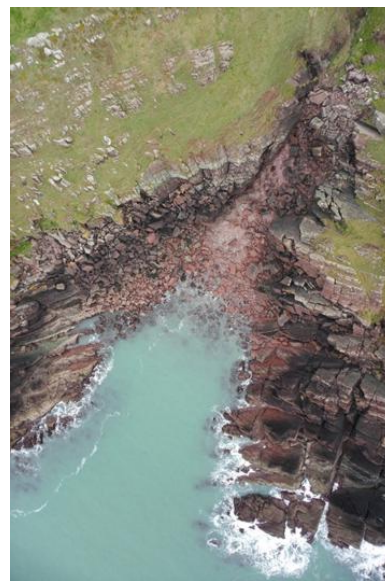




mWave Marine Energy Device and Onshore Infrastructure

ENVIRONMENTAL STATEMENT



June 2019

CHAPTER 15: Other Users

Table of Contents

Acronyms	ii
Units	ii
15. OTHER USERS	1
15.1 Introduction	1
15.2 Purpose of this chapter	1
15.3 Study area	1
15.4 Policy context	2
15.4.1 National Policy Statements	2
15.5 Consultation	2
15.6 Methodology to inform the baseline	5
15.6.1 Desktop study	5
15.6.2 Site specific surveys	5
15.7 Baseline environment	5
15.7.1 Overview	5
15.7.2 Recreational activities at East Pickard Bay	6
15.7.3 Port activities	8
15.7.4 Subsea cables and pipelines	8
15.7.5 Dredging and disposal activities	8
15.7.6 Military Practice Areas	8
15.7.7 Future baseline scenario	12
15.7.8 Data limitations	12
15.8 Key parameters for assessment	12
15.8.2 Impacts scoped out of the assessment	12
15.9 Impact assessment methodology	15
15.9.1 Overview	15
15.9.2 Impact assessment criteria	15
15.10 Measures adopted as part of the mWave Project	16
15.11 Assessment of significance	16
15.11.1 Installation phase	16
15.11.2 Operational and maintenance phase	17
15.11.3 Decommissioning phase	18
15.12 Cumulative Impact Assessment Methodology	18
15.12.1 Screening of other projects and plans into the Cumulative Impact Assessment ..	18
15.13 Cumulative Impact Assessment	22
15.14 Transboundary effects	23
15.15 Inter-related effects	23
15.16 Conclusion and summary	23
15.17 References	25

Table of Tables

Table 15.1: Summary of policy framework provisions relevant to Other Users.	2
Table 15.2: Summary of NPS EN-3 policy on decision making relevant to Other Users.	2

Table 15.3: Summary of key consultation issues raised during consultation activities which are relevant to the mWave project Other Users.	4
Table 15.4: Summary of key desktop datasets	5
Table 15.5: Design parameters considered for the assessment of potential impacts on Other Users.	13
Table 15.6: Impacts scoped out of the assessment for Other Users.	14
Table 15.7: Definition of terms relating to the magnitude of an impact.	15
Table 15.8: Definition of terms relating to the sensitivity of the receptor.	15
Table 15.9: Matrix used for the assessment of the significance of the effect.	16
Table 15.10: Designed-in measures adopted as part of the mWave project.	16
Table 15.11: List of other projects and plans considered within the CIA.	19
Table 15.12: Summary of potential environment effects, mitigation and monitoring at the mWave project.	24

Table of Figures

Figure 15.1: Other Users Study Area, showing META Site 8 with mWave location and cable route to the south of Angle Peninsula	3
Figure 15.2: Recreational activities in the vicinity of East Pickard Bay, in relation to mWave deployment location and META Site 8 boundary	7
Figure 15.3: Other infrastructure, and offshore disposal site in relation to mWave deployment location and META Site 8 boundary.	9
Figure 15.4: Dredging activities in relation to mWave deployment location and META Site 8 boundary.	10
Figure 15.5: Military practice areas in relation to mWave deployment location and META Site 8 boundary	11

Acronyms

Acronym	Description
ADCP	Acoustic Doppler Current Profiler
AIS	Automatic Identification System
CIA	Cumulative Impact Assessment
EIA	Environmental Impact Assessment
EMMP	Environmental Monitoring and Mitigation Plan
MCA	Maritime and Coastguard Agency
META	Marine Energy Test Area
MEW	Marine Energy Wales
MHPA	Milford Haven Port Authority
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MOD	Ministry of Defence
NPS	National Policy Statement
NSIP	National Significant Infrastructure Project
PCC	Pembrokeshire County Council
PCF	Pembrokeshire Coastal Forum
PCNPA	Pembrokeshire Coast National Park Authority
PPSA	Pembrokeshire Performance Sailing Academy
RNLI	Royal National Lifeboat Institution
RYA	Royal Yachting Association
SAS	Surfers Against Sewage
SCUBA	Self-Contained Underwater Breathing Apparatus
SSC	Suspended Sediment Concentration
TH	Trinity House

Units

Unit	Description
ft	Foot
km	Kilometre
kW/m	Kilowatt per metre
m	Metre
m ²	Metre squared
MW	Megawatt
NM	Nautical Mile

15. OTHER USERS

15.1 Introduction

15.1.1.1 This chapter of the Environmental Statement presents the results of the Environmental Impact Assessment (EIA) for the potential impacts of the mWave project on Other Users. Specifically, this chapter considers the potential impact of the mWave project during its three phases, namely installation, operational and maintenance, and decommissioning.

15.1.1.2 The receptors which are considered in this chapter include:

- Water based recreational activities (including sailing and power boating, kite surfing, surfing and windsurfing, kayaking, SCUBA diving, and recreational fishing);
- Coastal based recreational activities using the beaches and walking the Wales Coastal Path;
- Port activities;
- Subsea cables and pipelines;
- Dredging and disposal activities; and
- Danger areas.

15.1.1.3 Many of the potential impacts on Other Users receptors are related to navigational safety and collision risk. To avoid duplication, navigational safety and risk to all vessel types from the mWave project is considered in Chapter 12: Shipping and Navigation. Therefore, the following assessment only considers impacts that will potentially affect the undertaking of a marine based activity or the operational effectiveness of marine infrastructure in the Other Users Study Area. Indirect effects on nearshore recreational receptors through visual amenity are considered in Chapter 14: Seascape, Landscape Assessment.

15.1.1.4 The assessment presented is informed by the following technical chapter:

- Chapter 12: Shipping and Navigation.

15.2 Purpose of this chapter

15.2.1.1 The primary purpose of the Environmental Statement is to support the marine licence application for the mWave project, including the full scale WEC, marine communications cable up to MHWS, Acoustic Doppler Current Profiler (ADCP), Subsea Umbilical Termination Unit (SUTU) and navigational markers (if needed). The Environmental Statement will also support the planning application for the onshore section of the communication cable (from MLW), the termination box, cable anchor point and onshore control station.

15.2.1.2 In particular, this Environmental Statement chapter:

- Presents the existing environmental baseline established from desk studies and informed by consultation;
- Presents the potential environmental effects on Other Users arising from the mWave project, based on the information gathered and the assessments undertaken;
- Identifies any assumptions and limitations encountered in compiling the environmental information; and
- Highlights any necessary monitoring and/or mitigation measures which have been incorporated into the project or could be used to prevent, minimise, reduce or offset the possible environmental effects identified in the EIA process.

15.3 Study area

15.3.1.1 As discussed in Chapter 1 Introduction, the licensing and consenting of the mWave project was originally intended to be undertaken within the consenting and licensing of the Marine Energy Wales META project with mWave being deployed at the eastern end of META Site 8. Whilst the mWave device is short term and of limited extent compared to the META project, the baseline information for the META Site 8 has been used in the following assessment to ensure consistency of information across the two projects which are likely to be in the consenting process at the same time. The potential cumulative impact of the two projects are considered in Section 15.12.

15.3.1.2 The mWave Project will be situated off the southern shore of the south side of the Angle Peninsula which forms the southern arm of the Milford Haven Waterway. The communication cable will make landfall at East Pickard Bay, before running inshore for approximately 350m to the control station situated in agricultural land. Whilst the onshore control station is situated on agricultural land with no public access and as such will have no effect on recreational users in the area, the communication cable will cross the Wales Coast path.

15.3.1.3 Marine vessels used in the installation, operational and maintenance, and decommissioning of the offshore element of the project are likely to be travelling from Pembroke Dock/Milford Haven. The vehicles used for the landward works will also be local. The Other Users Study Area therefore includes all Other Users receptors within an area which have the potential to be affected by the mWave project. The Other Users Study Area therefore encompasses the Milford Haven Waterway, the Angle Peninsula and extends 1.5 NM offshore. The Other Users Study Area, showing the mWave deployment site and cable in relation to META Site 8, is shown in Figure 15.1.

15.4 Policy context

15.4.1 National Policy Statements

- 15.4.1.1 While it is recognised that the mWave project does not constitute a Nationally Significant Infrastructure Project (NSIP), the National Policy Statements (NPS) available to support NSIPs are considered to provide useful context to the EIA for the potential impacts of the META project on Other Users.
- 15.4.1.2 Planning policy on renewable energy infrastructure is contained in the Overarching NPS for Energy (EN-1; DECC, 2011a) and, specifically in relation to Other Users, the NPS for Renewable Energy Infrastructure (EN-3, DECC, 2011b).
- 15.4.1.3 NPS EN-3 includes guidance on what matters are to be considered in the assessment. These are summarised in Table 15.1 below.
- 15.4.1.4 NPS EN-3 also highlights several factors relating to the determination of an application and in relation to mitigation. These are summarised in Table 15.2.
- 15.4.1.5 The Marine Policy Statement (MPS) and the draft Welsh National Marine Plan (dWNMP) (MMO, 2014) are also relevant to Other Users. Consideration of the UK MPS in relation to the mWave project is made within Table 3.1 of Chapter 3: Needs and Alternatives. Consideration of the draft Welsh National Marine Plan is outlined in Table 3.2, Chapter 3: Need and Alternatives.

Table 15.1: Summary of policy framework provisions relevant to Other Users.

Summary of relevant policy framework	How and where considered in the Environmental Statement
Oil, gas and other offshore infrastructure and activities	
Applicants should undertake an assessment of the potential effect of the proposed development on existing or permitted infrastructure or activities (paragraph 2.6.179 of NPS EN-3).	The Other Users assessment has considered potential effects on existing or permitted infrastructure or activities for each phase of the development process.
Applicants should engage with interested parties early in the development phase and such stakeholder engagement should continue throughout the life of the development. Such engagement should be taken to ensure that solutions are sought that allow the development and other uses of the sea to successfully co-exist (paragraph 2.6.180 to 2.6.181 of NPS EN-3).	The Applicant has held discussions with interested parties at an early stage and this consultation is summarised in Section 15.5.

Table 15.2: Summary of NPS EN-3 policy on decision making relevant to Other Users.

Summary of relevant policy framework	How and where considered in the Environmental Statement
Where a proposed development potentially affects other offshore infrastructure or activity, a pragmatic approach should be employed by the decision maker. The decision maker should expect the applicant to minimise negative impacts and reduce risks to as low as reasonably practicable (paragraph 2.6.183 of NPS EN-3).	The Applicant has sought to avoid or reduce potential impacts, as described in the assessment presented in Section 15.11.
The decision maker should be satisfied that the site selection and site design of the proposed development has been made with a view to avoiding or minimising disruption or economic loss or any adverse effect on safety to other offshore industries. The decision maker should not consent applications which pose unacceptable risks to safety after mitigation measures have been considered (paragraph 2.6.184 of NPS EN-3).	The mWave project site has been sited to avoid or minimise conflict with other users, where possible. The Applicant has, where appropriate and feasible, proposed mitigation measures to reduce or negate impacts as part of the project design (see Section 0). Further information on the site selection process is presented in Chapter 3: Need and Alternatives.
Providing proposed schemes have been carefully designed and that the necessary consultation has been undertaken at an early stage, mitigation measures may be possible to negate or reduce effects on other offshore infrastructure or operations to a level sufficient to enable the decision maker to grant consent (paragraph 2.6.186 of NPS EN-3).	
Detailed discussions between the applicant and the relevant consultees should have progressed as far as reasonably possible prior to the submission of an application. As such, appropriate mitigation should be included in any application, and ideally agreed between relevant parties (paragraph 2.6.187 of NPS EN-3).	

15.5 Consultation

- 15.5.1.1 As identified in 16.3.1.1, the licensing and consenting of the mWave project was originally intended to be undertaken within the consenting and licensing of the Marine Energy Wales META project with mWave being deployed at the eastern end of META Site 8 (East Pickard Bay). As such, consultation on META Site 8 also included the mWave communication cable route and the mWave device. A summary of the key issues raised during consultation specific to Other Users, in the vicinity of Site 8 and the mWave project, is outlined below, together with how these issues have been considered in the production of this Environmental Statement chapter. Table 15.3 summarises the issues raised relevant to Other Users, which have been identified during consultation activities undertaken to date. Table 15.3 also indicates either how these issues have been addressed within this Environmental Statement or how the Applicant has had regard to them.

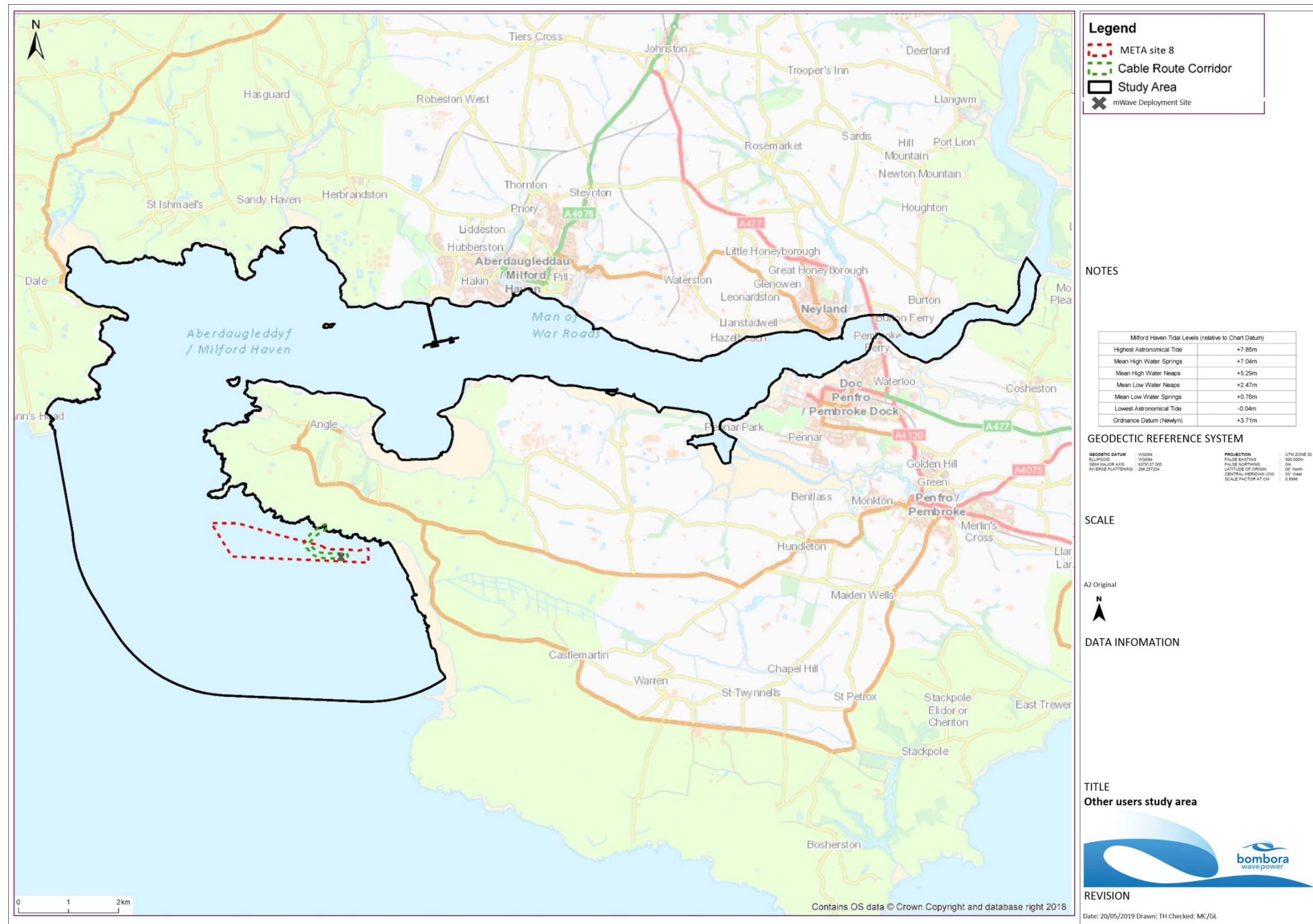


Figure 15.1: Other Users Study Area, showing META Site 8 with mWave location and cable route to the south of Angle Peninsula

Table 15.3: Summary of key consultation issues raised during consultation activities which are relevant to the mWave project Other Users.

Date	Consultee and type of response	Issues raised	Response to issue raised and/or where considered in this chapter
5 November 2018	Royal National Lifeboat Institution (RNLI), meeting and subsequent email correspondence	Floating infrastructure may attract kayakers/surfers etc to the area of deployments at East Pickard Bay thereby increasing the risk of interactions with the devices/buoys.	mWave will sit on the seabed, with a height above the seabed of 7m providing a minimum of 4.2m clearance above the device. The only surface structure which will be on the sea surface will be the navigational maker buoy, if required. A Notice to Mariners (NtM) will be issued to help ensure interested parties are aware of the presence of mWave and the need to avoid the area during the period of deployment (see Table 15.10).
14 January 2019	Royal Yachting Association (RYA) Scoping Response	The RYA recognises that this is currently a scoping request and that impacts to recreational boating have been included. We consider that the location of sites impact on cruising routes should also be included, particularly as regards East Pickard Bay. The RYA would also expect to be consulted on the Navigational Risk Assessment (NRA) and other statutory requirements when the project moves to the application process.	Potential impacts on cruising routes are considered within section 15.11 and further within Chapter 12: Shipping and Navigation.
18 January 2019	Maritime and Coastguard Agency (MCA) Scoping Response	Our remit for offshore renewable energy development is to ensure that safety of navigation is preserved whilst progress is made towards government targets for renewable energy. We would expect the Environmental Statement to supply detail on the possible impact on navigational issues for both commercial and recreational craft, covering: • Collision Risk • Navigational Safety • Visual intrusion and noise • Risk Management and Emergency response • Marking and lighting of site and information to mariners • Effect on small craft navigational and communication equipment • The risk to drifting recreational craft in adverse weather or tidal conditions • The likely squeeze of small craft into the routes of larger commercial vessels.	• Potential impacts on navigational issues for commercial and recreational vessels are considered within Chapter 12: Shipping and Navigation. Visual intrusion is considered in Chapter 14: Seascape, Landscape Assessment and underwater noise is considered in Chapter 6: Underwater Noise. • A Notice to Mariners will be issued to help ensure that interested parties are aware of the presence of infrastructure and the need to avoid the area during the period of deployment (see Table 15.10). • The need for navigational marker buoys will be discussed and agreed with MCA and TH (see Table 15.10).
30 January 2019	Stakeholder Workshop	• Kayaking is sporadic at East Pickard Bay, however there is potential for surfers to actively investigate the devices	mWave will sit on the seabed, with a height above the seabed of 7m providing a minimum of 4.2m clearance above the device. The need for navigational maker buoys will be discussed and agreed with MCA and TH. Recreational activities in the vicinity of the East Pickard Bay have been identified in section 15.7 from review of available data and as advised through consultation. Potential impacts on recreational receptors are assessed in section 15.11. The potential for interactions with the device is considered within Chapter 12: Shipping and Navigation for recreational vessels/craft.
30 January 2019	Stakeholder Workshop	Other general points raised: • The Milford Haven Port Authority (MHPA) regularly patrol the waters May-September • Potential for reduced underkeel clearance • It was noted that there is good management and relationships between recreational users and the port authority, with a designated officer. Activities are generally away from the Port and there is well-established interaction	• Potential impacts on recreational receptors are assessed in section 15.11 • Potential for reduced underkeel clearance is considered within Chapter 12: Shipping and Navigation.

15.6 Methodology to inform the baseline

15.6.1 Desktop study

15.6.1.1 Information on Other Users within the study area was collected through a detailed desktop review of existing datasets. These are summarised at Table 15.4 below.

Table 15.4: Summary of key desktop datasets.

Title	Source	Year	Author
RYA data	RYA	2010	RYA
Pembrokeshire Coastal Forum (PCF) data	PCF	2010	PCF
Subsea cables	Oceanwise Marine Themes GIS Data	2018	Oceanwise / Hydrographic Office
Subsea pipelines	Kis-Orca	2018	Kis-Orca
Harbour Facilities	Oceanwise Marine Themes GIS Data	2018	Oceanwise / Hydrographic Office
Pile	Oceanwise Marine Themes GIS Data	2018	Oceanwise / Hydrographic Office
Disposal sites	Oceanwise Marine Themes GIS Data	2018	Oceanwise / Hydrographic Office
Shoreline construction	Oceanwise Marine Themes GIS Data	2018	Oceanwise / Hydrographic Office
Dredging areas and routes	Oceanwise Marine Themes GIS Data	2018	Oceanwise / Hydrographic Office
Danger areas	Ministry of Defence (MoD)	2019	MoD
Wales Marine Planning Portal	Wales Marine Planning Portal	2018	Welsh Government

15.6.2 Site specific surveys

15.6.2.1 No site-specific surveys have been undertaken to inform the EIA for Other Users. This is because the baseline characterisation developed through existing data sources and consultation is sufficient in order to inform the Other Users chapter.

15.7 Baseline environment

15.7.1 Overview

15.7.1.1 The Angle Peninsula forms the southern boundary of the mouth of Milford Haven Waterway, with the inner (north) and outer (southern) sides having two distinct faces. The inner sheltered face looks into Milford Haven the largest estuary in Wales and one of the world's deepest natural harbours (Pembrokeshire County Council, 2014a). The inner reaches of the Waterway has heavily industrialised areas, with extensive commercial port facilities operated by Milford Haven Port Authority (MHPA) and with Pembroke Dock located some 13km from the Waterways entrance. The outer reaches of the Waterway are less developed with scattered villages and agriculture on the hinterland.

15.7.1.2 The southern face of the Angle peninsula is an exposed rugged coast, which looks out to the wider Celtic Sea. Other than the town of Angle at the western end of the peninsula, there are very few properties along the south facing side, with agriculture being the main land use. The Wales Coast Path runs around the headland from inner to outer face, and onto Freshwater West, an extensive sandy beach, which is renowned for excellent and challenging surf. The Castlemartin Firing range in the east extends to Frainslake Sands which is to the immediate east of Freshwater West Beach.

15.7.1.3 Although there is a busy port situated in the Waterway, the area is shared by a number of different activities and interests, including commercial shipping, port activities, fishing, dredging and disposal. These activities are managed on a day to day basis by the MHPA in collaboration with community stakeholders and partner organisations (Port of Milford Haven, 2016), and coexistence is achieved through established communications and operating procedures (Port of Milford Haven, 2016).

15.7.1.4 In terms of recreational activity, the area as a whole is popular for a number of water-based pursuits and several activity and adventure providers are based in the local area offering angling and sightseeing trips, sailing, windsurfing, kayaking, paddleboarding, powerboating, canoeing, surfing, coasteering and diving. Sailing is the most abundant recreational activity on the Waterway, with most activity taking place between the Cleddau bridge and Dale in the lower reaches of the Waterway (Port of Milford Haven, 2016).

15.7.1.5 The beaches within the study area include Dale, West Angle and Freshwater West, which are classified as having excellent water quality (Natural Resources Wales, 2018). The Pembrokeshire Coast Path also runs along the northern shore from the mouth of the Waterway at St Ann's Head, crossing the Waterway at the Cleddau Bridge, and running inland to Pembroke before following the coastline around the Angle Peninsula.

15.7.1.6 The following sections provide a description of the baseline environment for each Other Users receptor group.

15.7.2 Recreational activities at East Pickard Bay

- 15.7.2.1 The mWave, which will be deployed off East Pickard Bay (the cable landfall site), is located approximately 3.5km to the southeast of the Waterway, between Sheep Island and Freshwater West. The mWave deployment site and cable route overlaps with kite surfing and windsurfing areas which are undertaken from Freshwater West Beach approximately 1km to the east (Figure 15.2).
- 15.7.2.2 Freshwater West beach is an extensive sandy beach approximately 1km long, bounded by headland to the north northwest, a low lying rocky platform (also approximately 1km long), to the south-southeast, and backed with sand dunes. Frainslake Sands, a smaller sandy beach, is situated just beyond the rocky platform and lies within the Castlemartin Range.
- 15.7.2.3 The Freshwater West beach has a main car park with toilet facilities opposite the beach, plus a smaller car park within the sand dunes to the north. The car parks get very busy in the summer with parking spilling over onto the narrow B4320 which is used to access the area. There is small seasonal cafe (Cafe Mor) which provides an excellent diverse range of locally sourced food.
- 15.7.2.4 Due to Freshwater West beach south west facing aspect it is regarded as one of the best surfing locations in Wales. The beach is popular with watersports enthusiasts and is host to the annual Welsh National Surfing Championships, and a surf school. The beach is used by experienced surfers due to the strong currents, although learner surfers associated with the surf school may also be present. The beach is also used for body boarding, kite boarding, sea angling, swimming and dog walking activities. RNLI Lifeguards monitor the beach during the summer months. (see Section 15.7.6).
- 15.7.2.5 The nearest diving areas are to the north of Sheep Island and an isolated area offshore of Sheep island to the south. Sea angling also takes place offshore, to the west and south of the site (Figure 15.2). The site does not overlap with an RYA General Boating Area and there are no RYA clubs, training centres or marinas in the immediate vicinity of the site.

- 15.7.2.6 The level of recreational activity varies depending on the season, and more specifically for surfing, the tidal state and waves. Indicative usage and seasonality data available for the waters off East Pickard Bay (PCF, 2010) suggests that kite surfing (0-25 users) may take place frequently during the summer and autumn and infrequently over the rest of the year; windsurfing (0-25 users) may take place frequently year round; power boating (26-50 users) may take place daily during the summer and over Easter, frequently during late spring and autumn and infrequently over the winter; and kayaking (26-50 users) may take place frequently over most of the year and infrequently during the winter. At the beach, surfing (101-200 users) may take place daily during the autumn and frequently over the rest of the year; body boarding (51-100 users) may take place frequently year round; kite-boarding (0-25 users) may take place frequently during the late spring and summer and infrequently over the rest of the year; sea angling (0-25 users) may take place frequently year round; and swimming (51-100 users) may take place frequently during the late spring and summer and infrequently/never over the rest of the year/winter.
- 15.7.2.7 Consultation has advised that the waters off East Pickard Bay are mainly transited by leisure vessels on passage. Very few recreational vessel AIS tracks were recorded passing through the area in the summer (though many tracks were recorded passing relatively close to the site boundary), and no tracks were recorded passing through the site in the winter. Stakeholder consultation confirmed that the density of marine traffic using the water off East Pickard Bay is relatively low (see Chapter 12: Shipping and Navigation).
- 15.7.2.8 The temporary control station will house power and electrical facilities to support auxiliary power, air supply and communications equipment for operation, monitoring of the testing of the marine device. It will be positioned within agricultural land at the south eastern extent of the WWII RAF Angle Airfield, to the south of the B4320. The location of the site has been chosen to minimise potential effects on the environment and on existing agricultural land use (Chapter 1 Introduction, Figure 1.2). There is no public access to the site and the control station site is adjacent to a field boundary with screening being provided through natural topography and hedgerows.
- 15.7.2.9 The communication cable from the control station will be laid along field boundaries, before it crosses the Wales Coast Path to head down to East Pickard Bay. East Pickard Bay is a narrow rocky gully which runs down to the sea, with poor access due its steep nature and fallen boulders which are scattered across the gully (see Chapter 7, Benthic, Subtidal and Intertidal Ecology). Whilst the coastal path runs across the head of East Pickard Bay, no recreational activities take place from the Bay.

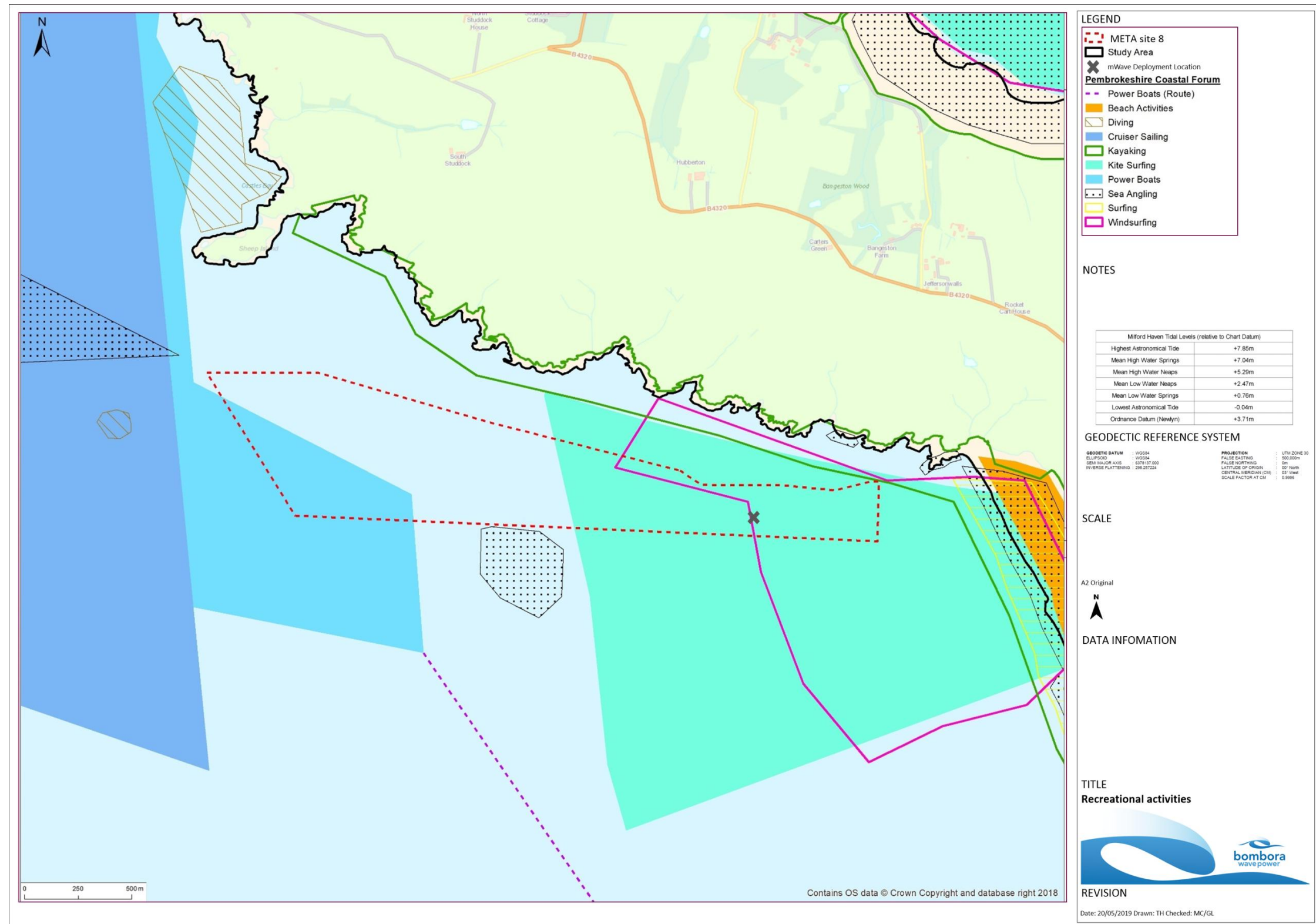


Figure 15.2: Recreational activities in the vicinity of East Pickard Bay, in relation to mWave deployment location and META Site 8 boundary

15.7.3 Port activities

- 15.7.3.1 The Port of Milford Haven is the UK's largest energy port and a leading shipping gateway hosting a variety of cargo vessels. The port serves refineries and oil terminals which receive cargo from the North Sea, Africa, the Middle East, Asia and Europe and processed materials are then transported within the UK and internationally (Port of Milford Haven, 2019). The port also hosts a gas-fired power station, Pembroke Power Station, and increasingly supports the marine renewable energy sector.
- 15.7.3.2 Pembroke Port, which is owned and operated by the Port of Milford Haven, specialises in cargo, heavy lift and ferry operations (Pembroke Port, 2019). Other docks and ports operated by the Port of Milford Haven include Milford Fish Docks, Milford Marina and the Pembroke Dock ferry terminal which operates ferry services from Wales to Ireland.
- 15.7.3.3 Shipping activity in relation to the study area is examined in detail within Chapter 12: Shipping and Navigation and is not repeated here. Section 15.7.4 and 15.7.5 below describe the baseline for subsea cables and pipelines and dredging and disposal activities which are associated with the Port of Milford Haven.

15.7.4 Subsea cables and pipelines

- 15.7.4.1 There are a number of high capacity gas and oil pipelines and electricity connections to wider parts of the UK associated with the activities at the Port of Milford Haven (Port of Milford Haven, 2019). There are no operational subsea cables or pipelines in the immediate vicinity of East Pickard Bay (Figure 15.3).

15.7.5 Dredging and disposal activities

- 15.7.5.1 Dredging activities take place in the Waterway associated with maintenance of the Port of Milford Haven shipping channels and berths. There are no dredging areas in the vicinity of East Pickard Bay (Figure 15.4).
- 15.7.5.2 There is one licenced open disposal site in the Waterway, Neyland, just to the west of the Cleddau Bridge (Figure 15.4).

There are no open disposal sites in the vicinity of the mWave project.

15.7.6 Military Practice Areas

- 15.7.6.1 The Castlemartin Range is located immediately south of the entrance to the Waterway and extends for up to 12 NM from the coast between Little Furznip (at the southern extent of Freshwater West) and St Govan's Head (Milford Haven Port Authority, 2019).

- 15.7.6.1 The mWave deployment site is located 100m north of the northern boundary of the Castlemartin Military Practice Area D113A (Figure 15.5). The range at Castlemartin supports the training of military personnel (Army) in the firing of a range of munitions at land-based targets. The gunnery ranges at Castlemartin are active for up to 44 weeks in the year, starting in late February and ending in mid-December (MHPA, 2017). While the range is active, it is actively managed and protected by a range safety vessel. The seaward danger area provides a safety zone for overfire and shrapnel which may result from the striking of targets (RPS, 2010). While the range is active, it is actively managed and protected by a range safety vessel (see Chapter 12: Shipping and Navigation). The Castlemartin firing times are available on the MOD website which includes a description of the extent of the seaward danger area.

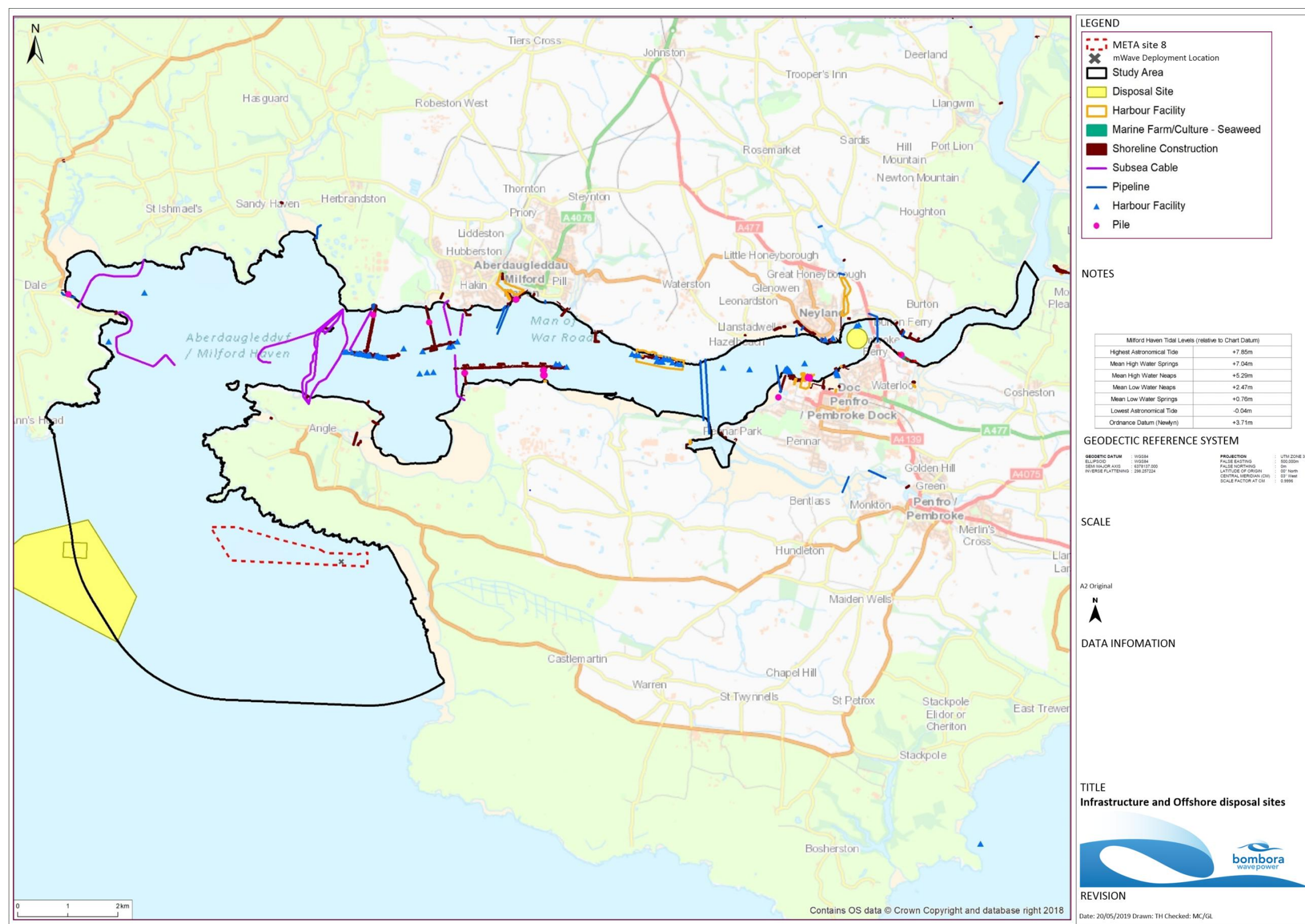


Figure 15.3: Other infrastructure, and offshore disposal site in relation to mWave deployment location and META Site 8 boundary.

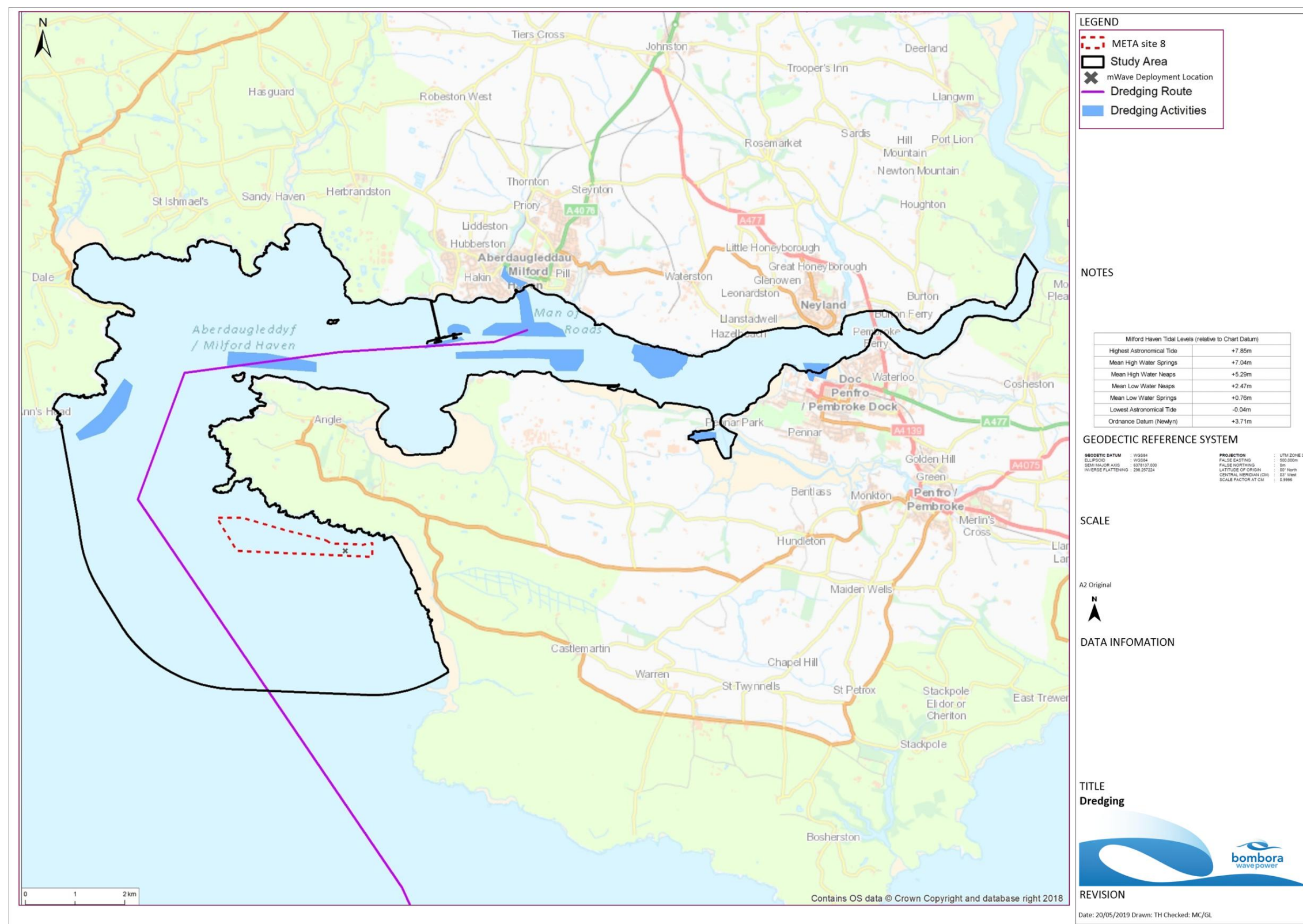


Figure 15.4: Dredging activities in relation to mWave deployment location and META Site 8 boundary.

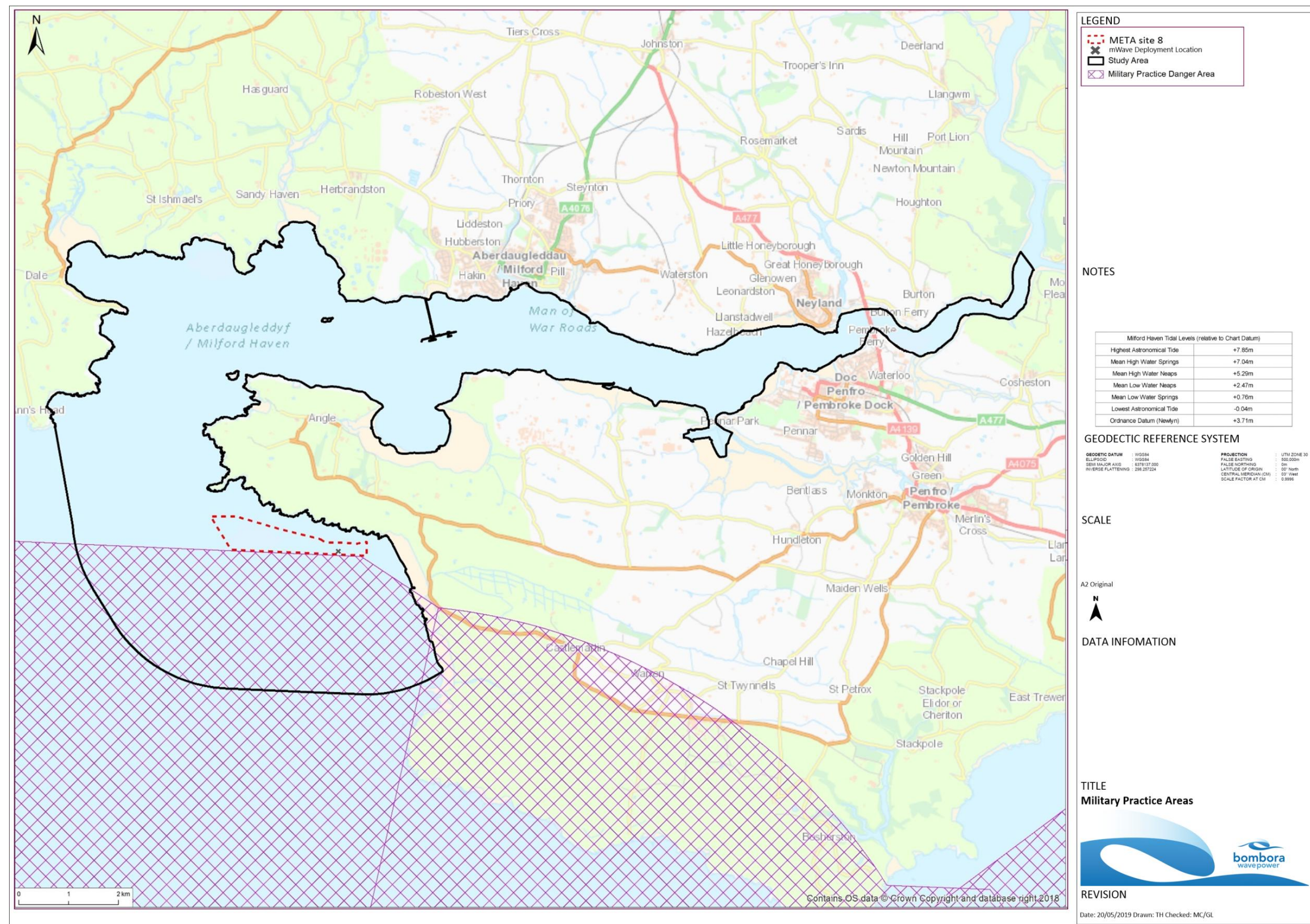


Figure 15.5: Military practice areas in relation to mWave deployment location and META Site 8 boundary

15.7.7 Future baseline scenario

- 15.7.7.1 The Marine Works (EIA) Regulations 2007 (as amended 2017) requires that “a description of the relevant aspects of the current state of the environment (baseline scenario), and an outline of the likely evolution thereof without implementation of the project, as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge” is included within the Environmental Statement.
- 15.7.7.2 In the event that the mWave project does not come forward, an assessment of the future baseline conditions has been carried out and is described within this section.
- 15.7.7.3 As the mWave project is of short term (18 months) the future baseline scenario for recreational activities is considered unlikely to change substantially from that presented in Section 15.7.1. Notwithstanding this, there is an aim to increase visitor numbers outside the peak summer months (Pembrokeshire County Council (PCC), 2018) and therefore recreational activities may take place over a longer season. The Port of Milford Haven is in the process of expansion through the Milford Waterfront and Pembroke Dock Marine projects, which are likely to result in increased activity within the port. These projects are further considered in the cumulative impact assessment (CIA) presented in Section 15.13. The future baseline scenario for subsea cables and pipelines may see a gradual change as new facilities are identified as part of the port expansion plans, and with the installation of the Greenlink Interconnector off East Pickard Bay, which is considered further in the CIA (Section 15.13). The future baseline scenario for dredging and disposal activities and military practice areas is considered unlikely to change substantially from that presented in Section 15.7.5 and 15.7.6 in the absence of the mWave project.

15.7.8 Data limitations

- 15.7.8.1 The data sources used in this chapter are detailed in Table 15.4 above. The data used are considered to be the most up to date publicly available information which can be obtained from the applicable data sources as cited, and data that have been provided through consultation as detailed in Table 15.3. The data are therefore limited by what is available and by what has been made available, at the time of writing the Environmental Statement.
- 15.7.8.2 It is considered that the data employed in the assessment are of a robust nature and are sufficient for the purposes of the impact assessment presented.

15.8 Key parameters for assessment

- 15.8.1.1 The design parameters identified in Table 15.5 have been selected as those most likely to have the potential to result in the greatest effect on an identified receptor or receptor group. The Other Users assessment has been informed by the following assessments:

- Coastal Processes (Chapter 5) and
- Shipping and Navigation (Chapter 12)

15.8.2 Impacts scoped out of the assessment

- 15.8.2.1 On the basis of the baseline environment and the project description outlined in Chapter 2: Project Description, a number of impacts are proposed to be scoped out of the assessment for Other Users. These impacts are outlined, together with a justification for scoping them out, in Table 15.6.

Table 15.5: Design parameters considered for the assessment of potential impacts on Other Users.

Potential impact	Design parameter	Justification
Installation phase		
Installation of the mWave project may displace recreational activities resulting in a loss of recreational resource	- mWave WEC device, positioned on seabed, with height above seabed of 7m. Minimum clearance above the device is 4.2m at MLWS. The need for navigational marker to be agreed with MCA and TH. - Deployed for up to 18-month period, but testing for 6 - 12 months. - Total seabed area required <1,900 m² (including seabed footprint, scour protection (which may be required during operation), communication cable, ADCP monitoring device and SUTU) 200m advisory clearance distance around installation activities - A total of 3 vessels, including guard boats, will be required for the deployment of mWave over a 3 day period. Chain ballast delivered by 14 vessels over 5 days. - One vessel will be required over three days for cable laying. - Access via local ports (vessel length up to 50 m). - Cable pull from cable laying vessel onshore using hand operated winch located in agricultural fields. Laying of cable through the intertidal area to cliff top will take approximately three days. Installation of the cable anchor point and termination box at cliff top and laying cable from cliff top to control station, approx 6 days. - Temporary cable from cliff top to the control station, will cross the Wales Coast Path.	
Operational phase		
Operation and maintenance of the mWave project may displace recreational activities resulting in a loss of recreational resource	- Test period 6 - 12 months, total deployment up to 18 months. - mWave WEC device, positioned on seabed, with height above seabed of 7m. Minimum clearance above device 4.2m. The need for navigational marker to be agreed with MCA and TH. - Total seabed area required <1,900 m² (including seabed footprint, scour protection (which may be required during operation), communication cable, ADCP monitoring device and SUTU) - Up to 76 vessel movements/round trips to and from port, a one visit per month with up to 3 vessels over two days, associated with O&M over a maximum 12 month period. - Scour protection if needed - 10 vessels over 5 days. - Access via local ports (vessel length up to 50 m). - Temporary communication cable (both marine and terrestrial sections) will require no specific O&M.	
Decommissioning phase		
Decommissioning of the mWave project may displace recreational activities resulting in a loss of recreational resource	As per Installation Phase, but shorter duration. The cable from the termination box to the control station would be pulled landward and taken off site by road. The cable from the termination box out to sea would be pulled offshore by a cable vessels and taken off site.	As per Installation Phase

Table 15.6: Impacts scoped out of the assessment for Other Users.

Potential impact	Justification
Installation, operation and decommissioning phases	
Impacts on other users from control station.	The control station is located on agricultural land, with no public access and approximately 275 m from the coastal path. The installation of the control station will require minimal ground preparation work before the control station units are brought onto site via existing highway network. The vehicles accessing the site will not use the coastal road (B4319) which is used by visitors to access Freshwater West Beach. The installation and operation of the control station will use existing farm gates and tracks off the main road (B4320). The position of the control station and the use of access tracks has been agreed with the landowner. As such no impacts are predicted on recreational or other users as a result of the control station.
Impact on other users of the road network	The installation of the onshore control station and cable will require minimal vehicles. In total there will be three vehicles with a high mounted crane lift to bring the control station units to site and one excavator/wheeled digger for site preparation, two lorries delivering stone. For the onshore section of the cable route, a 4WD vehicle will bring hand operated winches to pull the cable onshore. Access of installation vehicles to the site will be from the wider road network. Lorries used for the installation will use the A477 and A4075 to Pembroke and then the B4319, Clay Lane and the B4320 to site. Note lorries <u>will not use</u> the A4319 and Main Street through the centre of Pembroke. Local access for the installation of the temporary control station and onshore cabling will be via the existing farm track across private land which is accessed through an existing farm gate off the B4320. Components of the marine element of mWave will be brought on site by marine vessels from Pembroke Dock and as such they will have no impact on the road network. During operation, there will be 2 vehicles once per day for first 2 months and then 2 vehicles once per week. Fuel will be delivered to site once every 2 weeks. Due to the short term nature of installation works, the limited number of vehicles required during installation and the minimal increase in cars during operation, no significant increase in traffic is predicted. This impact has therefore been scoped out of further assessment.
The onshore mWave project may affect air quality	The cable will be laid on the surface and not buried and as such the potential for dust generation is minimal. The control station site will require minimal site preparation, involving one excavator/wheeled digger and delivery of stone (2 lorries), before the containers brought to site are installed. Three lorries with HIAB will be required to bring the control station. During operation, there will be 2 vehicles once per day for first 2 months and then 2 vehicles once per week. Fuel will be delivered to site once every 2 weeks. Due to the limited scale and nature of activities proposed onshore, there is a low risk of impact on air pollution or dust. Any emissions from vehicles associated with the project are anticipated to fall within background levels experienced in the immediate surroundings. This impact has therefore been scoped out of further assessment.
The mWave project may result in sediment plumes which may overlap with diving sites	There is a diving site to the southwest and to the west of the East Pickard Bay. The latter diving site to the north of Sheep Island is sheltered by the headland and therefore there is no potential impact pathway. In terms of the site to the southwest, some 2km from mWave, the impact of installation of mWave on suspended sediment concentrations (SSC) is assessed in Chapter 5: Coastal Processes. The assessment considered that there would be negligible impact due to the installation method. Of the material disturbed from installation activities these would travel in the order of 50m - 600m from activities at East Pickard Bay during an average tide, which is less than the distances to the respective diving areas. This impact has therefore been scoped out of further assessment.
The offshore element of the mWave project may impact marine disposal sites from increases in SSC and associated deposition of disturbed sediment to the seabed	There is one licenced open disposal offshore of Milford Haven Water, to the south west. There are no other open disposal sites in the vicinity of the project. The impact of mWave installation on SSC is assessed in Chapter 5: Coastal Processes. The assessment considered that the finest material disturbed from installation activities would travel in the order of 50-600m from the East Pickard Bay during an average tide, which is less than the distance to the disposal site. The temporary increase in SSC would be similar to background levels. This impact has therefore been scoped out of further assessment.
The offshore element of the mWave deployment off East Pickard Bay may interfere with operations in Military Practice Areas	The mWave device will be located 100m north of the northern boundary of the Castlemartin Military Practice Area D113A. The device deployment will not overlap with the Military Practice Area. The seaward danger area provides a safety zone for overfire and shrapnel which may result from the striking of targets (RPS, 2010). Installation activities (mWave and cable) and operational and maintenance activities will not be permitted to enter the seaward danger area when it is in use, as dictated by the Castlemartin RAC Range Byelaws 1986 (Statutory Instrument No 1834). The Castlemartin firing times are available on the MOD website (https://www.gov.uk/government/publications/castlemartin-firing-notice--2) which includes a description of the extent of the seaward danger area. This impact has therefore been scoped out of further assessment.
The offshore element of the mWave project will generate airborne noise or air emissions during installation and operation that may affect recreational receptors carrying out water-based activities or at the shore	Noise emissions from vessels during installation of mWave are minimal (up to 5 slow moving vessels on site at one time) and short duration. Likewise during operation, there will be monthly visits over a two day period by up to 3 vessels and installation of possible scour protection. As such the resultant increase in airborne noise or air emissions will be minimal. This impact has therefore been scoped out of further assessment. The information on onshore noise during installation and operation of the control station is provided in Chapter 2, Project Description..

15.9 Impact assessment methodology

15.9.1 Overview

15.9.1.1 The Other Users EIA has followed the methodology set out in Chapter 4: Environmental Impact Assessment Methodology. Specific to the Other Users EIA, the following guidance documents have also been considered:

- The RYA's Position on Offshore Renewable Energy Developments: Paper 2 (of 4) – Wave Energy, September 2015 (RYA, 2015a);
- The RYA's Position on Offshore Renewable Energy Developments: Paper 3 (of 4) – Tidal Energy, September 2015 (RYA, 2015b); and
- Guidance on Environmental Impact Assessment of Offshore Renewable Energy Development on Surfing Resources and Recreation (SAS, 2009).

15.9.2 Impact assessment criteria

15.9.2.1 The criteria for determining the significance of effects is a two-stage process that involves defining the sensitivity of the receptors and the magnitude of the impacts. This section describes the criteria applied in this chapter to assign values to the sensitivity of receptors and the magnitude of potential impacts. The terms used to define sensitivity and magnitude are based on those which are described in further detail in Chapter 4: Environmental Assessment Methodology.

15.9.2.2 The criteria for defining magnitude in this chapter are outlined in Table 15.7 below.

Table 15.7: Definition of terms relating to the magnitude of an impact.

Magnitude of impact	Definition
Major	Total loss of ability to carry on activities and/or impact is of extended physical extent and/or long-term duration and/or frequency of repetition is continuous and/or effect is not reversible (adverse).
Moderate	Loss or alteration to significant portions of key components of current activity and/or physical extent of impact is moderate and/or medium-term duration and/or frequency of repetition is medium to continuous and/or effect is not reversible (adverse).
Minor	Minor shift away from baseline conditions, leading to a reduction in level of activity that may be undertaken, and/or physical extent of impact is low and/or short to medium-term duration and/or frequency of repetition is low to continuous and/or effect is not reversible (adverse).
Negligible	Very slight change from baseline conditions and/or physical extent of impact is negligible and/or short-term duration and/or frequency of repetition is negligible to continuous and/or effect is reversible (adverse).
No change	No change from baseline conditions.

15.9.2.3 The criteria for defining sensitivity in this chapter are outlined in Table 15.8 below.

Table 15.8: Definition of terms relating to the sensitivity of the receptor.

Sensitivity	Definition
Very High	Receptor or the activities of the receptor is of critical importance to the local, regional or national economy and/or the receptor or the activities of the receptor is highly vulnerable to impacts that may arise from the project and/or recoverability is long term or not possible.
High	Receptor or the activities of the receptor is of high value to the local, regional or national economy and/or the receptor or the activities of the receptor is generally vulnerable to impacts that may arise from the project and/or recoverability is slow and/or costly.
Medium	Receptor or the activities of the receptor is of moderate value to the local, regional or national economy and/or the receptor or the activities of the receptor is somewhat vulnerable to impacts that may arise from the project and/or has moderate to high levels of recoverability.
Low	Receptor or the activities of the receptor is of low value to the local, regional or national economy and/or the receptor or the activities of the receptor is not generally vulnerable to impacts that may arise from the project and/or has high recoverability.
Negligible	Receptor or the activities of the receptor is of negligible value to the local, regional or national economy and/or the receptor or the activities of the receptor is not vulnerable to impacts that may arise from the project and/or has high recoverability.

15.9.2.4 The significance of the effect upon Other Users is determined by correlating the magnitude of the impact and the sensitivity of the receptor. The particular method employed for this assessment is presented in Table 15.9. Where a range of significance of effect is presented in Table 15.9, the final assessment for each effect is based upon expert judgement.

15.9.2.5 For the purposes of this assessment, any effects with a significance level of minor or less have been concluded to be not significant in terms of the EIA Regulations.

Table 15.9: Matrix used for the assessment of the significance of the effect.

Magnitude of impact						
Sensitivity of receptor		No change	Negligible	Minor	Moderate	Major
	Negligible	Negligible	Negligible	Negligible or minor	Negligible or minor	Minor
	Low	Negligible	Negligible or minor	Negligible or minor	Minor	Minor or moderate
	Medium	Negligible	Negligible or minor	Minor	Moderate	Moderate or major
	High	Negligible	Minor	Minor or moderate	Moderate or major	Major or substantial
	Very high	Negligible	Minor	Moderate or major	Major or substantial	Substantial

15.10 Measures adopted as part of the mWave Project

15.10.1.1 As part of the project design process, a number of designed-in measures have been proposed to reduce the potential for impacts on Other Users, primarily focused on water based users (see Table 15.10). As there is a commitment to implementing these measures, they are considered inherently part of the design of the mWave project and have therefore been considered in the assessment presented in section 15.11 below (i.e. the determination of magnitude and therefore significance assumes implementation of these measures). These measures are considered standard industry practice for this type of development. Measures which have been embedded in the project to minimise the potential effects on a wide range of terrestrial and marine receptors are provided in Chapter 2 Project Description.

Table 15.10: Designed-in measures adopted as part of the mWave project.

Measures adopted as part of the mWave project	Justification
Promulgation of information including Notices to Mariners issued before and during device deployment, advising on the location, timings and other relevant information. The potential for an information board to be located at Freshwater West Beach will be discussed with Pembrokeshire Coast National Park Authority (PCNPA).	Notices to mariners will be issued to help ensure that interested parties are aware of the presence of infrastructure and the need to avoid the area during the period of specific device deployments. An information board would provide information to a wide range of users of the area.
200m advisory clearance distances around vessels undertaking installation.	Advisory clearance distances are recommended in the interests of safety to other users, particularly navigational safety.
Navigational marker buoys will be deployed if required by MCA and TH.	mWave WEC will sit on the seabed with good water clearance as such the need for navigational marker buoys will be discussed and agreed prior to deployment.
Installation works will be undertaken in accordance with the	The marine section of EMP will include planning for accidental spills, including measures to reduce the risk of an incident. In

Measures adopted as part of the mWave project	Justification
Environmental Management Plan (EMP).	addition to this it will include an INNS assessment using NRW-PS Biosecurity Risk Assessment. The onshore element will present the procedures agreed with PCNPA with regard to works in proximity to the coastal path.
Use of safety guard boat during short-term installation, operation and decommissioning activities.	A guard boat will be used during the installation and major operation activities of mWave to ensure other traffic or recreational users do not encroach on the deployment of the device.

15.11 Assessment of significance

15.11.1 Installation phase

15.11.1.1 The impacts of the installation of the mWave project have been assessed on Other Users. The potential impacts arising from the installation of the mWave project, offshore and onshore elements, are listed in Table 15.5, and each installation phase impact has been assessed in the following section. A description of the potential effect on Other Users receptors caused by each identified impact is given below and an overall conclusion of significance of effect is then provided.

Installation of the mWave project may displace recreational activities resulting in a loss of recreational resource

Magnitude of impact

- 15.11.1.2 The installation of mWave and the laying of the communication cable offshore may displace recreational activities from the footprint of the development and from the 200m temporary advisory clearance distance, resulting in a loss of recreational resource.
- 15.11.1.3 The area required for mWave is limited in extent and installation activities will be over a short duration (3 days). By the very nature of the work, sea conditions will have to be calm with low wind and relatively flat sea state. As such, the conditions required for installation are unsuitable for the recreational activities which overlap with the site, namely kite surfing and wind surfing.
- 15.11.1.4 In terms of power boating, a guard boat will be present during deployment activities and it will prevent access to the deployment area and the 200m temporary advisory clearance distances. Activities taking place closer to shore and on the beach at Freshwater West such as surfing, body-boarding and kite boarding are not expected to be displaced during installation activities. The total loss of recreational resource is small in the context of the available resource in the wider area.

15.11.1.5 Winches for the cable pull will be positioned in agricultural fields to the north of the coast path, with the cable extending to the intertidal area. As such the cable pull across the intertidal area will disrupt users of the coastal path. In addition to this, in order to maintain H&S requirements during work, the laying of the cable in the vicinity of the coastal path and across the coastal path, will result in short term disruption to users of the path. The installation of the termination box and anchor point will not affect the users of the coastal path. A temporary diversion of the path will be discussed and agreed with PCNPA Access Officer (Chapter 2, Figure 2.14). Whilst the diversion may be for 3 weeks, it will only be implemented when works affect access along the path.

15.11.1.6 The impact at installation of mWave, including cable laying onshore is predicted to be of local spatial extent, short-term duration and high reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be minor.

Sensitivity of the receptor

15.11.1.7 As discussed previously the sea conditions will have to be relatively calm for installation which is not ideal for kite surfers or wind surfers. It is anticipated that water sports activities which are occurring will be able to continue to take place in other areas of the bay not affected by installation activities for instance power boating and kayaking. It is anticipated that there will be no restrictions on activities closer to shore and on the beach at Freshwater West including surfing, body boarding and kite boarding.. Installation activities would be communicated in advance to an email list of registered interested parties as described in Table 15.10, ensuring that recreational activities can be planned accordingly.

15.11.1.8 A temporary diversion of the path will be discussed and agreed with PCNPA Access Officer which will only be implemented when needed in order to minimise disruption during the short term installation of the cable.

15.11.1.9 The recreational receptor is deemed to be of low vulnerability, high recoverability and moderate value. The sensitivity of the receptor is therefore, considered to be medium.

Significance of the effect

15.11.1.10 Overall, the sensitivity of the receptor is considered to be medium and the magnitude of the impact is deemed to be minor. The effect will, therefore, be of **minor (adverse) significance**, which is not significant in EIA terms.

15.11.2 Operational and maintenance phase

15.11.2.1 The impacts of the operation and maintenance of the mWave project have been assessed on Other Users. The environmental impacts arising from the operation and maintenance of the mWave Project are listed in Table 15.5 against which each operation and maintenance phase impact has been assessed and an overall conclusion of significance of effect is provided.

15.11.2.2 A description of the potential effect on Other Users receptors caused by each identified impact is given below.

Operation and maintenance of the mWave project may displace recreational activities resulting in a loss of recreational resource

Magnitude of impact

15.11.2.3 Offshore the mWave device will sit on the seabed and will occupy the bottom 7m of the water column. There will be a minimum of 4.2m water at MLWS. The need for surface navigational markers will be discussed and agreed with MCA and TH. During operation and maintenance activities, vessels on site may displace recreational activities from the footprint of the device, resulting in a potential loss of recreational resource.

15.11.2.4 There will be a total of approximately 76 vessel movements/round trips to and from site over the 6 - 12 month testing period. The visits will be roughly once per month, during good sea conditions, with up to 3 vessels each visit (one being a guard boat) over a 2 day period. If scour protection is required there will be 10 vessel trips over 5 days.

15.11.2.5 The offshore footprint of mWave and associated infrastructure has been described in Table 15.5.

15.11.2.6 There would be no operation and maintenance requirements for the temporary cable which crosses the coastal footpath during operation.

15.11.2.7 Operation and maintenance activities are likely to occur under good sea conditions and as such, activities such as kite surfing and windsurfing are unlikely to be occurring. Any Power boats in the area will be aware of the O&M vessels positioned over the site (Chapter 2 Section 3.5.2) during operation and maintenance activities. When O&M vessels are not on site, the identified recreational activities will not be limited by the reduction in water depth as a result of mWave. Recreational activities taking place closer to shore and on the beach at Freshwater West such as surfing, body-boarding and kite boarding are not expected to be displaced during operational and maintenance activities. The O&M activities will be short duration (2 days per month) and of limited extent. The total loss of recreational resource is relatively small in the context of the available resource in the wider area.

15.11.2.8 The impact of mWave is predicted to be of local spatial extent, short-term duration high reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be minor.

Sensitivity of the receptor

- 15.11.2.9 It is anticipated that water sports activities will be able to continue take place in other areas of the bay not affected by the presence of operational and maintenance activities. Within the bay there are other locations available for kite surfing, windsurfing, power boating and kayaking. It is anticipated that there will be no restrictions on activities closer to shore and on the beach at Freshwater West including surfing, body boarding and kite boarding. The presence of the mWave and associated operational and maintenance activities would be communicated in advance to an email list of registered interested parties as described in Table 15.10, ensuring that recreational activities can be planned accordingly.
- 15.11.2.10 The recreational receptor is deemed to be of low vulnerability, high recoverability and moderate value. The sensitivity of the receptor is therefore, considered to be medium.

Significance of the effect

- 15.11.2.11 Overall, the sensitivity of the receptor is considered to be medium and the magnitude of the impact is deemed to be minor. The effect will, therefore, be of **minor (adverse) significance**, which is not significant in EIA terms.

Future monitoring

- 15.11.2.12 No Other Users monitoring to test the predictions made within the operational and maintenance phase impact assessment is considered necessary.

15.11.3 Decommissioning phase

- 15.11.3.1 The impacts of the decommissioning of the mWave project have been assessed on Other Users. The environmental effects arising from the decommissioning of the project are listed in Table 15.5 against which each decommissioning phase impact has been assessed.
- 15.11.3.2 A description of the potential effect on Other Users receptors caused by each identified impact is given below.

Decommissioning of the mWave project may displace recreational activities resulting in a loss of recreational resource

- 15.11.3.3 The effects of decommissioning activities are expected to be the same or similar to the effects from installation. The significance of effect is therefore **minor (adverse)** (see paragraph 15.11.1.10).

Future monitoring

- 15.11.3.4 No Other Users monitoring to test the predictions made within the decommissioning phase impact assessment is considered necessary.

15.12 Cumulative Impact Assessment Methodology

15.12.1 Screening of other projects and plans into the Cumulative Impact Assessment

- 15.12.1.1 The Cumulative Impact Assessment (CIA) takes into account the impact associated with the mWave project together with other projects and plans. The projects and plans selected as relevant to the CIA presented within this chapter are based upon the results of a screening exercise. Each project has been considered on a case by case basis for scoping in or out of this chapter's assessment based upon data confidence, effect-receptor pathways and the spatial/temporal scales involved.
- 15.12.1.2 In undertaking the CIA for the mWave project, it is important to bear in mind that other projects and plans under consideration will have differing potential for proceeding to an operational stage and hence a differing potential to ultimately contribute to a cumulative impact alongside the mWave project. For example, relevant projects and plans that are already under construction are likely to contribute to cumulative impact (providing effect or spatial pathways exist), whereas projects and plans not yet approved or not yet submitted are unlikely to contribute to such an impact, due to the short duration of the mWave project (18 months). Table 15.11 presents the projects that have been considered for inclusion in the mWave project CIA.
- 15.12.1.3 Note whilst vessels used in the installation, operation and maintenance, and decommissioning of mWave will operate from Milford Haven Waterway, it is assumed that due to the low number of vessels involved and the short duration of activity that there will be no cumulative impact with Projects within the Waterway. As such these have been scoped out of the CIA.

Table 15.11: List of other projects and plans considered within the CIA.

Project phase	Developer - Reference	Approx. distance to mWave (km)	Spatial/ temporal overlap with the mWave project	Details	Date of Construction	Further Consideration required?	Justification
Dredging sites							
Installation/ Operation and Maintenance	Neyland Yacht Haven Ltd. - DML1743	11.5	No spatial overlap. Potential for temporal overlap.	Dredge and disposal from Neyland Marina - annual volume 5500 m ³ .	13/12/2017-12/12/2020	No	Dredging impact forms part of baseline and mWave project has no dredging or disposal associated with it. Distant from mWave and therefore highly unlikely to have any impact overlap. No further consideration.
Installation/ Operation and Maintenance	Milford Haven Port Authority - DML1646	4.5	No spatial overlap. Potential for temporal overlap.	Maintenance dredging throughout the Milford Haven. Annual volume 362500 m ³ .	09/03/2017-08/03/2022	No	Dredging impact forms part of baseline and mWave project has no dredging or disposal associated with it. Distant from mWave project and therefore highly unlikely to have any impact overlap. No further consideration.
Dredge disposal sites							
Installation/ Operation and Maintenance	Neyland dredge disposal site - LU190	11.5	No spatial overlap. Potential for temporal overlap	Location: South of Neyland within the central channel of the Milford Haven, 0.22 nm diameter x 5 m depth. Status: Open	Not applicable	No	Disposal impact forms part of baseline and mWave project has no dredging or disposal associated with it. Distant from mWave project and therefore highly unlikely to have any impact overlap. No further consideration.
Installation/ Operation and Maintenance	Milford Haven dredge disposal site - LU170	5	No spatial overlap. No temporal overlap as site is closed.	Location: South of St Ann's Head at the mouth of the Milford Haven estuary, unknown diameter x 30 m depth. Status: Closed	Not applicable	No	Dredge disposal site is not in use therefore no further consideration required.
Installation/ Operation and Maintenance	St Ann's Head dredge disposal site - LU180	5	No spatial overlap. No temporal overlap as site is closed	Location: Within the Milford Haven dredge disposal site, unknown diameter x 30 m depth. Status: Closed	Not applicable	No	Dredge disposal site is not in use therefore no further consideration required.
Installation/ Operation and Maintenance	Milford Haven Two dredge disposal site - LU169	16	No spatial overlap. No temporal overlap.	Location: To the south of Milford Haven dredge disposal grounds, unknown diameter x 50 m depth. Status: Open		No	Dredge disposal site is located approximately 16 km from the mWave project. Disposal impact forms part of baseline and mWave project has no dredging or disposal associated with it. It is therefore highly unlikely to have any impact overlap. No further consideration.
Installation/ Operation and Maintenance	Milford Haven Three dredge disposal site - LU169	37	No spatial overlap. No temporal overlap.	Location: To the west of Milford Haven dredge disposal grounds, 1 nm diameter x unknown depth. Status: Open		No	Dredge disposal site is located at its closest 37 km from the mWave project, Disposal impact forms part of baseline and mWave project has no dredging or disposal associated with it. Project is highly unlikely to have any impact overlap. No further consideration.
Research							
Installation	Greenlink Interconnector Ltd. - RML1827	0	Potential spatial overlap Temporal overlap	Ground investigations		Yes	Research operations are likely to have vessels present, with equipment for undertaking ground truthing surveys therefore this project cannot be excluded from further consideration in the CIA.
Installation	University College of Swansea - DEML1861	7	Location is assumed to be by the Pembroke Power station. No spatial overlap. Temporal overlap.	Pembroke Power bubble barrier experiment Investigation into the effectiveness of bubble curtains in sediment management	07-2018 - no end date given Band 2 licence issued 12/12/2018 - three-year study	No	Distant from mWave project and therefore highly unlikely to have any impact overlap. No further consideration.
Installation	University College of Swansea - DEML1845	1.5	Potential spatial overlap Temporal overlap	Deposition and subsequent removal of marker buoys with environmental monitoring and mid-water settlement plates.	30/08/2018-29/08/2019	No	Vessels and equipment will be required for the placement of marker buoys. Whilst the ML is currently valid, it is unlikely to have temporal with mWave activities, as ML finishes in August 2019. No further consideration.

Project phase	Developer - Reference	Approx. distance to mWave (km)	Spatial/ temporal overlap with the mWave project	Details	Date of Construction	Further Consideration required?	Justification
Installation/ Operation and Maintenance	Neyland Yacht Haven Ltd - CML1658	11.5	No spatial overlap. No temporal overlap.	Pile replacement in Neyland Marina.	21/11/2016-20/11/2019	No	Pile replacement is currently ongoing until 2019, which does not overlap with the installation and operational phases of mWave. Given the distance from mWave project it is therefore highly unlikely to have any impact overlap. No further consideration
Installation/ Operation and Maintenance	Mixed use developments - Local Planning Authority Reference: 14/0158/PA	10	No spatial overlap. Temporal overlap remains unknown.	Undetermined planning application. Demolition of several existing buildings and the mixed-use redevelopment of Milford Waterfront comprising up to 26,266 m ² 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. A decision on this application is yet to be made by the local planning authority.	EIA screening decision was returned on the 30/04/2018 - no further information has been provided	No	Given the distance from mWave project it is therefore highly unlikely to have any impact overlap. No further consideration.
Installation/ Operation and Maintenance/ Decommissioning	Greenlink Interconnector Ltd. - Government reference: qA1296053	0	Spatial overlap at edge of deployment area. Temporal overlap	The Project is a 500MW subsea electricity interconnector linking the power markets in Ireland and Great Britain and is planned for commissioning in 2023. As an EU Project of Common Interest, it is one of Europe's most important energy infrastructure projects. The interconnector is planned to make Landfall at Fresh Water West beach	07/2018 - ongoing	Yes	Given potential for temporal and spatial overlap with mWave this project cannot be excluded from further consideration in the CIA.
Installation/ Operation and Maintenance/ Decommissioning	Valereo - Welsh Government reference: qA1312073		No overlap with the mWave project. Onshore is remote from mWave control station site.	Development of a cogeneration facility to supplement electrical power and steam demands of the refinery all within the refinery boundaries on land.	07/12/2017 - Nationally significant project (ongoing)	No	Project is assumed to have no marine elements to the project. Onshore is remote from mWave control station site (inner face of Haven), therefore there will be no impact overlap. No further consideration.
Installation/ Operation and Maintenance	EGNEDOL Wales Ltd	N/A	Potential temporal overlap	EGNEDOL propose to create an environmentally sustainable centre of excellence in Milford Haven, at the Waterston and Blackbridge sites. The proposal includes providing business units and refurbishing a jetty to serve as a primary supply link to the EGNEDOL electricity generation plan, and for export of products. The land-based green energy scheme may generate up to 350 MW.	Not available	No	Planning permission for the EGNEDOL project was refused on 19/10/2018, therefore it is considered highly unlikely that this project will overlap temporally with the mWave project. No further consideration.
Ministry of Defence sites							
	Ministry of Defence	0.1	Temporal overlap	The Castlemartin Range is located immediately south of the entrance to the Waterway and extends for up to 12 NM from the coast between Little Furznip (at the southern extent of Freshwater West) and St Govan's Head (Milford Haven Port Authority 2019). The southern boundary of the East Pickard Bay (Site 8) site is located adjacent to the northern boundary of the Castlemartin Military Practice Area D113A. The range at Castlemartin supports the training of military personnel (Army) in the firing of a range of munitions at land based targets. The seaward danger area provides a safety zone for overfire and shrapnel which may result from the striking of targets (RPS, 2010). The Castlemartin Range is used every day of the week and on some weekends (RPS, 2010).	Not applicable	Yes	There is a high level of uncertainty as to timing of MOD activities at the MOD site, however on-going activity is likely therefore there is the potential for cumulative impacts with the mWave project.
Aquaculture projects							

Project phase	Developer - Reference	Approx. distance to mWave (km)	Spatial/ temporal overlap with the mWave project	Details	Date of Construction	Further Consideration required?	Justification
Installation/ Operation and Maintenance	Tethys Oysters	3	Temporal overlap	The oyster farm is located on the eastern side of Angle Bay, whereby oysters are grown in baskets on metal supports. The farm will be serviced from the shore by foot	Oct 2017 – Oct 2020 (possible renewal of licence)	No	Whilst there is potential for temporal overlap with the mWave project, it is distant and therefore highly unlikely to have any impact overlap. No further consideration.
Installation/ Operation and Maintenance	Pembrokeshire Scallops	6.5	Temporal overlap	The scallop farm is located within Castlebeach Bay, whereby a system of weighted ropes will be deployed for growing scallops and mix species of native algae. The farm will be serviced by vessels and divers	Jan 2019 – Q4 2020 (possible renewal of licence)	no	Whilst there is potential for temporal overlap with the mWave project, it is distant and therefore highly unlikely to have any impact overlap. No further consideration.
Pembroke Dock Marine Projects							
Installation/ Operation and Maintenance	Milford Haven Port Authority - SC1810: Pembroke Dock Infrastructure	10	No spatial overlap. Potential for temporal overlap	Pembroke Dock redevelopment. Scoping Report submitted. The intention of the Project is to create a flexible and efficient port-related office, industrial, warehousing and distribution, and ancillary operations infrastructure. This will involve the redevelopment of its existing space to incorporate increased deep-water access, internal and external heavy fabrication areas, construction of MEECE and Education/Skills Facility and the construction of a heavy lift facility.	Q3 2019 – Q3 2023	No	Port activity as a result of Pembroke Dock Port operations is distant and therefore highly unlikely to have any impact overlap. No further consideration.
Installation/ Operation and Maintenance	META Project, Site 8	0	Spatial overlap Temporal overlap will occur throughout the duration of the mWave project	The META project will allow the deployment and testing of marine renewable devices in the waters off East Pickard Bay. The maximum scenario is for up to two devices at Site 8. An assessment of the maximum META project design has been undertaken in the ES supporting the consents.	In consenting	Yes	Given potential for temporal and spatial overlap with mWave this project cannot be excluded from further consideration in the CIA
Installation/ Operation and Maintenance/Decommissioning	Marine Energy Wales - DEML1875	9.4	No spatial overlap Potential for temporal overlap	Marine Energy Test Area - Phase 1 Band 2 application submitted. The Project aims to create pre-consented test areas within the Pembroke Dock area. The test areas will have licensable activities to suit testing of initial stage marine renewable devices. These include testing of non-operating components and subassemblies. No full-scale testing is to be support within the test areas	21/04/2019-21/04/2029	No	Project is distant and therefore highly unlikely to have any impact overlap. No further consideration.
Installation/ Operation and Maintenance/Decommissioning	Wave Hub Ltd. - SC1082	20	No spatial overlap No temporal overlap	Demonstration zone Scoping Report submitted The Project entails the development of 90 km2 of seabed with water depths of approximately 50 metres and a wave resource of approximately 19 kW/m; to support the demonstration of wave arrays with a generating capacity of up to 30MW for each project. Consent for this Project could be achieved in 2022, infrastructure could be built by 2024 and the first technology could be installed in 2025.	2024	No	No temporal overlap with the mWave project. No further consideration.

15.12.1.4 The potential impacts identified for assessment as part of the Other Users cumulative impact assessment (CIA) are:

- Displacement of recreational activities resulting in a loss of recreational resource.

15.13 Cumulative Impact Assessment

15.13.1.1 A description of the significance of cumulative impacts upon Other Users receptors arising from each identified impact is given below.

Cumulative displacement of recreational activities resulting in a loss of recreational resource during installation or operational and maintenance activities

Magnitude of impact

15.13.1.2 The installation of wave energy devices (such as mWave) may displace recreational activities, resulting in a loss of recreational resource. Other projects and plans screened into the assessment in proximity mWave include the Greenlink Interconnector (surveys and cable installation), the installation and operation of onshore infrastructure META Site 8, and the Castlemartin Military Practice Area. Recreational activities displaced by device deployments at the East Pickard Bay site may also be displaced by activities and operations at these projects and plans.

15.13.1.3 The Greenlink Interconnector makes landfall at Freshwater West beach. Ground investigations were planned for 2018 and may involve vessels and associated equipment, however survey activity is likely to be completed prior to the deployment of devices associated with META Site 8 and mWave. Installation of the Greenlink Interconnector cable is anticipated to commence in 2020 and be complete in 2023 (Element Power, 2018), with works at the landfall likely to take place over a much shorter period. The installation of the META project at East Pickard Bay (Site 8) is likely to take place in Q3/Q4 2020, which will potentially be during the operational testing at mWave. Installation works for META Site 8 are predicted to be short in duration, with appropriate safety area and guard vessels.

15.13.1.4 Activities such as kayaking, kite surfing, windsurfing and power boating may be displaced by device deployments (including mWave) at East Pickard Bay (META Site 8) and by the installation of the Greenlink Interconnector. There may be limited remaining area for recreational activities in this local area during the installation phase of the Greenlink Interconnector. However the cumulative impact would be reduced once the Interconnector has been installed, following which only occasional access may be necessary for repair and/or maintenance. Activities may be further displaced when the seaward danger area of the Castlemartin Military Practice Area is in use. As discussed previously the mWave project installation will be very short-term during good sea conditions, and will require minimal checks during the operational and maintenance phase, therefore it is considered that this project will have a negligible contribution towards any cumulative impact of the other projects. Works off shore for META Site 8 will also have to occur in good sea conditions which would limit the use of the area by kite surfers and wind surfing.

15.13.1.5 As activities taking place closer to shore and on the beach at Freshwater West such as surfing, body boarding and kite boarding are not expected to be displaced by mWave or META Site 8 activities, the mWave and META Site 8 project are not anticipated to contribute to a cumulative impact with the Greenlink Interconnector cable installation activities (currently proposed to be installed via horizontal directional drilling under the beach; Element Power, 2018).

15.13.1.6 The total loss of recreational resource is relatively small in the context of the available resource in the south and west Pembrokeshire. Any cumulative displacement will be temporary and will occur over a relatively short duration.

15.13.1.7 The impact is predicted to be of local spatial extent, short term duration and high reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be **minor**.

Sensitivity of receptor

15.13.1.8 Alternative locations are available, if required, for kayaking, kite surfing, windsurfing and power boating across south and west Pembrokeshire during installation of the META Site 8 devices and the Greenlink Interconnector project. . Recreational receptors carrying out activities at Freshwater West will likely be accustomed to altering activities in accordance with operations at the danger area.

15.13.1.9 The recreational receptor is deemed to be of medium vulnerability, high recoverability and moderate value. The sensitivity of the receptor is therefore, considered to be medium.

Significance of effect

15.13.1.10 Overall, the sensitivity of the receptor is considered to be medium and the magnitude is deemed to be minor. The effect will, therefore, be of **minor adverse significance**, which is not significant in EIA terms.

Future monitoring

15.13.1.11 No Other Users monitoring to test the predictions made within the cumulative impact assessment is considered necessary.

15.14 Transboundary effects

15.14.1.1 A screening of transboundary impacts has been carried out and has identified that there is no potential for significant transboundary effects with regard to Other Users from the mWave project upon the interests of other European Economic Area (EEA) States.

15.15 Inter-related effects

15.15.1.1 Inter-related effects are considered to be the impacts and associated effects of different aspects of the proposal on the same receptor. These are considered to be:

- Project lifetime effects: Assessment of the scope for effects that occur throughout more than one phase of the project (installation, operational and maintenance, decommissioning) to interact to potentially create a more significant effect on a receptor than if just assessed in isolation in these three key project stages (e.g. displacement of recreational activities over the installation, operational and maintenance and decommissioning phases); and
- Receptor led effects: Assessment of the scope for all effects to interact, spatially and temporally, to create inter-related effects on a receptor. As an example, all effects on Other Users receptors may interact to produce a different or greater effect on this receptor than when the effects are considered in isolation. Receptor-led effects might be short term, temporary or transient effects, or incorporate longer term effects.

15.15.1.2 A description of the likely inter-related effects arising from the mWave project on Other Users is provided here. Across the project lifetime (18 months), the effects on recreational receptors are not anticipated to interact in such a way as to result in combined effects of greater significance than the assessments presented for each individual phase. No receptor led effects have been identified.

15.16 Conclusion and summary

15.16.1.1 Table 15.12 summarises the assessment of effects on Other Users associated with the installation, operation and maintenance, and decommissioning of the mWave project.

Table 15.12: Summary of potential environment effects, mitigation and monitoring at the mWave project.

Description of impact	Measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
Installation Phase							
Installation of the mWave project may displace recreational activities resulting in a loss of recreational resource	Promulgation of information including Notices to Mariners. Liaise with PCNPA concerning information board at Freshwater West Beach. 200m advisory safety distance around deployment activities. Guard boat present during mWave installation. Liaison with PCNPA concerning timing and method for crossing coastal path.	Minor	Medium	Minor (not significant in EIA terms)	None	N/A	None
Operational Phase							
Operation and maintenance of the mWave project may displace recreational activities resulting in a loss of recreational resource	Promulgation of information including regular Notices to Mariners. Liaise with PCNPA concerning information board at Freshwater West Beach. Guard boat present during mWave major operation activities.	Minor	Medium	Minor (not significant in EIA terms)	None	N/A	None
Decommissioning Phase							
Decommissioning of the mWave project may displace recreational activities resulting in a loss of recreational resource	Promulgation of information including regular Notices to Mariners. Liaise with PCNPA concerning information board at Freshwater West Beach. Guard boat present during mWave decommissioning. Liaison with PCNPA concerning timing and method for removal of cable crossing coastal path.	Minor	Medium	Minor (not significant in EIA terms)	None	N/A	None

15.17 References

DECC (2011a) Overarching National Policy Statement for Energy (NPS EN-1). Department of Energy and Climate Change. July 2011. 121pp.

DECC (2011b) National Policy Statement for Renewable Energy Infrastructure (NPS EN-3). Department of Energy and Climate Change. July 2011. 82pp.

Element Power (2018) Greenlink Interconnector, TEN-E Regulation Information Brochure, Available at: <https://www.greenlink.ie/resources>.

Milford Haven Port Authority (2019) Castlemartin Range, Available at: <https://www.milfordmarina.com/castlemartin-range-1/>.

Natural Resources Wales (2018) Open data from Natural Resources Wales, Available at: <https://environment.data.gov.uk/wales/bathing-waters/profiles/>.

Pembroke Port (2019) Port Services and Infrastructure, Available at: <https://www.pembrokeport.com/>.

Pembrokeshire County Council (2014a) Visit Pembrokeshire, Milford Haven, Available at: <http://www.visitpembrokeshire.com/explore-pembrokeshire/towns-and-villages/milford-haven/>.

Pembrokeshire County Council (2014b) Visit Pembrokeshire, Lindsway Bay, Available at <http://www.visitpembrokeshire.com/explore-pembrokeshire/beaches/lindsway-bay/>.

Pembrokeshire County Council (2018) Newsroom, 2017 – “A Great Year For Tourism”, Available at: <https://www.pembrokeshire.gov.uk/newsroom/2017-and8211-a-great-year-for-tourism>.

Port of Milford Haven (2016) Milford haven Waterway, 5 Year Recreation Management Plan, Available at: https://www.mhpa.co.uk/uploads/Marine_docs/P9_single_5year_recreation_plan.indd.pdf.

Port of Milford Haven (2019) About the Port, Available at: <https://www.mhpa.co.uk/the-port/>.

RPS (2018a) Marine Energy Test Area (META), Environmental Impact Assessment, Scoping Report, 16th November 2018, Rev03.

RPS (2018b) Marine Energy Test Area (META) Environmental Appraisal Phase 1 sites, 21st December 2018, Rev02.

RPS (2010) The Potential for Interaction between Wave and Tidal Stream Devices with Military Interests in Welsh Waters, On behalf of The Welsh Assembly Government, 16 November 2010.

RYA (2015a) The RYA's Position on Offshore Renewable Energy Developments: Paper 2 (of 4) – Wave Energy, September 2015, Available at: <https://www.rya.org.uk/knowledge-advice/offshore-renewables/Pages/wave-energy.aspx>.

RYA (2015b) The RYA's Position on Offshore Renewable Energy Developments: Paper 3 (of 4) – Tidal Energy, September 2015, Available at: <https://www.rya.org.uk/knowledge-advice/offshore-renewables/Pages/tidal-energy.aspx>.

SAS (2009) Surfers Against Sewage (SAS) Guidance on environmental impact assessment of offshore renewable energy development on surfing resources and recreation, Available at: <https://www.sas.org.uk/wp-content/uploads/sas-guidance-on-environmental-impact-assessment.pdf>