Value	Magnitude of Impact				
	No Change	**Negligible**	**Low**	**Medium**	**High**
Negligible	Neutral	Negligible	Negligible or Minor	Negligible or Minor	Minor
Low	Neutral	Negligible or Minor	Negligible or Minor	Minor	Minor or Moderate
Medium	Neutral	Negligible or Minor	Minor	Moderate	Moderate or Major
High	Neutral	Minor	Minor or Moderate	Moderate or Major	Major or Substantial
Very high	Neutral	Minor	Moderate or Major	Major or Substantial	Substantial

16.60 Impacts resulting in a significance of effect which is minor or lower are not considered significant in EIA terms.

Timescale of Effects

16.61 For the purposes of the assessment the following timeframes are referred to in relation to the duration of effects and/or the time required for mitigation measures to become effective:

- Short-term: one to three years.
- Medium-term: four to nine years.
- Long-term: greater than nine years.

Limitations of the Assessment

16.62 The Preliminary Ecological Appraisal (PEA) was undertaken outside of the optimum survey season for vegetation. Subsequent targeted habitat/botanical surveys mean that this was not a constraint on the ecological evaluation of the site.

16.63 The presence of a localised area of dense scrub could not be comprehensively inspected for badger setts during the PEA site walkover. No field signs were observed during numerous subsequent site visits indicating the very likely absence of an active badger sett within scrub (with no paths or 'push troughs' in the vegetation) and this minor restriction has not been a constraint on the evaluation or assessment.

16.64 There were no other constraints, and the information obtained from the baseline surveys is considered sufficient to fully inform a robust evaluation and assessment of impacts on ecological features of interest.

16.65 During bat surveys the static bat detectors were periodically deployed over a seven-month period. There was a recording failure on one detector in July 2017, partial failures (recorded for only two of the five days) in September 2017 and April 2018. In all cases these constraints were mitigated by additional data collected in the month following the affected period during the same season (spring, summer or autumn). As a result, the gaps in the static recording data have not been a constraint on the assessment.

Baseline Environment

16.66 This section provides a summary of the findings of the ecological desk study and baseline surveys (which are provided in full in Appendices 16.1 to 16.7).

Statutory Designated Sites

Pembroke Marine Special Area of Conservation (SAC)

16.67 Pembroke Marine Special Area of Conservation (SAC) borders the dock site to the north and west. The SAC is designated for the following Annex I Habitats and Annex II species:

- Estuaries (primary feature)
- Large shallow inlets and bays (primary feature)
- Reefs (primary feature)

- Grey seal *Halichoerus grypus* (primary feature)
- Shore dock *Rumex rupestris* (primary feature)

16.68 In addition to the primary qualifying features listed above, there are several secondary qualifying Annex 1 habitats and Annex 2 species, specifically: shallow bays and inlets, permanently submerged sand banks, intertidal mudflats and sandflats, coastal lagoons, Atlantic salt meadows (salt marsh), sea caves, otter *Lutra lutra* and several fish species (sea lamprey *Petromyzon marinus*, river lamprey *Lampetra fluviatilis*, allis shad *Alosa alosa* and twaite shad *Alosa fallax*).

16.69 The Pembroke Marine SAC is of very high (international) value.

Milford Haven Waterway Site of Special Scientific Interest (SSSI)

16.70 Milford Haven Waterway SSSI borders the site and extends from the mouth of the Haven at Dale Point and Thorn Island to the upper reaches of the Cleddau Ddu at Haverfordwest in the west and Blackpool Mill in the east. The SSSI comprises ancient woodland, cliffs, rocky shores, beeches, mudflats, saltmarsh, swamp and saline lagoons. The diverse range of habitats supports a rich diversity of flowering plants, mosses, lichen and liverworts including rare and scarce species. The site is also important for invertebrates including brown hairstreak butterfly *Thecla betulae*, comb footed spider and tentacled lagoon worm *Alkmaria romijni*.

16.71 The saltmarsh and mudflats support significant numbers of over-wintering wildfowl and waders, including curlew *Numenius arquata*, dunlin *Calidris alpina*, little grebe *Tachybaptus ruficolllis*, shelduck *Tadorna tadorna*, teal *Anas crecca* and wigeon *Anas penelope*. The Haven is part of the Cleddau catchment, one of the most important places in southern Britain for otter. Nearby there are important bat breeding sites supporting internationally important populations of greater horseshoe bat *Rhinolophus ferrumequinum*, and nationally important numbers of lesser horseshoe bat *Rhinolophus hipposideros*.

16.72 The Milford Haven Waterway SSSI is of high (national) value.

Non-Statutory Sites

16.73 There are no non-statutory designated sites within 2 km of the site boundary. No further reference to potential effects on non-statutory designated sites is made in this assessment

Other Sites of Nature Conservation Interest

16.74 There are 11 areas of Ancient Semi Natural Woodland, and five areas of Restored Ancient Woodland within 2 km of the site boundary. The closest of these is 1 km north of the site boundary.

16.75 The ancient woodland sites individually are assessed as being of low value.

Habitat Surveys - Phase 1 Habitat Survey and National Vegetation Classification (NVC) Survey.

Terrestrial Habitats

16.76 The results of the Phase 1 Habitat Survey are shown on Figure 16.1 and described in full in the Preliminary Ecological Appraisal Report in Appendix 16.1.

Hardstanding, Buildings and Bare Ground

16.77 Much of the site consists of concrete and asphalt hardstanding and compacted stony ground with very sparse vegetation of common herbs such as groundsel *Senecio vulgaris*. These habitats are of neutral ecological value.

Ruderal Open Grassland (Grassland/Scrub/Ruderal/Ephemeral/Bare Ground Mosaic)

16.78 The main areas of ruderal vegetation are located in the south-east of the site, and around the Graving Dock in the north. Both areas support a mosaic of habitats including unimproved (naturally regenerated) grassland, ruderal, ephemeral/short perennial, scattered scrub and bare ground with localised intermittent flooding.

16.79 An NVC survey of both areas determined that they qualify as 'Open Mosaic Habitat on Previously Developed Land' (OMH) as defined under the Biodiversity Action Plan (BAP) priority habitats descriptions and are Habitats of Principal Importance under Section 7 of the Environment (Wales) Act 2016. The Pembrokeshire LBAP includes a Habitat Action Plan for multiple habitats including Brownfield and Urban habitats and explicitly covers OMH habitats (Pembrokeshire Biodiversity Partnership, 2013).

16.80 The operational areas around the Graving Dock have been undisturbed in the recent past and a comparatively species-rich OMH vegetation has established (see Appendix 16.7, and Figure 16.1 Target Notes, 26, 33 and 37). This regenerating habitat comprises a wide range of ruderal, grassland and coastal species grasses including several less common stress tolerant plants. The diversity of plants species confers potential value for invertebrates. None of the plant species are classified as rare in southern Britain and none of the plant species are listed under Section 7 of the Environment (Wales) Act 2016.

16.81 Taking into account the limited extent of this habitat within the site and the absence of species that are rare or scarce in the county, it is classified as having value in the context of the district. This equates to a low ecological value (Table 16.2) but is a key ecological feature in the context of the dock.

16.82 The larger southern area of ruderal vegetation and grassland is less species diverse than the area adjoining the Graving Dock (Figure 16.1, Target Notes 1, 6, 16, 28, 36). While technically defined as OMH, (and therefore a habitat of principal importance for conservation) it is more typical of habitats which occur commonly on post-industrial sites and does not stand out as a notable example of this habitat type. While this habitat is a key ecological feature in the context of the operational dock (which largely comprises buildings and hardstanding), in a geographic context it has value at a local level, equating to low value in this assessment.

Secondary Broad-leaved Woodland with Tall Ruderal Rides.

16.83 A stand of immature secondary broad-leaved woodland in the southeast of the site is characterised by densely growing field maple *Acer campestre* and ash *Fraxinus excelsior* (Figure 16.1, Target Note 14). There is an understorey of bramble *Rubus fruticosus* agg. and the non-native butterfly-bush *Buddleja davidii.* The species-poor ground flora comprises common grasses and herbaceous plants including Yorkshire fog *Holcus lanatus* and cow parsley *Anthriscus sylvestris*.

16.84 Scattered tall ruderal vegetation with a small number of common and widespread species such as teasel *Dipsacus fullonum* occur on tracks within the woodland block (Figure 16.1, Target Note 9).

16.85 The woodland is not typical of mature semi-natural woodlands as it lacks structural and species diversity and as such does not qualify as the Section 7 Habitat 'Mixed Deciduous Woodland'. Taking into account the limited extent of this habitat, its young age and poor diversity, following the definitions in Table 16.2, this habitat is classified as of negligible value.

Dense and Scattered Scrub

16.86 Dense stands of scrub in the south of the site largely comprise bramble and butterfly bush (Figure 16.1, Target Note 1). Species-poor scrub of this type will readily develop on abandoned sites such as road verges and post-industrial sites. This habitat is therefore of negligible value.

Individual Trees

16.87 There are mature and semi-mature trees in the southern part of the site on the boundaries of the woodland and OMH habitats (Figure 16.1, Target Note 11), and in the areas outside of the application site to the east allocated for heritage mitigation (Figure 16.1, Target Note 10). Tree species include ash, sycamore *Acer pseudoplatanus*, horse chestnut *Aesculus hippocastanum*, beech *Fagus sylvatica,* silver birch *Betula pendula*, and lime *Tilia* sp. In some areas a mix of native and introduced shrubs form stands beneath the larger mature trees.

16.88 The mature and semi-mature trees have biodiversity value in the site context and provide a resource that could not be replaced in the short term. Mature trees are widespread in woodlands, gardens and hedgerows locally, and therefore following the definitions in Table 16.2 the tree resource within the site has low/negligible value.

Neutral Grassland

16.89 There is a small area of tussocky, neutral grassland in the south-west of the site characterised by a few common grasses and ruderal species including red fescue *Festuca rubra*, creeping bent *Agrostis stolonifera*, false oat-grass *Arrhenatherum elatius*, cock's-foot *Dactylis glomerata*, common nettle *Urtica dioica* and ribwort plantain *Plantago lanceolata*.

16.90 The neutral grassland is characteristic of the naturally regenerated grassland habitats which are very common on road verges and on the boundaries of industrial sites. It is not characteristic of species-rich unimproved agricultural grassland and is of negligible value.

Amenity Grassland

16.91 Small areas of amenity grassland are present mainly south of the Timber Pond and off-site in the Pocket Park (part of the Heritage Mitigation Area shown on the Proposed Masterplan - **Figure 2.2**). These are typical of frequently mown grasslands and support a small assemblage of common grasses and herbaceous plants. The amenity grassland is species-poor, very common and easily replaceable, and is thus of negligible value.

Other Habitats

16.92 Several other habitats are present in very small extents or scattered through the site, specifically: very sparse ephemeral/short perennial vegetation, small areas of introduced shrub planting, an

unvegetated sea wall, stockpiled sand (unvegetated), a saline pool (the Timber Pond), and very sparse vegetation growing such as ivy-leaved toadflax *Cymbalaria muralis* from gaps and mortar joints in the boundary wall and the vertical walls of the Timber Pond.

16.93 These habitats support little or no vegetation and are of negligible value.

Invasive Non-native Species

16.94 Stands of Japanese knotweed *Fallopia japonica* are present adjacent to the woodland (Figure 16.1, Target Note 19) and on the edge of the dense scrub (Figure 16.1, Target Note 39) in the south of the site.

16.95 Japanese knotweed is an invasive non-native species which is detrimental to native ecosystems where it becomes established. Consequently, it is of no ecological value.

Protected Species and other Species of Conservation Interest

Bats (Roosting)

16.96 The findings of the surveys are presented in full in the Preliminary Bat Roost Assessment Report and Bat Survey Report (RSK, 2017b – Appendix 16.3, and RSK, 2018b – Appendix 16.4). The locations of all the buildings referenced are shown on the Preliminary Bat Roost Inspection Plan (Figure 2) within Appendix 16.4

16.97 An initial ground-based inspection was undertaken in 2017 to assess the potential of trees, buildings and other structures within the site to be used by roosting bats.

16.98 Following the initial inspection, dusk emergence surveys of all buildings with low or greater bat roost potential were carried out in 2017. Potential roost features on trees were inspected using an endoscope to fully assess potential roost value.

16.99 One potential hibernation roost (Building RSK B39) was subject to endoscopic inspection during winter with static bat detectors employed to record any winter bat activity. A winter activity transect was also undertaken. The locations of the buildings are detailed on the building plan provided in Appendix 16.4.

16.100 The initial building inspections identified bat droppings (species confirmed by DNA analysis) in two buildings within the proposed development site: Building RSK B38 (common pipistrelle *Pipistrellus pipistrellus* droppings) and Building RSK B50 (brown long-eared bat droppings).

16.101 The dusk emergence surveys in summer 2017 and spring 2018 confirmed the presence of a summer day roost of up to two common pipistrelles in Building RSK B38. The winter inspection and survey of Building RSK B39 found no bats and no evidence of bat use (droppings etc). No bat calls were recorded on the static bat detector or during the winter transect survey. No other roosts were recorded in buildings within the site. The single brown long-eared bat dropping in Building RSK 50 in the south-western part of the dock is considered to relate to foraging activity with no evidence of roosting in 2017 or 2018.

16.102 No bat roosts were found in any of the trees. Following the endoscopic inspection, the bat roost suitability of the trees was revised, with five trees classed as high value, one moderate and two low. The tree locations are shown on the plan provided in Appendix 16.4.

16.103 Three buildings are confirmed bat roosts for multiple species (Buildings RSK B8, B10 and B17).

16.104 RSK B10 (The Coach House) is a summer day roost for common pipistrelle and occasionally used as a summer day roost by individual (or small numbers of) brown long-eared bat and greater horseshoe bat. It is also an occasional summer night roost of individual lesser horseshoe.

16.105 RSK B17 (The Old Commodore Hotel) is classified as a small summer roost of greater horseshoe bats, although none were recorded emerging from the building during the 2017 and 2018 surveys. The building is also used by small numbers of common pipistrelle (peak count of five bats), individual soprano pipistrelle and is an occasional summer day roost for individual lesser horseshoe.

16.106 Building RSK B8 (The Master Shipwright's House) is a known former greater horseshoe bat roost but was scoped out of the bat surveys in 2017 and 2018.

16.107 All of the bat species found roosting in buildings are Section 7 Species of Principal Importance.

Bats (Commuting and Foraging)

16.108 Common pipistrelle, noctule *Nyctalus noctula*, soprano pipistrelle *Pipistrellus pygmaeus*, and Myotis bats were recorded during transect surveys. In additional long-eared bat and greater horseshoe bat were recorded during static surveys. The vast majority of calls recorded were of common or soprano pipistrelle bats. Foraging was largely concentrated over the vegetated area in the south of the site and around the trees and amenity grassland to the east. Commuting activity was focussed along the southern boundary and off-site habitats immediately south and west of the site. A few passes of horseshoe bats were recorded over the woodland area in the southwestern part of the site.

16.109 The bat surveys identified the main commuting route used by these species as being off-site and running parallel with the southern boundary.

16.110 All the bat species recorded foraging or commuting through the site are Section 7 Species of Principal Importance.

Bats - Valuation of the Site by Species

Common Pipistrelle and Soprano Pipistrelle

16.111 Common and soprano pipistrelle are the most widespread and common of British bat species, with national monitoring indicating recent positive trends for the populations of both species (BCT, 2017). Both species will be locally common. Pipistrelle bats will occasionally roost in narrow gaps/crevices in a wide range of structures and potential roost features similar to that on-site will be widespread within the wider locality in trees, dwellings and other buildings. The common pipistrelle roost in Building RSK B38 and RSK B17 (up to five bats) are not considered to be of value beyond the local or parish level.

16.112 Pipistrelle bats will forage in a range of habitats and there is extensive suitable foraging habitat locally including mature residential gardens, established hedgerows and broad-leaved woodland edge habitat. In this context the features of value for pipistrelle bats within the site are unlikely to be important for the maintenance of the populations of either pipistrelle species beyond the local

level. The site's value for common and soprano pipistrelle bats is no more than local importance and classified as of negligible value.

Brown Long-eared Bat

16.113 Brown long-eared bats *Plecotus auritus* are less common than pipistrelle but are still widespread with a positive recent population trend (BCT, 2017). Their roosting requirements are more restrictive than common pipistrelles, so the availability of alternative roosts locally would be correspondingly lower potentially increasing its vulnerability. Potential roost features would still be expected to be reasonably common and widespread in the largely rural locality of the site. Long-eared bat activity (foraging and commuting) at the site was negligible and more suitable foraging habitat is abundant locally.

16.114 Taking the above factors into account and given the low levels of uses of the site and the relatively low conservation status of brown long-eared bats, the site's value for this species is negligible (no more than local/parish importance).

Greater and Lesser Horseshoe Bats

16.115 Greater and lesser horseshoe bats also show positive recent trends in the UK although the trend in Wales is not statistically significant (BCT, 2017). These species, particularly greater horseshoe bats are of high conservation concern being very localised with comparatively small populations.

16.116 The levels of use of the off-site buildings for roosting is low, but a precautionary approach to evaluation is needed due to the greater conservation status of these species. Although the site is not used significantly for foraging, the southern boundary is likely to be at least occasionally used as commuting route by greater and lesser horseshoe bats. Taking these factors into account the value of the site for greater and lesser horseshoe bat roosts is of no more than district importance and is classified as of low value.

Otter

16.117 The European otter population is a qualifying feature for the Pembrokeshire Marine SAC designation which supports an otter population of national importance. The European otter is also a Section 7 Species of Principal Importance.

16.118 A footprint of an otter was recorded in mud in the dock in 2015 but there are no past records of sightings during the 2017 survey. This finding indicates that there is at least occasional otter activity along the front of the dock and that the open water within the dock is part of a wider territory.

16.119 Otters are widespread along the coastline of the Pembrokeshire Marine SAC including the Milford Haven waterway. Otter distribution is mostly commonly associated with locations where there is foreshore access close to small freshwater rivers and streams with good scrub or tree cover and individuals will have wide feeding ranges.

16.120 Boulders on the front of the dock within the ferry terminal area over 100m from the boundary of the site were identified as having the potential to contain gaps in which otter could rest up. The terrestrial areas of the dock are largely devoid of features of potential value for otter. The site is very unlikely to be important for maintaining the conservation status of the local otter population.

16.121 The otter population in the Pembrokeshire Marine SAC has national value and is classified as high value.

Badger

16.122 A single entrance burrow was identified during the ecological appraisal. Subsequent monitoring confirmed the burrow is a well used outlier badger sett (RSK, 2017c) which has now been closed under licence from NRW.

16.123 There is limited potential foraging habitat within the site although the main vegetated areas would have been used at least occasionally by the badger *Meles meles* social group using the outlier sett. The site is very unlikely to be an important or significant part of a badger social group territory.

16.124 Badger is not a species of conservation concern although it is legally protected under the Protection of Badgers Act 1992. There has been a marked increase in the badger population in England and Wales since the 1980s with the population in 2017 estimated to be 485,000 (Judge et al, 2017). Badger will be widespread and common in rural areas of Pembrokeshire. In this context, the site is of negligible value for the local badger population.

Birds

16.125 The site was assessed for its potential value for birds during the PEA site walkover. The site provides habitat for a small assemblage of birds some of which were recorded during the site walkover including herring gull *Larus argentatus* (which would nest on the roofs of buildings), and linnet *Carduelis canabina* (scrub nesting) both of which are of high conservation concern in Wales (RSK, 2018a). The site is unsuitable as breeding habitat for all Schedule 1 species for which the desk study returned local records.

16.126 The extent of suitable habitat on-site for species of high concern is very small and unlikely to be of significant value to the local populations of these species. The site is considered to be of negligible (site only) value for birds.

16.127 At low tide there is a narrow foreshore at the base of the dock wall with intertidal mud located approximately 200m west and 450m east of the site at the closest points. These off-site areas potentially provide suitable feeding grounds for wading birds, including species for which the Milford Haven Waterway SSSI is designated. These areas of intertidal mud are a very small proportion of the total extent of such habitats within the Milford Haven Waterway. The frontage of the dock has negligible value for birds, while the small areas of intertidal mud in the wider vicinity are of no more than low value. In addition, birds in the locality will be habituated to the human activity and background noise associated with the existing dock operations.

16.128 The populations of wader and waterfowl species that are qualifying species of the SSSI have high national value and is classified as high value.

Reptiles

16.129 There are historical records of grass snake *Natrix natrix* and slow worm *Anguis fragilis* within 1 km of the site. The PEA identified vegetated areas and spoil/rubble as providing potential foraging habitat and shelter for reptiles, and a presence/absence survey was undertaken in summer 2017 targeting key areas of potential reptile habitat.

16.130 The survey found no reptiles on-site and concluded that although the site supports some suitable habitat, regular disturbance of the site coupled with the barrier effect of the boundary wall and hard standing surrounding suitable on-site habitat means that reptiles are likely to be absent or present only in very small numbers. The site is therefore considered to be of negligible value for reptiles and they are not discussed further in this assessment.

Marine Species

16.131 Potential effects on marine species including grey seal, fish and invertebrates are discussed in Chapter 6: Marine Environment.

Future Baseline

16.132 There is the potential for change in the baseline conditions in the medium to long term as a result of climate change. The Climate Change Risk Assessment for Wales (Welsh Government et. al., 2012) identified the following main potential threats and opportunities for the natural environment as a result of climate change:

- reduction in soil moisture and lower river flows, and an increase in the frequency and magnitude of droughts;
- changes in soil organic carbon, although the ways in which it might be affected are not adequately understood at present;
- changes in climate space and species migration patterns, which could result in significant changes to biodiversity;
- increases in pests and diseases;
- changes to coastal and estuarine habitats and species, including a reduction in intertidal area; and
- changes to the marine environment, including an increase in disease hosts and pathogens, harmful algal blooms and invasive species. The effects of ocean acidification include adverse impacts on shellfish.

16.133 The Terrestrial Biodiversity Climate Change Impacts Report Card 2012 -13 (Living With Environmental Change (LWEC) Partnership, 2013) provides qualitative assessments of likely biodiversity change that indicate a direction of travel rather than quantitative predictions. Whilst climate models project changes in temperature with reasonable confidence, the complexities of ecological responses and the interactions with other non-climate pressures mean that there is a large range of possible future outcomes. This is compounded for other climate variables, such as rainfall, where there is less certainty in future projections.

16.134 Observations and qualitative predictions for habitats of particular relevance to the site include the following.

Grassland, Ruderal and Ephemeral/Short Perennial

16.135 Increasing temperatures have promoted earlier spring greening of grasslands and a longer growing season. This could have a beneficial effect with regard to plant species and associated invertebrate communities in retained areas of grassland and brownfield habitat within the site and elsewhere on the Port. However, decreased or less reliable summer rainfall, could result in less plant biomass and changes in species composition of plant communities with a shift towards species more adapted to warmer, drier summers. This could have a knock-on effect on the abundance and species composition of the associated invertebrate assemblage.

16.136 While there are potential effects of climate change on the future ecological baseline, it must be recognised that ecosystems are complex and are affected by a wide range of factors. With limited data and modelling capability, it is difficult to accurately predict and quantify the potential impacts of climate change on complex ecological systems. In the largely artificial environments such as docks, it is likely that anthropogenic effects on biodiversity through the management and use of the land will be more significant to the future baseline conditions than the effects of climate change.

Mitigation Measures Adopted as Part of the Project

16.137 Land take would be minimised where possible. Construction fencing would be installed around the perimeter of the construction area where required to protect adjacent retained habitats. Fencing would prevent access to contractors, machinery and vehicles and the storage of vehicles, machinery, equipment and materials in areas outside of the fence line.

16.138 Prior to the start 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, including the mitigation measures described below. The ECoW will oversee all works potentially affecting sensitive ecological features, as described below and included in the additional mitigation section.

16.139 As a precautionary measure, prior to the clearing of the woodland block and localised areas of dense scrub, comprehensive checks will be carried out to check for the establishment of any new badger setts. These pre-construction surveys will also assess the scrub to check for the continued absence of otter activity in these areas and their continued low suitability for such activity.

16.140 In the event that a badger sett or an otter resting place/holt is found during pre-construction surveys procedures would be put in place to ensure species protection. These procedures would include the immediate halting of works in the area and a stand off of 30 m from a badger sett and 100 m from an otter resting place.

16.141 An appropriately experienced Ecological Clerk of Works (ECoW) will assess the status of the feature and prepare a method statement/mitigation strategy with consultation with Natural Resources Wales (NRW). The ECoW will define which site activities can only proceed after a licence has been issued by NRW to allow the lawful disturbance of legally protected species.

16.142 Should a licence be required, this would be obtained prior to the commencement/re-commencement of works in the licensable area. The licence application would include a detailed method statement.

16.143 Badgers may continue to traverse the site including construction areas. To minimise the potential risk of them being harmed, a means of escape from any excavations left open overnight will be provided as necessary, such as the provision of a scaffold plank as a ramp (at no more than 45° angle), or the profiling of at least one wall of an excavation to provide a gentle slope (no more than 45°) that an individual could use to walk out of the excavation.

16.144 Pre-construction surveys for invasive plant species would be undertaken prior to construction to inform a biosecurity method statement for construction which would be part of the Construction Environment Management Plan (CEMP). The method statement would include measures to be undertaken prior to and during site clearance, ground disturbance and construction. The method statement would cover all relevant site works and would define best practice biosecurity protocols, control measures and eradication methods.

16.145 Measures to prevent the spread of invasive plant species listed under Schedule 9 of the Wildlife and Countryside Act 1981 would be detailed in the biosecurity method statement, which would be produced prior to the commencement of works on site.

16.146 Water quality in the Pembrokeshire Marine SAC and Milford Haven Waterway SSSI will be protected during construction through the implementation of relevant best practice measures to prevent and deal with spills and any other discharge that could enter the terrestrial or marine aquatic systems. Measures would include designating secure areas for refuelling and storing chemicals in line with appropriate regulations and guidelines. All such measures will be defined in a Construction Environmental Management Plan (CEMP) which will be adhered to at all times.

16.147 A Surface Water Management Plan (SWMP) would be developed and implemented to cover all drainage required during construction. This would reference all relevant industry and regulatory pollution prevention guidelines. The SWMP would consider all construction related discharges to ensure negative effects on water quality are minimised during construction. This, taken together with the CEMP, would ensure that there were no adverse effects as a result of construction activities.

16.148 In addition, during the works, port activities that will continue will be regulated by the Health and Safety Executive (HSE) and NRW under the Health and Safety at Work Act 1974. Non-marine operation risk assessment is carried out by Milford Haven Port Authority (MHPA) in accordance with its Safety and Environmental Management System (SEMS). In terms of emergency or crisis management, MHPA has effective spill response procedures to handle potential emergency scenarios.

16.149 During operation existing pollution incident prevention and control procedures would apply to the redeveloped site. All operational areas would also be subject to modern environmental controls in accordance with relevant standards.

Assessment of Construction Effects

Statutory Designated Sites

Pembrokeshire Marine SAC and Milford Haven Waterway SSSI

16.150 Land take associated with the proposals will result in a very small reduction in the extent of marine habitat where the quay will be extended in the northwest of the site. This is located outside of the Pembrokeshire Marine SAC and Milford Haven Waterway SSSI although the potential for impact pathways between the development and these designations has been considered.

16.151 Potential impacts on SAC qualifying habitats and species (including the otter population) during construction are considered in detail in the Report to Inform Appropriate Assessment which has been prepared by RPS for the Habitat Regulations Assessment (HRA) process given as Appendix 6.3. This assessment has concluded that the proposed development would not have an adverse effect on the integrity of any qualifying features of the SACs located within 10km of the site, either alone or in combination with other projects, including the European otter population.

16.152 Potential impacts on marine elements of the Milford Haven Waterway SSSI are addressed in Chapter 6: Marine Ecology and Coastal Processes. Potential impacts on the following species or species groups listed as features of interest in the Management Statement of the SSSI (Countryside Council for Wales, 2002) are discussed in the relevant sections of this chapter: waders and wildfowl, greater horseshoe bat and lesser horseshoe bat.

16.153 The SSSI is primarily designated for marine and intertidal habitats. There will be no loss of terrestrial habitat within the SSSI and no impact pathways have been identified between the proposed development and terrestrial habitats within the SSSI, the closest of which is woodland at the confluence of the Carew and Cresswell Rivers approximately 7km east of the site.

Non-statutory Designated Sites

16.154 There are no non-statutory designated sites within 2km and there will be no effects on non-statutory designations.

Other Sites of Nature Conservation Interest

16.155 Ancient woodland (the nearest block being 1km from the site) will not be affected by land take and construction activity associated with the proposals.

16.156 As for statutory sites considered above, pollution control measures during construction will ensure that there are no significant indirect effects. There would thus be no significant effects on non-ancient woodland sites.

Habitats

16.157 The proposals will result in the loss of most of the vegetated habitats within the site including: ruderal open grassland (classified as 'Open Mosaic Habitats', a Habitat of Principal Importance), broadleaved woodland, small areas of dense scrub, neutral and amenity grassland, trees, introduced shrubs and open water (Timber Pond). Of the 29 individual trees within the site, 21 will be retained. These are located along the southern boundary and in the south-east corner. The trees, amenity grassland and introduced scrub in the Heritage Mitigation Area as shown on the Proposed Masterplan (Figure 2.2), albeit outside of the application site, will be retained.

16.158 For the purpose of assessing impact significance, all of the habitats except the Section 7 'Open Mosaic Habitats' are treated as a single entity.

'Open Mosaic Habitats'

16.159 The total loss of the 'Open Mosaic Habitat' of low (up to district) value would constitute a high magnitude adverse impact with minor adverse significance of effect. This is not significant in EIA terms.

Other Terrestrial Habitats

16.160 The total loss of several mature trees and all other habitats (collectively of negligible/less than local value) would be a high magnitude adverse impact with a potentially minor adverse significance of effect. This is not significant in EIA terms.

Invasive Non-native Species

16.161 With appropriate control measures implemented during construction, any stands of Japanese knotweed (neutral value) would be removed from site or contained and treated with herbicide for longer term control/eradication. This would be a medium magnitude beneficial impact on the site with a minor significance of effect.

Species

Bats

Common Pipistrelle, Soprano Pipistrelle and Brown Long-eared Bat

16.162 The proposals will result in the loss of Building RSK B38 (Figure 16.2) which is used by a common pipistrelle summer day roost. No other buildings with bat roosts are located within the site.

16.163 Three off-site buildings within 100m of the site boundary support bat roosts. There is some potential for a temporary increase of noise disturbance of the roosts during construction in the south-western part of the site. Noise generating activities would have the potential to disturb a soprano pipistrelle occasional summer day roost in building RSK B17 (26m from the site) and a very low likelihood of indirectly disturbing a common pipistrelle day roost and an occasionally used day roost of brown long-eared bat building in building RSK B10 (72m from the site).

16.164 The loss of the on-site vegetated habitats will remove foraging potential for a common pipistrelle, soprano pipistrelle and brown long-eared bat within the site. Given the extent of suitable foraging habitats locally, the loss of vegetated habitats within the site would not be expected to adversely impact on the use of the roosts identified in the off-site buildings.

16.165 The permanent loss of the common pipistrelle summer day roost in Building RSK B38, and the loss of foraging habitat within the site will constitute a high magnitude adverse impact on common pipistrelle (negligible value) resulting in an effect of minor adverse significance. This is not significant in EIA terms.

16.166 Under a precautionary approach the loss of foraging habitat and potential disturbance of a summer day roost will constitute a low magnitude adverse impact on soprano pipistrelle (negligible value). The loss of foraging habitat will be a low magnitude adverse impact brown long-eared bat (negligible value).

16.167 The significance of the effects on common pipistrelle, will be of minor adverse significance. The significance of the effects on soprano pipistrelle bats and brown long-eared bat (all up to low value) will be negligible. This is not significant in EIA terms.

Greater and Lesser Horseshoe Bats

16.168 All of the buildings used by roosting greater horseshoe bats (RSK B8, RSK B10 and RSK B17) and lesser horseshoe bats (RSK B10) are located outside of the site with no potential for any direct impacts on the roost sites.

16.169 Temporary noise disturbance associated with the construction of Building C (the light assembly and maintenance building) will have the potential to indirectly affect the non-maternity roosts intermittently used by small numbers of greater horseshoe bats (peak count of three). The closest building (RSK B17) lies 30 m from the construction working area.

16.170 Noise generation will be temporary in nature and areas within the buildings used by bats will be buffered from construction site activities. In this context, construction noise should not have a significant adverse effect on the use of the building by roosting greater horseshoe bats.

16.171 The proposals will not result in any additional artificial light spill onto the key flight line (Fort Road and Catalina Avenue) along the southern boundary, avoiding the potential for the creation of a barrier to movement and ensuring that there is no isolation of off-site buildings used as roosts (RSK B8, RSK B10 and RSK B17) as a result of the proposals.

16.172 Having regard to the precautionary principle, there is a low likelihood of a temporary reduction in use of up to three greater horseshoe bat summer day roosts and a single lesser horseshoe bat summer day roost. This worst case would constitute a medium magnitude adverse impact on greater horseshoe bats resulting in an effect of minor significance. The impact on lesser horseshoe bats would be low magnitude adverse, resulting in an effect of negligible significance. This is not significant in EIA terms.

European Otter

16.173 With no holts or couches on or adjacent to the site, and no suitable locations within the site for the establishment of a holt and very few suitable areas where an otter could rest up, the potential effects on otter will be limited to temporary disturbance of individuals actively moving past the Port or hunting in the open water in the vicinity. The extent of hard standing and absence of dense cover across the terrestrial areas adjoining the existing slipways and Graving Dock will not be an important habitat for otter and are likely to be avoided.

16.174 A temporary increase in disturbance (noise, lighting, human activity) during construction could deter otters from moving through the Port and traversing the foreshore below the dock wall. The majority of the noise generating activities will be carried out during the day when there would be no overlap with periods when otters are likely to be active.

16.175 Otters can tolerate considerable levels of human disturbance and they have been recorded in cities and towns throughout the UK, and in Shetland, otter have reportedly bred regularly under the islands' ferry terminals and jetties of one of Europe's largest oil terminal at Sullom Voe, (Green and Green, 1997: cited in Chanin, 2003). Features used by resting otter in relatively disturbed areas tend to be located where they are at minimal risk of direct physical disturbance or damage (Chanin, 2003).

16.176 The loss of the Graving Dock and redevelopment of the slipways has the potential to reduce the suitability of the Port frontage with likely potential that otters would avoid the working areas during construction. Given the low suitability of the terrestrial habitats and probable low levels of use of the Port frontage by otters, any change during construction is not going to impact on the status of the local otter population.

16.177 There will be no physical barriers to the movement of otters through the open water in the Port or between habitats of potential value for otters outside of the site. The magnitude of impact of construction on the European otter population would be negligible with a minor significance of effect. This is not significant in EIA terms.

Badger

16.178 The outlier recorded in the woodland during the baseline surveys was closed under licence from NRW in 2018. The main breeding sett will be located outside of the site and will be unaffected. The proposals will result in the potential loss of foraging habitat but based on the limited extent of scrub and grassland, the features within the site are not considered to be a significant part of a badger social group territory. The partial loss of a territory overlapping the Port would constitute up to a medium magnitude adverse impact of no more than minor significance. This is not significant in EIA terms.

Birds

Bird Habitats within the Site

16.179 The permanent loss of dense scrub and to lesser extent woodland and trees will remove nesting habitat for the assemblage of birds that the site could support. Demolition of old buildings would remove potential gull nesting habitat. Removal of grassland and open ruderal habitats would also remove most of the potential bird foraging habitat within the site.

16.180 The loss of nesting and foraging habitat within the site (negligible value) would be a high magnitude adverse impact of with a minor significance of effect. This is not significant in EIA terms.

Birds using Intertidal Habitat

16.181 The localised mudflat habitat in the vicinity of the site is a very small proportion of the mudflats within the wider Milford Haven Waterway SSSI. The areas of intertidal mud to the west are separated from the site by operational sites and a sewage treatment works. Bird populations using these nearby mudflats would be partially habituated to some noise disturbance.

16.182 The very small areas of intertidal mud close to the site will be subject to noise disturbance from the existing Port operations and are not considered to have significant value for any wader or waterfowl species which contribute to the designation of the SSSI.

16.183 Taking a highly precautionary approach, a low/negligible magnitude adverse impact on high (national) value feature would have the potential to result in an effect of minor adverse significance. This would not be significant in EIA terms.

Accidental Damage to Habitats and Species

16.184 During construction there is the potential for accidental damage to habitats and harm to protected species through encroachment into areas outside the construction area. Such damage and harm would be prevented by appropriate delineation of the construction area boundaries, with suitable fencing provided as required.

16.185 There is also the potential for ecological damage as a result of spills and leaks of fuel and other harmful materials. Measures incorporated into the CEMP will ensure that harm arising from such accidental spillages is prevented.

Accidents and/or Disasters

16.186 As previously described pollution and other environmental protection measures both as part of the normal operation of the Port and specifically related to construction activities will avoid and minimise potential indirect impacts on Pembroke Marine SAC and Milford Haven Waterway SSSI.

Assessment of Operational Effects

16.187 All potential operation effects are assessed based on the assumption that all of the built in and additional mitigation measures described in the Assessment of Construction Effects section of this chapter are fully implemented.

Statutory Designated Sites

16.188 Following redevelopment, the operational effects will be similar to the existing baseline effects associated with the current operations.

16.189 During operation, the existing pollution incident prevention and control procedures would apply. All ongoing Port operations would be subject to modern environmental controls and thus their operation would not be expected to have significant impacts on the Pembrokeshire Marine SAC or the Milford Haven Water Way SSSI.

16.190 Potential operational impacts on SAC qualifying habitats species are considered in detail in the Report to Inform Appropriate Assessment, including the otter population given as Appendix 6.3. This assessment has concluded that the proposed development would not have an adverse effect on the integrity of any SAC qualifying features, either alone or in combination with other projects.

Habitats

16.191 The existing pollution incident prevention and control procedures would apply to all ongoing operations.

16.192 During operation there is the potential for site activities to result in damage or disturbance of created habitats on the southern boundary. The proposed development would be subject to modern environmental controls and thus its operation would not be expected to have significant impacts on retained or newly created habitats within the site, or on retained habitats adjoining the site. The effects would thus not have a significant adverse effect on adjoining habitats.

Species

Bats

16.193 Operational noise levels will be comparable to existing baseline conditions elsewhere in the Port with no significant effect on bats roosting in nearby buildings or commuting along flight lines adjacent to the site.

16.194 The detailed lighting scheme will avoid installing lighting that would increase artificial light spill in the vicinity of the known bat roosts in off-site buildings to the south-east and will avoid any permanent increase in light levels along the southern boundary.

16.195 Activities such as boat repairs and the greater capacity for cargo handling, facilitated by the proposals have the potential to lead to an increase in the current background noise levels and lighting, particularly at the Port frontage. Bat activity is primarily associated with the southern part of the site and the potential change in conditions in the northern part of the site would not adversely affect the use of the site by bats

16.196 New artificial lighting required for Building C could permanently change the lighting conditions in the south-eastern part of the site, in the vicinity of Building RSK B17. The 30m stand off from Building RSK 17 and use of modern LED lighting would enable the artificial lighting specifications to direct light to only where it is needed for operations and the avoidance of light spill outside of operational areas.

16.197 Based the installation of a sensitive lighting scheme, potential adverse impacts on all bat species (negligible value for pipistrelles and brown long eared bat, and low value for horseshoe bats) during operation are expected to be of negligible magnitude with negligible significance of effect. This is not significant in EIA terms.

European Otter

16.198 Operational noise levels would be comparable to existing baseline conditions, but additional lighting is anticipated to ensure that each operational area will be ‘suitably and adequately lighted’. Otters can tolerate considerable levels of artificial lighting (they are known to travel through built-up areas), but it is recognised that in some circumstances lighting could affect otter behaviour.

16.199 The proposed development has the potential to result in a permanent localised increase in artificial lighting on the frontage of the Port with the potential to have a very minor adverse effect on otter whose territories overlap the Port (one or two individuals). The adjoining operational land to the east and west is already floodlit with light spill below the dock wall and jetty, potentially deterring otter from frequently traversing the site.

16.200 Given the existing background conditions and low value of habitat adjoining the dock wall, there could be a negligible impact on a feature of very high value, with an adverse effect of minor significance. This is not significant in EIA terms.

Badger

16.201 The badger social group within whose territory the on-site outlier sett was located will have a main sett within the vicinity. Badgers from that social group may continue to use the site either to travel through or for foraging in vegetated areas.

16.202 The operational site will however, have very few suitable locations where setts could be established and very little potential foraging habitat. Therefore, it is expected that there would be very little badger activity within the site once it is operational, with the site being of very little value or importance to the badger social group.

16.203 Any effects on badger (negligible value) within the site once operational will therefore be of negligible magnitude with negligible significance of effect. This is not significant in EIA terms.

Birds

Bird Habitats within the Site

16.204 Following the initial loss of vegetated habitats and demolition of buildings, birds would be expected to return and use potential nesting features in the site. Gulls would be expected to use suitable building roofs as nesting and roosting sites as is typical for some of these species, such as herring gull.

16.205 Any disturbance of birds nesting within the site (negligible local value) due to operational activities would have a low magnitude impact. This would have negligible significance and would not be significant in EIA terms.

Bird Using Adjacent Intertidal Habitat

16.206 As for construction, there would be no loss of, or direct impacts on, intertidal mud adjoining the site, which forms part of the Milford Haven Waterway SSSI and Pembrokeshire Marine SAC.

16.207 The foreshore adjoining the Port would be subject to similar noise levels to the existing background conditions, with no significant adverse impact. An increase in human activity could result in increased disturbance of habitats immediately adjacent to the site but given their sub-optimal nature in terms of extent and existing disturbance, any effect is unlikely to be significant.

16.208 There will be no impact on bird activity on areas of intertidal mudflat over 200m from the operational site.

16.209 Any operational effects on bird populations using intertidal mud (high/national value) would have an impact of negligible magnitude with negligible significance of effect, which is not significant in EIA terms.

Accidents/Disasters

16.210 As previously stated, all operational areas would be subject to existing pollution incident prevention and control procedures, and all relevant modern environmental controls to respond to, and minimise the risk of harm from accidents or disasters.

Further Mitigation/Monitoring

Habitat Creation and Management

16.211 A linear area of green space will be created along the southern boundary of the site incorporating the retained larger trees.

16.212 This area of the site will be developed as a flight line for bats, helping to maintain the sheltered context of the existing bat flight line along the southern boundary, and establishing a stand off

between operational areas and the off-site mature trees on the southern side of Fort Road. Habitat creation will be primarily native shrub planting to create a continuous feature that should develop populations of invertebrates on which bats prey.

16.213 The wildlife corridor lies on the northern side of a stone wall, which partially shades the corridor. This will restrict the opportunities for recreating the existing conditions in which the open ruderal grassland has developed. Nevertheless, due to the unavoidable loss of the ruderal habitats, selected small areas of the most species-rich vegetation (that have established around the Graving Dock) will be translocated with the associated surface substrate as part of the proposed development.

16.214 Plants and surface substrate will be stripped from selected species-rich areas of vegetation and relocated into the section of the proposed green space that is currently hardstanding. Prior to translocation, the hardstanding within the proposed linear greenspace will be removed and the ground beneath de-compacted. The stripped surface substrate from the OMH habitat, containing plants, roots and seeds will then be spread on the prepared ground.

16.215 The native shrubs will be subject to aftercare during the establishment period including watering during periods of dry weather, weed control and replacement of damaged or diseased plants. Periodic monitoring will review the health of the planted shrubs, identifying if shrub management practices need to be modified and where replacement planting is required.

16.216 Relocated OMH would be subject to annual monitoring for the first five years to assess the extent to which relocated plant population species are establishing in the green space. Monitoring would specifically inform the need for remedial measures such as weed control.

16.217 Long-term management of the native scrub and ruderal vegetation in the green space would be incorporated into the management regime for the Port. A low intensity management approach would be adopted, appropriate for the habitats. After five years, following the establishment phase, maturing shrubs would be cut once every three years to control encroachment and promote a dense structure. The ruderal vegetation would be subject to the removal of colonising shrubs and the control of the spread of dominant plants that reduce species diversity.

European Protected Species (EPS) Mitigation Licence - Bats

16.218 A Welsh Government derogation bat licence (referred to as the EPS bat licence) will be obtained to enable the demolition of building RSK B38 (which contains a common pipistrelle summer day roost) to be carried out lawfully. No work with the potential to damage or destroy the roost will be undertaken until the licence is obtained, and all such work would be carried out strictly in accordance with the licence method statement. Mitigation measures would be reviewed and adapted should any additional bat roosts be identified within the site prior to demolition.

16.219 Prior to obtaining the EPS bat licence, all buildings with confirmed bat roosts or potential to be used by roosting bats (based on 2017 bat surveys) will be subject to daytime inspections and where necessary pre-demolition emergence surveys will be carried out to confirm the roost status prior to formally applying for the EPS bat licence.

16.220 Full details of the timing of measures for species protection, mitigation and demolition will be presented in the method statement submitted with the licence application. A summary of the

mitigation for the loss of the common pipistrelle summer day roost in Buildings RSK B38, would be as follows:

- The named ecologist on the EPS bat licence will carry out a pre-works check of the roost no more than three months prior to the start of licensable work.
- Three bat boxes of suitable design will be provided prior to any destruction or disturbance of the roost. The location of the bat boxes will take into account the operational use of adjoining areas of the site to ensure each bat box is situated where they will not be disturbed by noise or lighting.
- Boxes would be installed more than 3m above ground level on west or east facing building elevations with no exposure to artificial lighting.
- Bats would be excluded under the supervision of the named ecologist on the EPS bat licence during the active season (April to October inclusive). Alternatively, where exclusion is impractical, the roost would be subject to soft demolition directly supervised by the named ecologist on the EPS bat licence. The approach will be determined by the licence holder in advance and specified in the licence.
- A lighting strategy will be prepared prior to the licence application following the guidance to avoid artificial light impacts on new bat boxes and retained foraging areas and flight lines.
- All site staff would be made aware of the presence of bats and the potential risk of encountering bats while demolishing buildings. If bats are encountered at any stage, all works would stop until the bat licence holder has been contacted and has advised on what action is necessary.

16.221 Mitigation measures would be reviewed and adapted should any additional bat roosts be identified within the site prior to demolition.

16.222 The bat boxes and the off-site buildings will be subject to roost monitoring to assess use by species of bats. The use of bat boxes installed as replacement roosts for the loss of Building RSK B38 will be checked annually in September/October by a bat survey licence holder for signs of use and to determine the species using the boxes (DNA analysis of droppings).

16.223 Monitoring will specifically assess the continued use of Buildings RSK B8, B10 and B17. Prior to the construction of Building C and the installation of operational lighting, emergence surveys (with a minimum of two visits between the start of June and end of August) will define the use of the three buildings. Static detectors will be used to assess bat activity along the southern boundary flight line with a minimum of two periods of remote recording for five consecutive days.

Lighting Control

16.224 Construction lighting would be used in such a way as to avoid any increased artificial light spill on the horseshoe bat commuting routes immediately south and east of the site, and around the off-site buildings RSK B8, RSK B 10 and RSK B 17.

16.225 Any elements of the construction of Building C that will result in significant levels of noise will be undertaken between October and April to avoid the periods when greater horseshoe bats could be present in the off-site buildings including RSKB17.

16.226 The southern boundary flight line is already subject to illumination at night with street lamps along Fort Road. The location and specification of construction lighting will aim to avoid any additional light spill that could affect the use of the road as a bat flight line. Any artificial lighting used during construction will be directed away from the southern boundary and adjacent buildings containing bat roosts.

16.227 The operational lighting scheme will be developed with reference to the recommendations published by the Institution of Lighting Professionals and Bat Conservation Trust (BCT and ILP, 2018). The scheme will ensure that each part of the site is 'suitably and adequately lit' for essential operational reasons as required under the Dock Regulations. Wherever possible, 'warm white' (i.e. with peak wavelength greater than 550nm or a colour temperature of 2700K to 3000K for LED lights) LED lamps would be used, preferably on posts and directed downward to minimise upward and lateral light spill. If LED lamps are not available, then lighting position and shielding including the use of hoods and cowls should be employed to minimise light spill.

Accidents/Disasters

16.228 As described previously, pollution and other environmental protection measures both as part of the normal operation of the Port and specifically related to the proposed construction activities will avoid and minimise potential indirect impacts on Pembroke Marine SAC and Milford Haven Waterway SSSI.

Potential Changes to the Assessment as a Result of Climate Change

16.229 As previously explained, while there are potential effects of climate change on the future ecological baseline, in the largely artificial environments of the Port it is likely that anthropogenic effects on biodiversity through the management and use of the land will be of much more significance than any effects of climate change. Thus, climate change is not likely to affect the significance levels reported in this assessment.

Residual Effects

16.230 Considering the additional mitigation outlined above, the following residual effects in relation to terrestrial biodiversity would be expected.

Residual Construction Effects

Habitats

16.231 The loss of the 'Open Mosaic Habitat' (up to district value) around the Graving Dock will be unavoidable. The mitigation measures include an experimental translocation of the plants and substrate to seek to retain populations of some of the less common plant species within the site.

16.232 The presence of the stone wall on the southern side of the boundary green space is likely to be a limiting factor affecting the number of plant species that would form self-sustaining populations in this area of ruderal habitat.

16.233 This will remain a high magnitude adverse impact with minor adverse significance of effect. This is not significant in EIA terms.

Bats

Common Pipistrelle

16.234 The species protection measures and provision of alterative artificial roosts adjoining the southern boundary will mitigate for the loss of the building used as a common pipistrelle day roost.

16.235 The loss of the pipistrelle roost in the centre of the operational dock and the reduction in foraging habitat will be partly offset by the provision of alternative roosting opportunities on mature trees within an enhanced flight line. The residual impact will be minor in magnitude, potentially reducing in the long term. The significance of effect will be minor adverse. This is not significant in EIA terms.

Greater Horseshoe

16.236 Construction activities in the south-eastern section of the site will not directly impact the off-site day roosts and will maintain the flight line on the southern boundary. The residual impact would be negligible adverse and the significance of effect would be negligible.

Badger

16.237 With very little badger activity expected within the operational site given the very limited extent of suitable foraging habitat, residual effects on badger (negligible value) would remain of negligible magnitude with negligible significance of effect. This is not significant in EIA terms.

Otter

16.238 Construction activities on the slipways, Graving Dock and adjoining areas could result in a modification to behaviour of individual otters in the immediate vicinity of the Port frontage at times of increased human activity or high levels of noise generation. Construction activities will be primarily during the day outside of the periods when otters would be active. The need for night time working in the intertidal/marine environment (slipways and Graving Dock) will be required due to the tides but will be short term in nature (three weeks).

16.239 The magnitude of impact of construction on otter population (high importance) would remain negligible and the significance of effect is minor adverse. This is not significant in EIA terms.

Birds

Breeding Birds

16.240 The residual effect of construction activities on bird populations within the site will relate to the loss of habitat. The impact magnitude is medium adverse and the significance of effect would be minor/negligible adverse.

Birds using adjacent Intertidal Habitat

16.241 The residual effect of construction activities on birds using intertidal habitats would have a negligible adverse magnitude and the significance of effect would be negligible.

Residual Operational Effects

Bats

Greater Horseshoe

16.242 A lighting scheme for the south-eastern section of the site and along the southern boundary will protect the context of the off-site day roosts and maintain the southern boundary flight line. The residual impact would be negligible adverse and the significance of effect would be negligible.

Otter

16.243 Additional lighting on the dock wall could result in a modification to behaviour of individual otters in the immediate vicinity of the Port frontage subject to redevelopment.

16.244 The use of directional lighting will prevent significant light spill onto the intertidal area at the base of the dock wall and would ensure that there is no reduction in habitat available to otter during operation of the proposed development.

16.245 The magnitude of operational impact on otter (high importance) would remain negligible and the significance of effect minor adverse. This is not significant in EIA terms.

Assessment of Cumulative Effects

16.246 Potential cumulative effects have been identified with the following projects (details are given in Table 9.4):

- Marine Energy Test Area (META)
- Mixed Use Development at Milford Docks (planning application 14/0158/PA)

META

16.247 Tidal energy devices will be deployed on the sea bed, on the surface or in the water column. Cumulative effects on marine ecology receptors are assessed in Chapter 6: Marine Ecology and Coastal Processes.

16.248 Potential effects on terrestrial ecology would be limited to mobilisation and demobilisation of vessels at Pembroke Port, and the movement of vessels to and from the Port for monitoring. These activities will contribute to potential noise disturbance but fall within what would be considered normal Port operations. These have been considered in the assessments of construction and operation effects above, and any cumulative effect would not change the predicted impact magnitude or significance of effect.

Mixed Use Development at Milford Docks

16.249 This proposed development will comprise demolition of several existing buildings and provision of commercial, hotel, leisure, retail and fishery related floorspace; up to 190 residential properties, up

to 70 additional marina berths, replacement boat yards, landscaping, public realm enhancements, access and ancillary works. Outline planning permission has been granted by PCC for this project.

16.250 The development is located approximately 5.75 km west of the site and will largely affect existing developed areas of buildings and hardstanding with the loss of very small extents of scrub, woodland and grassland in urban/post-industrial context.

16.251 The bat roost features on each site may be shared resources for the wider population of greater horseshoe bats, lesser horseshoe bats and brown-log-eared bat. However, given the distance between the sites and the low-level use of roosts at both sites, the cumulative effect of roost loss and potential indirect disturbance on bat roosts for these species is unlikely to have a greater impact or significance of effect than either effect in isolation.

Potential Inter-relationships

16.252 In identifying and assessing the impacts of the proposals on terrestrial ecology, the inter-relationships with the environmental impacts identified in other ES chapters has been considered.

16.253 The information set out in Chapter 2: Scheme Description has provided the basic information upon which to base the assessment of the effects of the proposals as a result of land take, operation and construction. Chapter 8: Noise and Vibration has provided the modelling of changes in noise which has informed the assessment of disturbance of sensitive species. Chapter 15: Hydrology and Flood Risk has provided information on management and treatment of runoff from the construction site and the proposed development.

16.254 This chapter assesses the effects of the proposals on terrestrial ecology. This, together with the assessments provided in Chapter 6: Marine Ecology and Coastal Processes, provide a full assessment of the ecological impacts of the proposals.

Summary of Effects

16.255 None of the effects identified during construction and operation are significant in EIA terms.

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Non-Technical Summary

Baseline Summary

16.256 Much of the site comprises buildings bounded by concrete and asphalt hardstanding and compacted stone surfaced ground. There are some localised areas of scrub, grassland, woodland, individual trees and ruderal habitats within the site. A few areas of revegetating previously disturbed ground qualify as 'Open Mosaic Habitat' (OMH) which is a habitat of principle conservation importance in Wales. The most species-rich of these areas, located adjacent to the Graving Dock, is classified as having value in the context of the district. The other habitats within the site have ecological value only in site or local context.

16.257 There is a summer day roost of up to two common pipistrelle bats in building RSK B38 within the site. Outside of the site three buildings support summer day roosts for common pipistrelle and occasionally summer day roosts of brown long-eared bat, greater horseshoe bat, soprano pipistrelle and lesser horseshoe bat. All the off-site roosts have recorded use by individual bats or very small numbers of bats. One building is used as an occasional night roost by one lesser horseshoe bat.

16.258 The southern boundary of the site and adjacent off-site streets serve as potential bat flight lines providing connectivity between the site and the wider landscape for bats using on-site and nearby off-site roosts.

16.259 The otter population within the Milford Haven Waterway is a qualifying feature of the Pembrokeshire Marine SAC. An otter footprint was recorded in intertidal mud below the dock in 2015 indicating occasional activity at the foreshore.

16.260 The site lies within the territory of a badger social group. A single outlier sett within the site was closed under licence in 2018.

16.261 The site has negligible value for birds. Very small areas of adjacent mudflat could be used by small numbers of wader and waterfowl species that are qualifying species, populations of which occur within the Milford Haven Waterway SSSI and have high value.

Mitigation Summary

16.262 The proposed development will result in the permanent loss of vegetated habitats within the site with the exception of some mature trees and a narrow strip of scrub, trees and ruderals/grassland on the southern boundary.

16.263 A linear area of green space along the southern boundary forms part of the masterplan. This will incorporate many of the retained mature trees within the site. In addition, plants and topsoil will be translocated to the linear green space from the OMH area at the Graving Dock. The linear green space will be subject to low intensity management to promote a naturalistic feel to the shrub planting and retained trees. Translocated herbaceous vegetation from the OMH will be managed as a pioneer habitat with the control of colonising scrub and ruderals to promote high species diversity.

16.264 Building RSK B38 will be demolished with the loss of a common pipistrelle summer day roost. This will be carried out under a EPS bat licence issued by Natural Resources Wales. . The licence method statement will specify the details of exclusion or soft demolition as appropriate to avoid

harming bats. If necessary, the license method statement will also detail the provision of replacement roosts in advance of demolition.

16.265 Artificial lighting during construction and operation will be designed to avoid light spill onto the off-site buildings containing bat roosts, and their immediate surroundings.

16.266 Artificial lighting during construction and operation will also avoid light spill on potential bat flight lines along Fort Road and Catalina Avenue to the south of the site. The linear green space along the southern boundary will form a dark corridor to maintain and enhance the function of the southern boundary as a bat flight line. Retained trees and native shrub planting within the linear green space will create shelter potentially attracting flying insects further enhancing the value of this feature for bats.

Likely Effects Summary

16.267 There will be impacts of minor adverse significance during construction on OMH habitat, woodland/scrub, mature and semi-mature trees, and grassland. These are not significant in EIA terms.

16.268 In relation to protected species, there will be minor adverse impacts from construction on common pipistrelle bat, greater horseshoe bat, otter badger and birds using nearby off-site intertidal habitats. Again, these are not significant in EIA terms.

16.269 Construction impacts on all other ecological features will be of negligible significance.

16.270 With the control of light spill onto potentially sensitive features, and the maintenance/enhancement of the bat flight line on the southern boundary, residual operational impacts on greater horseshoe bats will be of negligible magnitude and significance.

16.271 A residual minor adverse impact on otter during operation is anticipated due to increased activity and artificial lighting on the foreshore. Otter are considered likely to traverse this area occasionally, but the impact will not be significant for the local otter population.

16.272 Operational impacts on all other ecological features will be of negligible magnitude and significance.

Table 16.6: Summary of Likely Environmental Effects on Ecology and Nature Conservation

Receptor	Value of receptor	Description of impact	Short / medium / long term	Magnitude of impact	Significance of effect	Significant / Not significant	Notes
Construction phase							
Pembrokshire Marine SAC	Very High (International)	Not assessed in this chapter	N/A	N/A	N/A	N/A	See assessment in Chapter 6: Marine Ecology and Coastal Processes
Milford Haven Waterway SSSI	High (National)	Not assessed in this chapter (but see birds, and horseshoe bats)	N/A	N/A	N/A	N/A	See assessment in Chapter 6: Marine Ecology and Coastal Processes
Ruderal vegetation (Open Mosaic Habitat)	Low (District)	Permanent habitat loss	Long term	High	Minor adverse	Not significant	
Woodland and scrub	Negligible (Site)	Permanent habitat loss	Long term	High	Minor adverse	Not significant	
Mature and semi-mature trees	Negligible (Local)	Permanent habitat loss (partial)	Long term	High	Minor adverse	Not significant	
Grassland (neutral and amenity)	Negligible (Site)	Permanent habitat loss	Long term	High	Minor adverse	Not significant	
Common pipistrelle bat	Negligible (Local)	Loss of single day roost, disturbance of a day roost, and permanent reduction in foraging habitat	Long term	High	Minor adverse	Not significant	
Soprano pipistrelle bat	Negligible (Local)	Minor reduction in foraging habitat Potential disturbance of off-site day roost	Long term	Low	Negligible adverse	Not significant	
Brown long-eared bat	Negligible (Local)	Minor reduction in foraging habitat. Potential disturbance of single off-site day roost	Long term	Low	Negligible adverse	Not significant	
Greater horsehsoe bat	Low (District)	Potential disturbance of three off-site day roosts and flight line	Short term	Medium	Minor adverse	Not significant	
Lesser horsehsoe bat	Low (Local)	Potential disturbance of day roost and flight line	Short term	Low	Negligible adverse	Not significant	
Otter	High (National)	Potential disturbance of night-time otter activity	Long term	Negligible	Minor adverse	Not significant	
Badger	Negligible (Site)	Partial loss of a single badger territory.	Long term	Medium	Minor adverse	Not significant	
Birds (on-site)	Negligible (Site)	Localised loss of habitat	Long term	High	Minor adverse	Not significant	
Birds (intertidal)	High (National)	Potential noise disturbance	Short	Low	Minor adverse	Not significant	
Japanese knotweed	Neutral	Control and treatmenet to eradicate from site	Long term	Medium	Minor beneficial	Not significant	
Operational phase							
All bat species	Low (Local)	Potential disturbance of off-site day roosts	Long term	Negligible	Negligible adverse	Not significant	
Otter	High (National)	Potential disturbance of night time otter activity	Long term	Negligible	Minor adverse	Not significant	