



NGED

Milford Haven – Pembroke 132kV Reinforcement Scheme

Water Framework Directive Assessment

81778

July 2026



RSK General Notes

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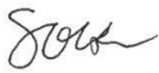
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1 Introduction

1.1 Purpose of this report

This Water Framework Directive (WFD) Assessment been prepared by RSK on behalf of National Grid Electricity Distribution (NGED) (the Applicant) in support of their application for a Marine Licence to carry out horizontal directional drilling (HDD) and potential deposits (hereafter referred to as the proposed works) under the Westfield Pill, Milford Haven, Wales. The proposed works involves HDD to enable a new 132kV link between Golden Hill substation and Milford Haven Substation. The proposed works are described in more detail in Section 2.

1.2 Marine Licencing in Wales

A Marine Licence is required for all “licensable marine activities” below Mean High Water Spring (MHWS) tides. “Licensable marine activities” are defined in Section 66 of the Marine and Coastal Access Act 2009 (MCAA). Under this regime the Marine Licensing Team (MLT) administers Part 4 of the MCAA on behalf of the Licensing Authority and the Welsh Ministers. The MLT is responsible for marine licensing and enforcement within the Welsh inshore region extending 12 nm seaward from MHWS to the territorial limit, as defined in Section 42 of the MCAA.

From RSK’s understanding of the proposed construction methodology and the consultation carried out between NGED and MLT, the proposed works are likely to trigger the requirement for a Marine Licence. This is due to Section 66 of the MCAA stating that a licence is required “to construct, alter or improve any works within the UK marine licensing area either – (a) in or over the sea, or (b) on or under the sea bed” and “to deposit any substance or object within the UK marine licensing area, either in the sea or on or under the sea bed, from— (a) any vehicle, vessel, aircraft or marine structure, (b) any container floating in the sea, or (c) any structure on land constructed or adapted wholly or mainly for the purpose of depositing solids in the sea”.

There are a range of assessments which may be required in support of a Marine Licence application depending on the nature and location of the proposed works.

Under the Water Framework Directive (England and Wales) Regulations 2017, a licensed project or activity seaward of MHWS must demonstrate that it will not cause deterioration of a water body quality or prevent it meeting its objectives. As all marine licence applications, (apart from band 1 low risk activity applications – not applicable to the proposed works), must be accompanied by a WFD assessment, please refer to Section 4.

A Habitats Regulations Assessment Information to Inform an Appropriate Assessment report has also been produced for the project (RSK Biocensus, 2026); Under the Conservation of Habitats and Species Regulations 2017, all competent authorities must consider whether any plan or project could affect a European site before it can be authorised or carried out.

1.2.1 Licence application process

Once the Marine Licence application has been received with all supporting documents and payment, the MLT will check and acknowledge the application within 21 days. Based on information provided to date, it is likely the proposed works will fall within Band 3 of the licencing fee structure. Payment will accompany the application.

1.2.2 Discharge of conditions

Once the licence is issued, it may contain a number of conditions that will require discharge by the licence holder.

1.2.3 Background to the Water Framework Directive

The Directive of the European Parliament and of the Council 2000/60/EC establishing a framework for community action in the field of water policy (known as the Water Framework Directive, or WFD) was transposed into UK domestic law by the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017.

A WFD assessment is required to identify the potential impact of certain activities undertaken in or around water on the immediate water body and any associated watercourses. This includes:

- Identifying activities that could affect WFD waterbodies
- Assessment of the potential direct or indirect impacts of the proposed works that may cause or contribute to deterioration of water body status and/or jeopardise the water body achieving its status objectives in the future
- Determining the compliance of the project with the requirements of the WFD.

As part of the Marine Licence application to NRW, a WFD compliance assessment is required to be completed for the proposed works.

RSK has undertaken this assessment in accordance with NRW's Operational Guidance Note (OGN) 072 (NRW, 2018), Guidance Note (GN) 078 (NRW, 2025) on WFD assessments, and WFD assessment guidance for estuarine and coastal waters, Clearing the Waters for All (EA, 2016). Publicly available datasets have been used to inform this assessment, including data from Welsh Government, NRW and the Environment Agency, to enable a robust WFD scoping and impact appraisal.

2 The Project

2.1 Project description

A new 132kV link between Golden Hill substation and Milford Haven Substation is required in order to address capacity constraints and enhance network resilience, ensuring compliance with security of supply standards and supporting future network developments, including potential renewable generation connections and increased electrification demand.

The Milford Haven Grid to Golden Hill bulk supply point (BSP) project will see a new 9km 132kV underground cable circuit connecting Milford Haven BSP to Golden Hill BSP. This will terminate onto the existing 132kV overhead circuit at Golden Hill, enabling the reconfiguration necessary to link Milford Haven to Pembroke through the newly installed cable circuit.

Failure to reinforce this network could lead to significant constraints on the Pembroke area's energy infrastructure, potentially limiting future industrial growth and increasing the risk of outages during peak demand. The new circuits will improve contingency planning, reduce customer minutes lost (CMLs), and ensure long-term network reliability.

NGED would have preferred to utilise the highway as far possible to install the new circuit, however the A477 bridge that crosses the Westfield Pill is not able to accommodate the proposed cable.

After extensive engineering options appraisal, the only method to cross the section of Westfield Pill is via trenchless HDD method. The drill has been designed to cross the Westfield Pill at a depth of 15-20m below the bed in bedrock to mitigate against any impacts on the water course and surrounding environment. The launch and reception locations have also been set back away from the environmental receptors.

2.2 Site establishment

An area measuring approximately 80m by 50m for the operation of the drilling rig, and supporting equipment or vehicles will be required at the Entry Point (launch) of the drill. This area will be designed with inherent flexibility to suit the shape of the easement at the work area and needs to be an absolute minimum of 50m wide.

The exact positioning of the equipment will be at the discretion of the drill team leader and be subject to local conditions.

A working area measuring approximately 89m by 80m will be required at the Exit Point for pipe handling and drilling fluid transfer.

In addition, a pipe welding area and pipe layout easement will be required.

Trackway matting is to be installed to create a haul road and launch and reception compound areas.

2.3 Access

Vehicles and plant will be mobilized to site along the defined routes in the traffic management plan and use dedicated access points and haul roads as per the approved traffic management plan. Delivery drivers will adhere to the highway code at all times on the public highway and Site-specific rules while on the working easement and haul roads. Details of the project traffic management plan will be supplied to delivery drivers to ensure compliance

Upon arrival of drilling equipment, the delivery lorry will be parked within a safe working area for the offloading of the drilling rig. The drill rig is a self-contained tracked machine, delivered on a low loader trailer; the trailer has ramps that will be lowered thus allowing off-loading of the drill rig. The drill rig will be off loaded by one operator whilst a second person will act as banksmen guiding the drill down the ramps and to its required location.

Mobile plant will also be delivered to site by low loader.

Mixing units and ancillary equipment will be also delivered on low loaders or flatbed lorries and will be unloaded either by crane or excavator used as a crane or telehandler.

2.4 Methodology

A full methodology is available in the Method Statement and Risk Assessment (OCU, 2026a).

Ground conditions are expected to consist of sandstone through the majority of the proposed bore hole, with the maximum bore depth reaching 36.06m below ground level (BGL) and a depth of 15-20m below the riverbed. To maintain bore integrity, the HDD bore path will sustain a 400m radius vertical gradient and drilling fluid additive will be used to allow for effective removal of cuttings during fluid “flush” throughout the process.

The working area on site will include, but not be limited to:

- A drilling area of approximately 77m by 50m at the entry point – minimum of 50m wide with flexible shape
- A working area of approximately 45m by 45m at the exit point – subject to local conditions
- An entry launch pit of approximately 3m by 3m by 1.2m deep per hole
- An exit reception pit of approximately 3m by 3m by 1.2m deep per hole
- A sheet pile wall providing ground support and thrust resistance – installed by a CAT 313.

Prior to works, a Temporary Works Design will be issued, the area will be inspected by a supervisor, a permit-to-dig will be completed, and all underground services will be identified and clearly marked. All safety procedures will be undertaken and monitored by supervisors on-site; including, 5m minimum exclusion zone during excavation, a banksman, full PPE use, and the use of STOP WORKs protocol in the event of excessive vibration, instability, or unsafe conditions occurring.

The work will begin with the installation of a pilot bore; allowing a controlled pressure injection of drilling fluid throughout the pilot drilling process. Following this, drilling will be carried out continuously in intervals subject to drill rod length, equivalent to one length of drill pipe until the drilling head exits the ground at the exit reception pit. After that reaming

will commence and be repeated using incremental size reamers to increase the bore diameter as necessary.

During the reaming process, drilling fluid is pumped under pressure through the drill string to the reamer. As the drill rig pulls the reamer back towards it, the drill pipe is attached continuously behind the reamer for subsequent reaming and pipe pulling operations. These are identified as trailing rods. During this process a tractor and sealed tanker will be used to extract excess drill fluid from the reception pit and transport back to the launch side for recycling.

When the bore hole has been reamed out to the correct diameter the reamer is sent back down the bore one or two more times to ensure that the hole is clear of any large objects and that the slurry in the hole is well mixed.

The pipe will be sealed to prevent any contamination from drill fluids or other materials during the installation activity and while welded and laid out ready for installation.

2.5 Schedule

The proposed schedule of works will take place between 01/09/2026 and 01/09/2029. During this time, the HDD process will be undertaken to pull the duct into the borehole over approximately 6 months; with a maximum of 7 days per week on-site, equating to a maximum of 182 days for the HDD works. The cable will then be pulled into the existing duct during the second half of 2028, with final completion planned for September 2029.

3 WFD Screening

A WFD assessment is not required if the proposed activity is considered “low risk”. The “Clearing the Waters for All” guidance (EA, 2016) defines low risk activities as follows:

- Any self-service marine licence activity or an accelerated marine licence activity that meets specific conditions
- Maintenance of pumps at pumping stations if carried out regularly, avoiding low dissolved oxygen levels during maintenance and minimising silt movement when restarting the pumps
- Removal of blockages or obstacles like litter or debris within 10 m of an existing structure to maintain flow
- Replacement or removal of existing pipes, cables or services crossing over a waterbody but not including any new structure or supports, or new bed or bank reinforcement
- ‘Over water’ replacement or repairs to, for example bridge, pier and jetty surfaces if bank or bed disturbance is minimised
- Any activity carried out during 2009 to 2014 (when evidence was collected for the 2015 River Basin Management Plans (RBMP)) that has an existing WFD assessment, does not need repeating unless:
 - There have been changes to how the activity is performed, including method, size or scale, volume, depth, location or timings.
- There’s been a pollution incident since the activity was last carried out.

Since the proposed works do not fall within the above criteria, a WFD scoping assessment and impact assessment for WFD waterbodies, protected areas, and their respective features are provided within this Report, in support of the associated Marine Licence application.

Due to the potential for impacts to extend beyond the immediate proposed work footprint, a precautionary screening radius of 5km has been employed, this radius incorporates the applied 2km buffer of the proposed work site (Figure 1), to capture direct and indirect effects on those receptors within scope.

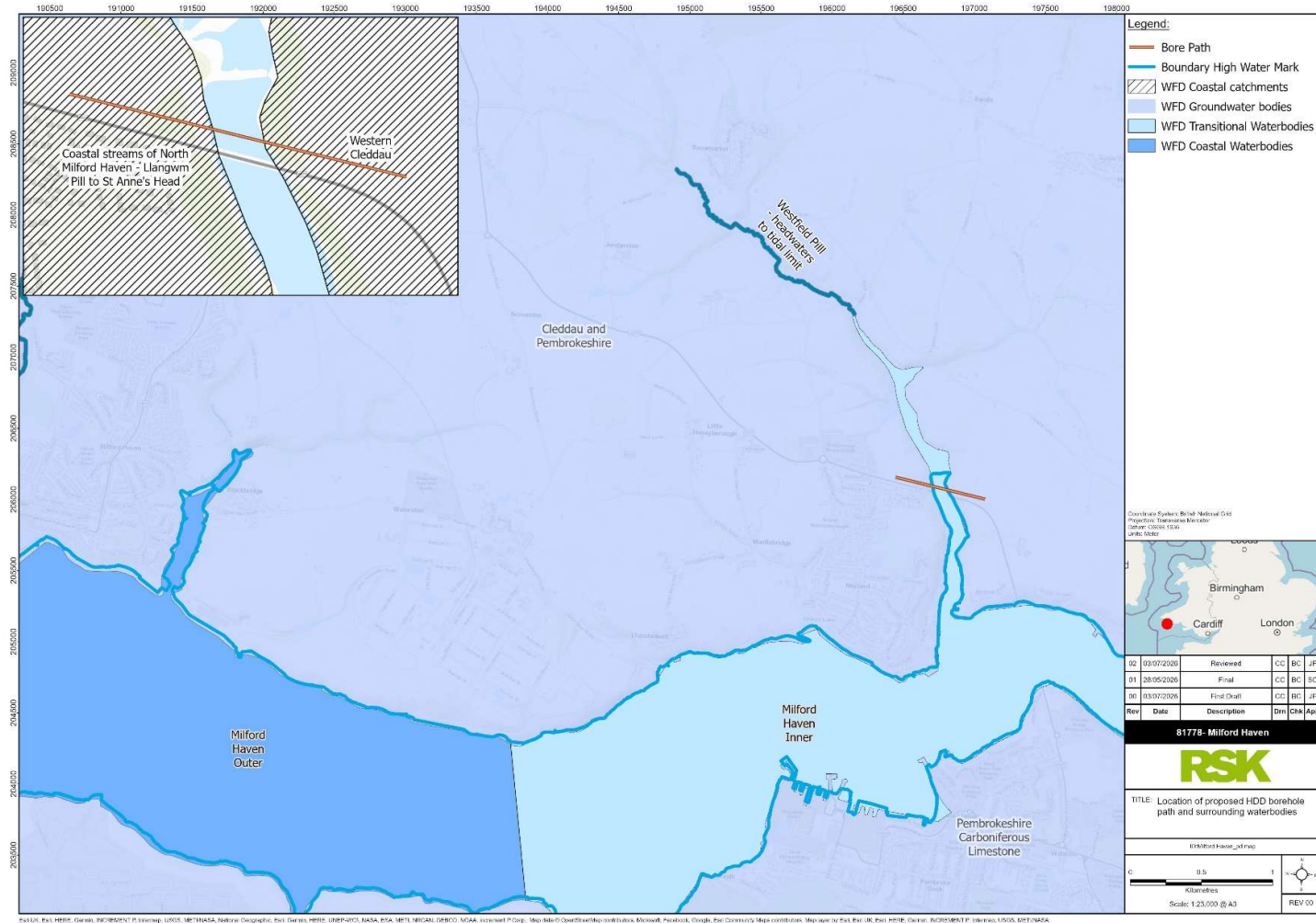


Figure 1: Location of proposed HDD borehole path and surrounding waterbodies

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4 WFD Waterbodies – Baseline Information

Screening has identified a total of three WFD water bodies within a 5km radius of the proposed works site. These include one transitional water body and two coastal catchment water bodies, one groundwater waterbody and one river water body. The water bodies are listed in Table 1 below and shown in Figure 1 above.

Table 1: Waterbodies of relevance to the proposed works

Waterbody name	ID	Type	Location	Inclusion in assessment	Justification
Milford Haven Inner	GB531006114100	Transitional	0km (works within location)	Yes	The works takes place within the WFD water body. Full assessment is required – screened in.
Western Cleddau	GB531006114100	Coastal Catchment	0km (works within location)	Yes	The works takes place within the WFD water body. Full assessment is required – screened in.
Coastal streams of North Milford Haven - Llangwm Pill to St Anne's Head	GB531006114100	Coastal Catchment	0km (works within location)	Yes	The works takes place within the WFD water body. Full assessment is required – screened in.
Cleddau and Pembrokeshire	GB41002G200400	Groundwater	0km (works within location)	Yes	The works takes place within the WFD water body. Full assessment is required – screened in.
Westfield Pill - headwaters to tidal limit	GB110061031260	River	~ 1.18km	No	Works is considered to be of significant

					distance to pose risk of the status of the water body. It lies outside and upstream of the zone of influence of the marine works – screened out.
Milford Haven Outer	GB641008220000	Coastal	~ 3.3km	No	Works is considered to be of significant distance to pose risk of the status of the water body. It lies outside the zone of influence of the marine works – screened out.

The Cleddau and Pembrokeshire (GB41002G200400) groundwater body, Western Cleddau (east) and Coastal streams of North Milford Haven - Llangwm Pill to St Anne's Head (west) WFD coastal catchments and Milford Haven Inner transitional water body (GB531006114100) encompasses the proposed works footprint (HDD works) and it is therefore screened in for full WFD assessment.

The remaining water bodies have been screened out, for the following reasons:

- Pembrokeshire South (GB611008590003) coastal water body – the coastal water body is greater than 5km from the proposed works and is closest coastal water body to the proposed works. As no coastal water body interaction is expected and impacts are not anticipated to extend beyond the 5km screening boundary, it is excluded from further assessment.

Section 4.1 summarises the baseline characteristics of Milford Haven Inner, compiled using data from NRW, and the Environment Agency Catchment Data Explorer.

4.1 Milford Haven Inner

The proposed works are located within the Milford Haven Inner (GB531006114100) waterbody. Table 2 provides a summary of information on the water body.

Table 2: Milford Haven Inner Water Body

Water body	Description, notes, or more information
WFD water body name	Milford Haven Inner
Water body ID	GB531006114100
River basin district name	Western Wales
Water body type (estuarine or coastal)	Transitional – natural
Water body total area (ha)	2100
Overall water body status (2021 Cycle 3)	Moderate
Ecological status	Moderate
Chemical status	Moderate
Target water body status and deadline	Good status by 2027
Hydromorphology status of water body	Not High
Heavily modified water body and for what use	Deep water ria enables both commercial and ferry shipping channel and sheltered harbour. Indented bays and silted inlets used recreationally, nature conservation and farmed hinterland.
Higher sensitivity habitats present	Atlantic salt meadows (<i>Glaucopuccinellietalia maritima</i>) (1330)
Lower sensitivity habitats present	None
Phytoplankton status	High
History of harmful algae	Not monitored
WFD protected areas within 2km	Pembrokeshire Marine/ Sir Benfro Forol Special Area of Conservation Milford Haven Waterway Site of Special Scientific Interest Lower Cleddau Shellfish Waters Protected Area

4.2 Western Cleddau

The proposed works are located within the Western Cleddau (eastern riverbank) and (GB531006114100) waterbody. Table 3 provides a summary of information on the water body.

Table 3: Western Cleddau Waterbody

Water body	Description, notes, or more information
WFD water body name	Western Cleddau
Water body ID	GB531006114100
River basin district name	Western Wales
Water body type (estuarine or coastal)	Coastal catchment
Water body total area (ha)	3114
Overall water body status (2021 Cycle 3)	Not Available / applicable / monitored
Ecological status	Not Available / applicable / monitored
Chemical status	Not Available / applicable / monitored
Target water body status and deadline	Not Available
Hydromorphology status of water body	Not Available / applicable / monitored
Heavily modified water body and for what use	Not Available / applicable / monitored
Higher sensitivity habitats present	Not Available / applicable / monitored
Lower sensitivity habitats present	Not Available / applicable / monitored
Phytoplankton status	Not Available / applicable / monitored
History of harmful algae	Not Available / applicable / monitored
WFD protected areas within 2km	Pembrokeshire Marine/ Sir Benfro Forol Special Area of Conservation Milford Haven Waterway Site of Special Scientific Interest Lower Cleddau Shellfish Waters Protected Area

4.3 Coastal streams of North Milford Haven - Llangwm Pill to St Anne's Head

The proposed works are located within the Coastal streams of North Milford Haven - Llangwm Pill to St Anne's Head (western riverbank) (GB531006114100) waterbody. Table 4 provides a summary of information on the water body.

Table 4: North Milford Haven - Llangwm Pill to St Anne's Head Waterbody

Water body	Description, notes, or more information
WFD water body name	Coastal streams of North Milford Haven - Llangwm Pill to St Anne's Head
Water body ID	GB531006114100
River basin district name	Western Wales
Water body type (estuarine or coastal)	Coastal catchment
Water body total area (ha)	628
Overall water body status (2021 Cycle 3)	Not Available / applicable / monitored
Ecological status	Not Available / applicable / monitored
Chemical status	Not Available / applicable / monitored
Target water body status and deadline	Not Available
Hydromorphology status of water body	Not Available / applicable / monitored
Heavily modified water body and for what use	Not Available / applicable / monitored
Higher sensitivity habitats present	Not Available / applicable / monitored
Lower sensitivity habitats present	Not Available / applicable / monitored
Phytoplankton status	Not Available / applicable / monitored
History of harmful algae	Not Available / applicable / monitored
WFD protected areas within 2km	Pembrokeshire Marine/ Sir Benfro Forol Special Area of Conservation Milford Haven Waterway Site of Special Scientific Interest Lower Cleddau Shellfish Waters Protected Area

4.4 Cleddau and Pembrokeshire

The proposed works are located within the Cleddau and Pembrokeshire (GB41002G200400) waterbody. Table 5 provides a summary of information on the water body.

Table 5: Cleddau and Pembrokeshire Water Body

Water body	Description, notes, or more information
WFD water body name	Cleddau and Pembrokeshire
Water body ID	GB41002G200400

River basin district name	Western Wales
Water body type (estuarine or coastal)	Groundwater – natural
Water body total area (ha)	111562
Overall water body status (2021 Cycle 3)	Poor
Ecological status	Not Available / applicable / monitored
Chemical status	Poor
Target water body status and deadline	Not Available
Hydromorphology status of water body	Not Available / applicable / monitored
Heavily modified water body and for what use	Not Available / applicable / monitored
Higher sensitivity habitats present	Not Available / applicable / monitored
Lower sensitivity habitats present	Not Available / applicable / monitored
Phytoplankton status	Not Available / applicable / monitored
History of harmful algae	Not Available / applicable / monitored
WFD protected areas within 2km	Pembrokeshire Marine/ Sir Benfro Forol Special Area of Conservation Milford Haven Waterway Site of Special Scientific Interest Lower Cleddau Shellfish Waters Protected Area

5 WFD Scoping

This scoping assessment follows the scoping template provided within NRW (2025). It identifies the potential risks to receptors including hydromorphology, biology (habitats and fish), water quality, protected areas and INNS. Table 6 provides a summary of the scoping information.

Table 6: Summary scoping information

Your Activity	Description, notes or more information		
Applicant name	NGED		
Application reference number (where applicable)	Pre-application request PA2602		
Name of activity	Milford Haven – Pembroke 132kV Reinforcement Scheme (HDD works)		
Brief description of activity	The proposed activity will include HDD works beneath Westfield Pill to enable a new 132kV link between Golden Hill substation and Milford Haven Substation.		
Location of activity (central point XY coordinates or national grid reference)	The location of the HDD will connect the HDD Launch and Reception locations, provided below.		
	ID	Easting	Northing
	HDD1 Launch	196445.745	206157.350
	HDD1 Reception	197076.974	206002.269
	West MHWS HDD boundary	196711.32	206092.11
	East MHWS HDD boundary	196810.40	206067.76
Footprint of activity (ha)	The footprint includes: - Along borehole length: 663.68m - A launch pit approximately 3.0m wide x 3.0m long x 1.2m deep will be required for each drill inside the launch site compound - A reception pit 3.0m x 3.0m x 1.2m deep will be required for each drill at Exit Point. Footprint associated with HDD and MHWS springs only: - BH diameter: 712mm - BH length: 102.1m (MHWS west to east) - BH total area: 102.1m x 0.712m = 72.695m².		
Timings of activity (including start and finish dates)	The proposed schedule of works will take place between 01/09/2026 and 01/09/2029 (see section 2.5).		

Extent of activity (for example size, scale frequency, expected volumes of output or discharge)	Footprint associated with HDD and MHWS springs only: - BH diameter: 712mm - BH length: 102.1m (MHWS west to east) - BH total area: 102.1m x 0.712m = 72.695m². No discharge or outputs anticipated. In the unlikely event of a breakout, there may be potential for a small volume of sediment disturbance and output to occur.
Use or release of chemicals (state which ones)	- PAC™-L: this substance is not considered to be persistent, bioaccumulating nor toxic (PBT). This substance is not considered to be very persistent nor very bioaccumulating (vPvB). - Cebogel OCMA: shall not be classified as hazardous to the aquatic environment. Persistence and degradability and bioaccumulative potential have not been required to be conducted, as the substance is organic. - SODA ASH: with regards to the sodium carbonate composition of the material, the methods for determining biodegradability are not applicable to inorganic substances and the material does not bioaccumulate. The above chemicals will be used in the HDD works and no discharge is anticipated. In the unlikely event of a breakout, there may be potential for a small volume of these chemicals to be released.

5.1 Hydromorphology

The proposed works propose to undertake HDD beneath Westfield Pill. The unintrusive nature of HDD works enables construction activities to avoid physical disturbance or interaction with the seabed of the estuary.

The drill has been designed to cross the Westfield Pill at a depth of 15-20m below the bed in bedrock to mitigate against any impacts on the water course and surrounding environment. The launch and reception locations have also been set back away from the environmental receptors.

The ground investigation factual report associated with these works indicated that the relevant bedrock is consolidated sandstone with no fissures; reducing the risk of a breakout to 1-5% if a natural fissure was encountered. Such an encounter would result in maximum approximately 1m³ of material discharged.

In the unlikely event of a breakout during the HDD works, the resulting impact from material deposits on the seabed would not be anticipated to be of significant volume to impact hydromorphology of the waterbody. Hydromorphology risk scoping is provided in Table 7, Table 8, Table 9 and Table 10 for the water bodies screened in to the scoping assessment.

Table 7: Hydromorphology risk scoping Milford Haven Inner Waterbody

Consider if your activity:	Yes	No	Hydromorphology risk issue(s)
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Could impact on the hydromorphology (for example morphology or tidal patterns) of a waterbody at high status	Requires impact assessment	Impact assessment not required	No
Could significantly impact the hydromorphology of any waterbody	Requires impact assessment	Impact assessment not required	No
Is in a waterbody that is heavily modified for the same use as your activity	Requires impact assessment	Impact assessment not required	No

Table 8: Hydromorphology risk scoping Western Cleddau Waterbody

Consider if your activity:	Yes	No	Hydromorphology risk issue(s)
Could impact on the hydromorphology (for example morphology or tidal patterns) of a waterbody at high status	Requires impact assessment	Impact assessment not required	No
Could significantly impact the hydromorphology of any waterbody	Requires impact assessment	Impact assessment not required	No
Is in a waterbody that is heavily modified for the same use as your activity	Requires impact assessment	Impact assessment not required	No

Table 9: Hydromorphology risk scoping North Milford Haven - Llangwm Pill to St Anne's Head Waterbody

Consider if your activity:	Yes	No	Hydromorphology risk issue(s)
Could impact on the hydromorphology (for example morphology or tidal patterns) of a waterbody at high status	Requires impact assessment	Impact assessment not required	No
Could significantly impact the	Requires impact assessment	Impact assessment not required	No

hydromorphology of any waterbody			
Is in a waterbody that is heavily modified for the same use as your activity	Requires impact assessment	Impact assessment not required	No

Table 10: Hydromorphology risk scoping Cleddau and Pembrokeshire Waterbody

Consider if your activity:	Yes	No	Hydromorphology risk issue(s)
Could impact on the hydromorphology (for example morphology or tidal patterns) of a waterbody at high status	Requires impact assessment	Impact assessment not required	No
Could significantly impact the hydromorphology of any waterbody	Requires impact assessment	Impact assessment not required	No
Is in a waterbody that is heavily modified for the same use as your activity	Requires impact assessment	Impact assessment not required	No

5.2 Biology

5.2.1 Habitats

For the purposes of a WFD assessment, there are predefined higher and lower sensitivity habitats. Higher sensitivity habitats are considered to have a low resistance to, and a low recovery rate from, human pressures, and therefore require inclusion in the impact assessment if located within 500 m of proposed works. Lower sensitivity habitats generally demonstrate medium to high resistance and a greater capacity for recovery and are also assessed where disturbance exceeds threshold levels. Table 11 presents a list of such habitats. Habitat risk scoping is provided in Table 12, Table 13, Table 14 and Table 15 for the water bodies screened in to the scoping assessment.

Table 11: WFD higher and lower sensitivity habitats

WFD higher sensitivity habitats	WFD lower sensitivity habitats
Chalk reef	Cobbles, gravel and shingle
Clam, cockle and oyster beds	Intertidal soft sediments like sand and mud
Subtidal kelp beds	Rocky shore
Intertidal seagrass	Subtidal boulder fields
Maerl	Subtidal rocky reef

Mussel beds, including blue and horse mussel	Subtidal soft sediments
Polychaete reef	
Saltmarsh (Atlantic salt meadow)	
Subtidal seagrass	

Table 12: Habitat risk scoping Milford Haven Inner Waterbody

Consider if the footprint of your activity is:	Yes/No	Biology habitats risk issue(s)
0.5km ² or larger	No	BH diameter: 712mm BH length: 102.1m (MHWS west to east) $102.1\text{m} \times 0.712\text{m} = 72.695\text{m}^2$ BH area within MHWS: 0.000072695km²
1% or more of the water body's area	No	BH area within MHWS: $0.000072695\text{km}^2 = 0.0072695\text{ha}$ Waterbody area: 2100ha = 21km ² $(0.000072695\text{km}^2 / 21\text{km}^2) \times 100 =$ 0.0003462%
Within 500 m of any higher sensitivity habitat	Yes	Saltmarsh – Atlantic salt meadows
1% or more of any lower sensitivity habitat	No	None

Table 13: Habitat risk scoping Western Cleddau Waterbody

Consider if the footprint of your activity is:	Yes/No	Biology habitats risk issue(s)
0.5km ² or larger	No	BH length east: ~281.2m (east MHWS to HDD1 reception) BH diameter: 712mm $281.2\text{m} \times 0.712\text{m} = 200.214\text{m}^2$ BH area on eastern riverbank: 0.000200214km²
1% or more of the water body's area	No	Waterbody area: 3114ha = 31.14km ² BH area on eastern riverbank: 0.000200214km ² $(0.000200214\text{km}^2 / 31.14\text{km}^2) \times 100 =$ 0.000643%
Within 500 m of any higher sensitivity habitat	Yes	Saltmarsh – Atlantic salt meadows
1% or more of any lower sensitivity habitat	No	None

Table 14: Habitat risk scoping North Milford Haven - Llangwm Pill to St Anne's Head Waterbody

Consider if the footprint of your activity is:	Yes/No	Biology habitats risk issue(s)
0.5km ² or larger	No	BH length west: ~280.4m (west MHWS to HDD1 reception) BH diameter: 712mm 280.4m x 0.712m = 199.65m ² BH area on western riverbank: 0.00019965km²
1% or more of the water body's area	No	Waterbody area: 628ha = 6.28km ² BH area on western riverbank: 0.00019965km ² (0.00019965km ² /6.28km ²) x 100 = 0.003179%
Within 500 m of any higher sensitivity habitat	Yes	Saltmarsh – Atlantic salt meadows
1% or more of any lower sensitivity habitat	No	None

Table 15: Habitat risk scoping Cleddau and Pembrokeshire Waterbody

Consider if the footprint of your activity is:	Yes/No	Biology habitats risk issue(s)
0.5km ² or larger	No	BH length above MHWS: 561.1m (total borehole area on eastern and western riverbank) BH diameter: 712mm 561.1m x 0.712m = 399.503m ² BH area on riverbank: 0.000399503km²
1% or more of the water body's area	No	Waterbody area: 111562ha = 1115.62km ² BH area on riverbank: 0.000399503km ² (0.000399503km ² /1115.62km ²) x 100 = 0.0000358%
Within 500 m of any higher sensitivity habitat	Yes	Saltmarsh – Atlantic salt meadows
1% or more of any lower sensitivity habitat	No	None

Figure 3 displays the location of the relevant higher sensitivity habitat, Atlantic salt meadow saltmarshes, and its proximity to the proposed HDD borehole path.

5.2.2 Fish

The proposed works are not expected to delay or prevent fish from moving through the area or significantly affect migratory patterns. They further do not involve in-water piling or other high-energy activities typically associated with acoustic disturbance.

However, localised and temporary behavioural responses from fish species may occur due to HDD noise and vibration. These impacts are likely to be short-term and confined to the immediate vicinity of the works.

In the unlikely event of a breakout, this may result in minor sediment resuspension; however, no changes to dissolved oxygen levels, turbidity, or water chemistry are anticipated that would be sufficient to adversely affect fish health or behaviour beyond the local area and immediate proximity of the works.

Pembrokeshire Marine / Sir Benfro Forol Special Area of Conservation supports species including Allis shad (*Alosa alosa*), Twaite shad (*Alosa fallax*), River lamprey (*Lampetra fluviatilis*), Sea lamprey (*Petromyzon marinus*) and these species are therefore considered in this assessment; see Figure 2.

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Given the temporary and localised nature of the activity, any impacts on fish are expected to be minor and reversible. However, to ensure a precautionary approach, fish are carried forward as a receptor within the WFD impact assessment. Fish risk scoping is provided in Table 16, Table 17, Table 18 and Table 19 for the water bodies screened in to the scoping assessment.

Table 16: Fish risk scoping in Milford Haven Inner Waterbody

Consider if your activity:	Yes	No	Biology – Fish risk issue(s)
Is in an estuary and could affect fish in the estuary, outside the estuary but could delay or prevent fish entering it or could affect fish migrating through the estuary	Continue with questions	Go to next section	No
Could impact on normal fish behaviour like movement, migration or spawning (for example creating a physical barrier, noise, chemical change or a change in depth or flow)	Requires impact assessment	Impact assessment not required	Yes
Could cause entrainment or impingement of fish	Requires impact assessment	Impact assessment not required	No

Table 17: Fish risk scoping in Western Cleddau Waterbody

Consider if your activity:	Yes	No	Biology – Fish risk issue(s)
Is in an estuary and could affect fish in the estuary, outside the estuary but could delay or prevent fish entering it or could affect fish migrating through the estuary	Continue with questions	Go to next section	No
Could impact on normal fish behaviour like movement, migration or spawning (for example creating a	Requires impact assessment	Impact assessment not required	No

physical barrier, noise, chemical change or a change in depth or flow)			
Could cause entrainment or impingement of fish	Requires impact assessment	Impact assessment not required	No

Table 18: Fish risk scoping in Coastal streams of North Milford Haven - Llangwm Pill to St Anne's Head Waterbody

Consider if your activity:	Yes	No	Biology – Fish risk issue(s)
Is in an estuary and could affect fish in the estuary, outside the estuary but could delay or prevent fish entering it or could affect fish migrating through the estuary	Continue with questions	Go to next section	No
Could impact on normal fish behaviour like movement, migration or spawning (for example creating a physical barrier, noise, chemical change or a change in depth or flow)	Requires impact assessment	Impact assessment not required	No
Could cause entrainment or impingement of fish	Requires impact assessment	Impact assessment not required	No

Table 19: Fish risk scoping in Cleddau and Pembrokeshire Waterbody

Consider if your activity:	Yes	No	Biology – Fish risk issue(s)
Is in an estuary and could affect fish in the estuary, outside the estuary but could delay or prevent fish entering it or could affect fish migrating through the estuary	Continue with questions	Go to next section	No
Could impact on normal fish behaviour like movement,	Requires impact assessment	Impact assessment not required	No

migration or spawning (for example creating a physical barrier, noise, chemical change or a change in depth or flow)			
Could cause entrainment or impingement of fish	Requires impact assessment	Impact assessment not required	No

5.3 Water quality

If a proposed activity has the potential to affect water clarity, temperature, salinity, dissolved oxygen levels, nutrient concentrations, or microbial communities continuously for longer than a spring-neap tidal cycle, or has the potential to release substances listed under the EQSD or chemical concentrations exceeding Cefas Action Level 1, a detailed WFD impact assessment is required.

Water quality risk scoping is provided in Table 20, Table 21, Table 22, Table 23 for the water bodies screened in to the scoping assessment.

Table 20: Water quality risk scoping for Milford Haven Inner Waterbody

Consider if your activity:	Yes	No	Water quality risk issue(s)
Could affect water clarity, temperature, salinity, oxygen levels, nutrients or microbial patterns continuously for longer than a spring neap tidal cycle (about 14 days)	Requires impact assessment	Impact assessment not required	Yes; in the unlikely event of a breakout, water quality may be effected. Under normal operations, no impact on water quality would be anticipated.
Is in a waterbody with a phytoplankton status of moderate, poor or bad	Requires impact assessment	Impact assessment not required	Yes; phytoplankton is considered to be 'high' within the water body.
Is in a waterbody with a history of harmful algae	Requires impact assessment	Impact assessment not required	Yes; although limited information available, given the high phytoplankton status, and macroalgae and DIN being driving elements of the water body status, this will be considered within the assessment.

If your activity uses or releases chemicals (e.g. through sediment disturbance or building works) consider if:	Yes	No	Water quality risk issue(s)
The chemicals are on the Environmental Quality Standards Directive list	Requires impact assessment	Impact assessment not required	Yes – There is potential for EQSD list substances to be present in the sediment disturbed. The chemical status of the water body is 'moderate'. Driving elements of the water body status are noted as being BDPE Calc; PAH; macroalgae and DIN.
It disturbs sediment with contaminants above Cefas Action Level 1	Requires impact assessment	Impact assessment not required	Yes; chemical status of the water body is considered to be moderate. The current failure to achieve good chemical status has potential for contaminants to be present within the sediment. The chemical status of the water body is 'moderate'. Driving elements of the water body status are noted as being BDPE Calc; PAH; macroalgae and DIN.
If your activity has a mixing zone (like a discharge pipeline or outfall) consider if:	Yes	No	Water quality risk issue(s)
The chemicals released are on the Environmental Quality Standards Directive list	Requires impact assessment	Impact assessment not required	No mixing zone or outfall

Table 21: Water quality risk scoping for Western Cleddau Waterbody

Consider if your activity:	Yes	No	Water quality risk issue(s)
Could affect water clarity, temperature, salinity, oxygen levels, nutrients or microbial patterns continuously for longer than a spring neap tidal cycle (about 14 days)	Requires impact assessment	Impact assessment not required	No; under normal operations, no impact on water quality would be anticipated.
Is in a waterbody with a phytoplankton status of moderate, poor or bad	Requires impact assessment	Impact assessment not required	Not applicable.
Is in a waterbody with a history of harmful algae	Requires impact assessment	Impact assessment not required	Not applicable.
If your activity uses or releases chemicals (e.g. through sediment disturbance or building works) consider if:	Yes	No	Water quality risk issue(s)
The chemicals are on the Environmental Quality Standards Directive list	Requires impact assessment	Impact assessment not required	Not applicable.
It disturbs sediment with contaminants above Cefas Action Level 1	Requires impact assessment	Impact assessment not required	Not applicable.
If your activity has a mixing zone (like a discharge pipeline or outfall) consider if:	Yes	No	Water quality risk issue(s)
The chemicals released are on the Environmental Quality Standards Directive list	Requires impact assessment	Impact assessment not required	Not applicable.

Table 22: Water quality risk scoping for Coastal streams of North Milford Haven - Llangwm Pill to St Anne's Head Waterbody

Consider if your activity:	Yes	No	Water quality risk issue(s)
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Could affect water clarity, temperature, salinity, oxygen levels, nutrients or microbial patterns continuously for longer than a spring neap tidal cycle (about 14 days)	Requires impact assessment	Impact assessment not required	No; under normal operations, no impact on water quality would be anticipated.
Is in a waterbody with a phytoplankton status of moderate, poor or bad	Requires impact assessment	Impact assessment not required	Not applicable.
Is in a waterbody with a history of harmful algae	Requires impact assessment	Impact assessment not required	Not applicable.
If your activity uses or releases chemicals (e.g. through sediment disturbance or building works) consider if:	Yes	No	Water quality risk issue(s)
The chemicals are on the Environmental Quality Standards Directive list	Requires impact assessment	Impact assessment not required	Not applicable.
It disturbs sediment with contaminants above Cefas Action Level 1	Requires impact assessment	Impact assessment not required	Not applicable.
If your activity has a mixing zone (like a discharge pipeline or outfall) consider if:	Yes	No	Water quality risk issue(s)
The chemicals released are on the Environmental Quality Standards Directive list	Requires impact assessment	Impact assessment not required	Not applicable.

Table 23: Water quality risk scoping for Cleddau and Pembrokeshire Waterbody

Consider if your activity:	Yes	No	Water quality risk issue(s)
Could affect water clarity, temperature, salinity, oxygen levels, nutrients or microbial patterns	Requires impact assessment	Impact assessment not required	No; under normal operations, no impact on water quality would be anticipated.

continuously for longer than a spring neap tidal cycle (about 14 days)			
Is in a waterbody with a phytoplankton status of moderate, poor or bad	Requires impact assessment	Impact assessment not required	Not applicable.
Is in a waterbody with a history of harmful algae	Requires impact assessment	Impact assessment not required	Not applicable.
If your activity uses or releases chemicals (e.g. through sediment disturbance or building works) consider if:	Yes	No	Water quality risk issue(s)
The chemicals are on the Environmental Quality Standards Directive list	Requires impact assessment	Impact assessment not required	Not applicable.
It disturbs sediment with contaminants above Cefas Action Level 1	Requires impact assessment	Impact assessment not required	Not applicable.
If your activity has a mixing zone (like a discharge pipeline or outfall) consider if:	Yes	No	Water quality risk issue(s)
The chemicals released are on the Environmental Quality Standards Directive list	Requires impact assessment	Impact assessment not required	Not applicable.

5.4 WFD protected areas

If a proposed activity is located within 2km of any designated WFD protected area, that protected area must be included within the WFD impact assessment for the activity. The proposed works are located approximately 70m from Pembrokeshire Marine/ Sir Benfro Forol SAC and Milford Haven Waterway SSSI, and within the Lower Cleddau Shellfish Waters Protected Area. Therefore, these protected areas have been included within the scope of the WFD impact assessment.

As a conservative measure, designated sites requiring HRA consideration have also been assessed using the same 2km screening distance applied to WFD protected areas.



Sites of relevance (i.e. SAC, SPA, SSSI or Ramsar sites) have also been identified within this screening distance, see Figure 3. A separate HRA was undertaken for the proposed works (RSK Biocensus, 2026).

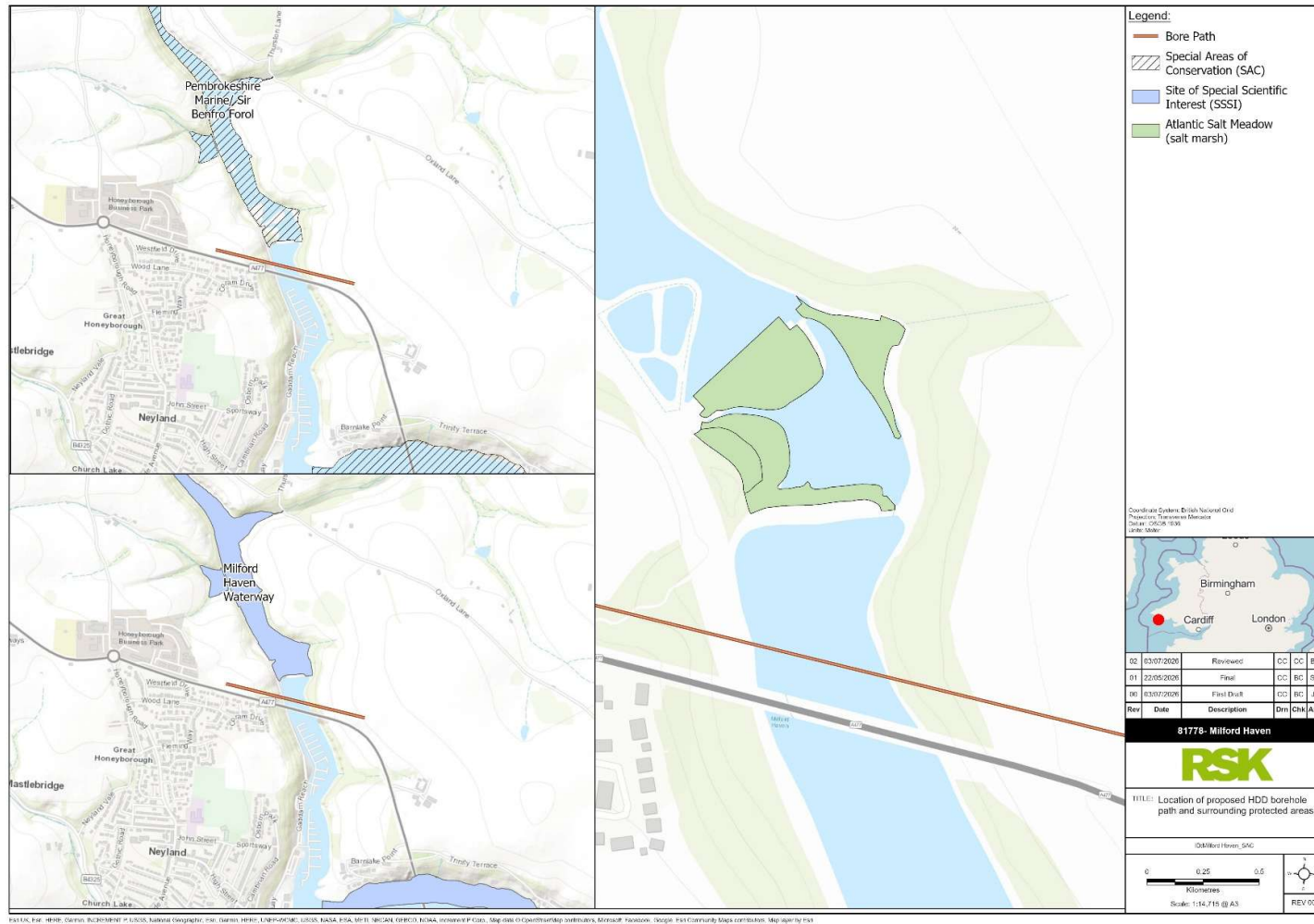


Figure 3: Location of proposed HDD borehole path and surrounding protected areas

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WFD protected area risk scoping is provided in Table 24, Table 25, Table 26, Table 27 for the water bodies screened into the scoping assessment.

Table 24: WFD protected area risk scoping for Milford Haven Inner

Consider if your activity is:	Yes	No	Protected areas risk issue(s)
Within 2km of any WFD protected area	Requires impact assessment	Impact assessment not required	Pembrokeshire Marine/ Sir Benfro Forol Special Area of Conservation Milford Haven Waterway Site of Special Scientific Interest Lower Cleddau Shellfish Waters Protected Area

Table 25: WFD protected area risk scoping for Western Cleddau

Consider if your activity is:	Yes	No	Protected areas risk issue(s)
Within 2km of any WFD protected area	Requires impact assessment	Impact assessment not required	Pembrokeshire Marine/ Sir Benfro Forol Special Area of Conservation Milford Haven Waterway Site of Special Scientific Interest Lower Cleddau Shellfish Waters Protected Area

Table 26: WFD protected area risk scoping for North Milford Haven - Llangwm Pill to St Anne's Head

Consider if your activity is:	Yes	No	Protected areas risk issue(s)
Within 2km of any WFD protected area	Requires impact assessment	Impact assessment not required	Pembrokeshire Marine/ Sir Benfro Forol Special Area of Conservation Milford Haven Waterway Site of

			Special Scientific Interest Lower Cleddau Shellfish Waters Protected Area
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Table 27: WFD protected area risk scoping for Cleddau and Pembrokeshire

Consider if your activity is:	Yes	No	Protected areas risk issue(s)
Within 2km of any WFD protected area	Requires impact assessment	Impact assessment not required	Pembrokeshire Marine/ Sir Benfro Forol Special Area of Conservation Milford Haven Waterway Site of Special Scientific Interest Lower Cleddau Shellfish Waters Protected Area

5.5 Invasive, non-native species

As there is not a risk that the proposed works could introduce or spread INNS via the HDD works, plant and construction equipment, INNS will not be included within the WFD impact assessment. The nature of the HDD works will be non-intrusive to the seabed and area below MHWS and no interaction with equipment or plant will take place.

Invasive, non-native species risk scoping is provided in Table 28, Table 29, Table 30, Table 31 for the water bodies screened in to the scoping assessment.

Table 28: Invasive, non-native species risk scoping for Milford Haven Inner

Consider if your activity could:	Yes	No	INNS risk issue(s)
Introduce or spread INNS	Requires impact assessment	Impact assessment not required	No risk of INNS due to HDD equipment being used below seabed and no direct interaction with the water.

Table 29: Invasive, non-native species risk scoping for Western Cleddau

Consider if your activity could:	Yes	No	INNS risk issue(s)
Introduce or spread INNS	Requires impact assessment	Impact assessment not required	No risk of INNS due to HDD equipment

			being used below seabed and no direct interaction with the water.
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Table 30: Invasive, non-native species risk scoping for North Milford Haven - Llangwm Pill to St Anne's Head

Consider if your activity could:	Yes	No	INNS risk issue(s)
Introduce or spread INNS	Requires impact assessment	Impact assessment not required	No risk of INNS due to HDD equipment being used below seabed and no direct interaction with the water.

Table 31: Invasive, non-native species risk scoping for Cleddau and Pembrokeshire

Consider if your activity could:	Yes	No	INNS risk issue(s)
Introduce or spread INNS	Requires impact assessment	Impact assessment not required	No risk of INNS due to HDD equipment being used below seabed and no direct interaction with the water.

5.6 Summary

Table 32 summarises the scoping assessment to satisfy WFD requirements.

Table 32: Summary of the results of the scoping assessment

Receptor	Potential risk to receptor / to be included in Impact Assessment?	Note the risk issue(s) for impact assessment	Impact assessment presented in section
Hydromorphology	No	The proposed HDD activity is not in any waterbody that is heavily modified for the same use and does not pose a risk to hydromorphological characteristics of the water body.	N/A
Biology: habitats	Yes	The footprint of the HDD does not directly overlap mapped high sensitivity habitat Atlantic salt meadow saltmarsh (<i>Glauco-Puccinellietalia maritima</i>) (1330). No significant or non-temporary	6.2.1

		impact is anticipated as a result of the proposed works	
Biology: fish	Yes	The work activities may cause temporary and localised elevated noise and vibration levels.	6.2.2
Water quality	Yes	The proposed works have the potential to resuspend sediments that could be reasonably expected to contain Cefas listed substances, possibly at levels above Cefas Action Level 1, and/or EQSD list substances which could impact water quality. In the event of a breakout, chemicals and fluids associated with the HDD works could be released.	6.3
Protected areas	Yes	Pembrokeshire Marine/ Sir Benfro Forol Special Area of Conservation, Milford Haven Waterway Site of Special Scientific Interest and Lower Cleddau Shellfish Waters Protected Area are within 2km of the protected site.	6.4
Invasive non-native species	No	No risk of INNS due to HDD equipment being used below seabed and no direct interaction with the water.	N/A

6 WFD Assessment

6.1 Introduction

This section focuses on the potential risks to the receptors (biology – habitats, biology – fish, water quality and protected area) identified within the scoping assessment (Section 5). The impact assessment determines the pressures on these receptors from the proposed works utilising the pressures-activities database (JNCC, 2022) developed by the Joint Nature Conservation Committee (JNCC) and Natural England¹. Where necessary, it also identifies ways to avoid or minimise impacts, and shows if the proposed works may cause deterioration or jeopardise Milford Haven Inner, Western Cleddau, Coastal streams of North Milford Haven - Llangwm Pill to St Anne's Head (GB531006114100), or Cleddau and Pembrokeshire (GB41002G200400) from achieving good potential. The overall purpose of a WFD impact assessment is to ascertain whether the proposed activities will cause a significant non-temporary effect on the scoped-in receptors. The proceeding sections provide this assessment alongside consideration of temporary effects to ensure a comprehensive appraisal of environmental impacts and identification of any required mitigation.

6.2 Biology

6.2.1 Habitats

The proposed works are located within 500m of one WFD higher sensitivity habitat, Atlantic salt meadow saltmarsh (*Glauco-Puccinellietalia maritima*) (1330). These habitats are located in protected areas with halophytic vegetation, soft intertidal sediment of mud and sand and limited strong wave action (JNCC, 2026). This is presented in Figure 3.

This feature is known to be sensitive to physical disturbance, sedimentation, and smothering. Based on current site information, these habitats are located upstream and not directly within the works footprint, and are not anticipated to be in direct contact with the works or physically impacted by the drilling activity.

Potential impacts on this higher sensitivity feature relates primarily to indirect effects such as sediment resuspension during the HDD works (in the unlikely event of a breakout). The marine works are localised, and will be carried out downstream of this habitat. Any sediment released into the water column is expected to be dispersed and settle rapidly, with resuspension effects remaining within the natural background range for Milford Haven.

The footprint of the HDD within the MHWS is approximately 73m² and does not directly overlap mapped Atlantic salt meadow. Consequently, no significant or non-temporary impact is anticipated to this higher sensitivity habitat as a result of the proposed works (either from routine activities or accidental events such as a breakout).

Lower sensitivity habitats are also present within the 500m zone; however as previously outlined in section 5.2.1, the proposed works footprint represents less than 1% of the total area of any of these habitat types within the waterbodies of concern. Given the

¹ This has been used in absence of Welsh specific guidance



temporary and spatially limited nature of disturbance, combined with the high recoverability of these habitats, no significant impacts to lower sensitivity habitats are anticipated.

Overall, the proposed works are not expected to have a significant adverse effect on WFD biological quality elements relating to benthic habitats within Milford Haven.

6.2.2 Fish

Migratory and estuarine fish species are known to inhabit Milford Haven and the nearby rivers (i.e. Herring, *Clupea harengus*). A number of fish species utilise the area as important corridors for movement between marine and freshwater environments, it has a high conservation value and is designated as a component of the Pembrokeshire Marine Special Area of Conservation (Warwick, et al., 2025). Important fish and shellfish areas in the vicinity of the HDD borehole path are shown in Figure 2. Relevant WFD biological quality element species of conservation interest under the Habitats Directive include:

- Allis Shad (*Alosa alosa*)
- Twaite shad (*Alosa fallax*)
- River lamprey (*Lampetra fluviatilis*)
- Sea lamprey (*Petromyzon marinus*).

The proposed HDD works are located underneath the Milford Haven Inner, Western Cleddau, Coastal streams of North Milford Haven - Llangwm Pill to St Anne's Head, and Cleddau and Pembrokeshire waterbodies adjacent to Honeyborough. Although the work site is not a known spawning ground, the location falls within key migration routes for these species. Potential impacts could arise from temporary noise and vibration generated during drilling operations, though impacts from these pressures are anticipated to be of short duration, minor and localised.

Additionally, no significant reduction in dissolved oxygen or long-term water quality deterioration is anticipated. Any sediment resuspension (in the unlikely event of a breakout) will be highly localised and short-term, and not of a magnitude that would cause physiological stress to fish.

The proposed works will not involve piling, dredging, or the use of geophysical survey equipment, acoustic deterrent devices, or multibeam echosounders. The activities are limited to the horizontal directional drilling of ground at a depth of 15-20m underneath the waterbody (see section 2.4 for methodology).

While typical drilling operations (e.g. engines, thrusters, drilling) will generate low-level operational noise and vibration, this will take place at the launch and reception compounds located within the Western Cleddau, Coastal streams of North Milford Haven - Llangwm Pill to St Anne's Head, and Cleddau and Pembrokeshire coastal and groundwater waterbodies. Furthermore, the HDD drilling will take place 15-20m below the riverbed and impacts on fish species are not anticipated. No impulsive or continuous noise sources of concern to fish species are expected.

Given the ecological importance of the Milford Haven Inner waterbody for migratory species and the proximity to estuarine features, fish have been included within the WFD impact assessment. However, due to the temporary, small-scale, and managed nature of the activity which will occur 15-20m below the seabed, impacts to fish are expected to be minor, localised, and reversible with no significant deterioration of fish quality elements under the WFD.

6.3 Water quality

Although the proposed works are non-intrusive and do not involve dredging, piling, or sediment excavation, there remains a potential for minor, localised sediment disturbance during the unlikely event of a breakout (see section 5.1). It is emphasised that during normal, planned operations, no impact on water quality is anticipated due to the non-intrusive nature of the works.

The chemicals used within the drilling works are not listed on the Environmental Quality Standards Directive list and are therefore considered to pose little risk to the water quality, in the event of a breakout. These materials include PAC™-L, Cebogel OCMA and SODA ASH; and Diatomaceous earth for the collection and cleaning during a potential breakout (MSDS, 2025). The Material Data safety Sheets for these chemicals is provided in accompaniment to this document and licence application; these contain information regarding toxicity the aquatic species and the information (where available) associated with the persistency, biodegradability and bioaccumulative potential. Environmental information associated with these chemicals includes:

- PAC™-L: this substance is not considered to be persistent, bioaccumulating nor toxic (PBT). This substance is not considered to be very persistent nor very bioaccumulating (vPvB).
- Cebogel OCMA: shall not be classified as hazardous to the aquatic environment. Persistence and degradability and bioaccumulative potential has not been required to be conducted, as the substance is organic.
- SODA ASH: with regards to the sodium carbonate composition of the material, the methods for determining biodegradability are not applicable to inorganic substances and the material does not bioaccumulate
- Diatomaceous earth: a non-combustible, biodegradable and absorbent material that is able to collect waste material from a breakout for disposal; similar materials that may be used are vermiculite, and sand and earth.

Given the small concentrations of these chemicals that would be released in the event of a breakout (in comparison to the volume of the water body) and low environmental risk associated with these chemicals, no negative impacts on the water quality is anticipated from the materials used in the HDD works.

As identified during scoping (Section 5.3), Milford Haven Inner transitional waterbody (GB531006114100) there is the potential for resuspended sediment to contain Cefas Action list substances, possibly at levels above Cefas Action Level 1 and/or EQSD list substances which could negatively impact the water quality of Milford Haven Inner. In this context, it is also important to note that this waterbody has a chemical status of “Moderate”. Factors including BDPE Calc, PAH, Macroalgae and DIN noted as the driving elements of the water body status. While no sediment sampling has been undertaken specifically for these proposed works, existing contamination is likely confined to deeper or undisturbed sediments. Given that no excavation proposed, the risk of mobilising contaminants above background levels is considered minimal.

The nature of the HDD project design incorporates embedded avoidance measures, by being non-intrusive. In the unlikely event of a breakout, a lost fluid procedure (breakout plan) document OCU Utility Services (2026b) outlines the measures to be taken. Methods used at water crossings include:

- Operatives not to encroach beyond exclusion rope at the top of the crossing

- Once breakout identified the drill will stop
- Bore stabiliser to be deployed to stem the flow of the breakout
- Breakout incident to be reported immediately to management so that the relevant authority will be informed.

Any contaminants that are released into the water column due to resuspension of sediments will be low in volume and quickly diluted and dispersed during tidal cycles. Any minor water quality impacts will therefore be temporary in nature and are not envisaged to have a significant non-temporary effect on any WFD water quality elements.

Furthermore, as the potential sediments being disturbed would be considered to be of a small volume, no significant WFD effects are foreseen upon the Shellfish Waters.

As there are no additional nutrients potentially being deposited into the water body, there is no impact anticipated on the phytoplankton or macroalgae status.

Any potential effect on WFD water quality elements is considered to be temporary, low magnitude, and highly localised, with no significant or non-temporary deterioration expected. The activity is therefore not predicted to cause failure of any WFD water quality standards.

WFD chemical compliance of Milford Haven Inner is therefore unlikely to be affected.

6.4 WFD protected areas

The proposed works are located approximately 70m south of both the Pembrokeshire Marine/ Sir Benfro Forol Special Area of Conservation and the Milford Haven Waterway Site of Special Scientific Interest, and within the Lower Cleddau Shellfish Waters Protected Area (Figure 2).

6.4.1 Pembrokeshire Marine/ Sir Benfro Forol Special Area of Conservation

The designated features of Pembrokeshire Marine/ Sir Benfro Forol Special Area of Conservation (NRW, 2018) include:

- Subtidal sandbanks
- Estuaries
- Intertidal mudflats and sandflats
- Coastal lagoons
- Shallow inlets and bays
- Reefs
- Atlantic salt meadows (*Glauco-Puccinellietalia maritima*)
- Sea caves
- Sea lamprey (*Petromyzon marinus*)
- River lamprey (*Lampetra fluviatilis*)
- Allis shad (*Alosa alosa*)
- Twaite shad (*Alosa fallax*)
- Bottlenose dolphin (*Tursiops truncatus*)
- Harbour porpoise (*Phocoena phocoena*)
- Otter (*Lutra lutra*)
- Grey seal (*Halichoerus grypus*)
- Shore dock (*Rumex rupestris*).

The Habitats regulations Assessment (RSK Biocensus, 2026) identified during the screening that the effects which were carried through to the appropriate assessment phase were:

- Noise and vibration disturbance (sea and river lamprey, allis and twaite shad, and otter) (construction phase)
- Visual disturbance (otter) (construction phase)
- EMF (sea and river lamprey, allis and twaite shad, and otter) (operational phase).

Designated species features for marine mammals within the Pembrokeshire SAC include the Grey seal (*Halichoerus grypus*) and the Otter (*Lutra lutra*).

The closest record of Grey seals from 2023 is located approximately 22km west from the proposed HDD cable (Thompson, 2025). The closest record for Otters from 2016 is located approximately 3.4km east from the proposed HDD cable (NRW, 2025).

Due to the location of the works, there is a possibility that Otters may inhabit the area of interest; Grey seals are unlikely to inhabit the impacted area as it is located further inland and Milford Haven is an active shipping lane.

6.4.1.1 *Noise and vibration disturbance*

There is potential for disturbance of otter and fish species which are qualifying features of the SAC from noise and vibration during the drilling phase. The zone of influence (Zol) of noise and vibration is considered likely to extend up to 500m.

The HDD section of the route is just to the north and runs parallel to the A477 bridge, an existing road with a substantial level of background noise, especially during working hours. Due to the nature of the installation parallel to the bridge (approximately 15-20m below the surface of the riverbed), disturbance of fish and otters is considered unlikely. In addition, the drilling will be rotary rather than percussive, which produces less noise and vibration. The drilling rig will be located at the drilling launch and reception compounds, located approximately 280m east and west of the Westfield Pill waterbody. As such, disturbance of fish and otter within Westfield Pill is considered unlikely (RSK Biocensus, 2026).

The proposed HDD location represents a very small area of the Milford Haven Inner waterbody and Otters using habitats in the vicinity are likely to be habituated to the existing levels noise.

Therefore, there would be no adverse effects on the integrity of the populations of otter or fish species associated with the Milford Haven Inner waterbody in relation to disturbance from noise and vibration.

6.4.1.2 *Visual disturbance*

There is potential for visual disturbance of otters from drilling activities and/or lighting the Zol for visual disturbance is considered likely to be up to 500m. There is existing visual disturbance from vehicles and lighting along the A477 bridge (south of the proposed HDD path). The launch and reception pits associated with the HDD crossing will be located within the Western Cleddau, Coastal streams of North Milford Haven - Llangwm Pill to St Anne's Head, Cleddau and Pembrokeshire waterbodies, and over 280m from the Milford Haven Inner waterbody; screened by both the woodland and the slope of the land.

The proposed construction works are temporary in nature, and most works will be undertaken during the core daytime hours of 08:00-18:00; at a maximum of 7 days a week. Should temporary lighting be required during construction, it will be positioned sensitively and directed downwards to minimise impacts of light pollution on wildlife.

Therefore, there would be no adverse effects on the integrity of the population of otters or fish associated with the Milford Haven Inner waterbody in relation to visual disturbance.

6.4.1.3 *Electromagnetic fields*

There is potential for disturbance of otter and fish species from EMF during the operational phase. The Zol of EMF is considered to be adjacent to the proposed cable route under Westfield Pill. Electromagnetic fields from buried cables have the potential to disturb fish and otters through changes in behaviour.

Electric fields

The cable will have an insulating layer, which would eliminate the electric field (National Grid 2015). Furthermore, burying the cable 15-20m below the river bed would further ensure the electric field does not reach the water column. Therefore, there would be no potential adverse effects on qualifying species of the Milford Haven Inner from electric fields.

Magnetic fields

Magnetic fields occur naturally; the Earth's magnetic field, which is caused mainly by currents circulating in the outer layer of the Earth's core, is approximately 50 microTeslas (μT) in the UK. Unlike electric fields, the magnetic field produced by an underground cable is not shielded by the cable insulation and can move through substrates, extending directly above the cable and to either side, with the strongest magnetic field detected directly above the cable location (Energy networks association, 2017).

The cables for the proposed development will be between 15-20m below the river bed; much greater than the minimum recommend depth of 1m. The level of magnetic field is typically approximately $24\mu\text{T}$ for a 400kV cable and $4.1\mu\text{T}$ for a 132kV underground cable (under normal conditions). Both of these magnetic fields are far less than natural background levels (RSK Biocensus, 2026).

Therefore, there would be no adverse effects on the integrity of the populations of otters and fish species associated with the Milford Haven Inner waterbody in relation to EMF.

6.4.1.4 *Pembrokeshire Marine/ Sir Benfro Forol Special Area of Conservation Conclusion*

Taking into consideration the likely zone of influence for each potential impact pathway, only the closest European site, Pembrokeshire Marine/Sir Benfro Forol SAC, was scoped into the screening assessment (RSK Biocensus, 2026).

On completion of the Stage 1 screening assessment, it was concluded that the potential for likely significant effects could not be ruled out (either alone or in combination) for the Pembrokeshire Marine/Sir Benfro Forol SAC in relation to:

Construction phase:

- Noise and vibration disturbance (sea and river lamprey, allis and twaite shad, and otter)

- Visual disturbance (otter).

Operational phase:

- EMF (sea and river lamprey, allis and twaite shad, and otter).

Stage 2 Appropriate Assessment of the Habitats Regulations Assessment process was therefore required for these impacts.

The Stage 2 Appropriate Assessment concluded that there would be no adverse impacts (alone or in combination) on the integrity of the Pembrokeshire Marine/Sir Benfro Forol SAC as a result of the proposed development.

6.4.2 Milford Haven Waterway Site of Special Scientific Interest

The Pembrokeshire Marine/Sir Benfro Forol SAC is underpinned by Milford Haven Waterway SSSI, both are located 18m north of the proposed HDD path. The SSSI extends from the upper reaches of the Daugleddau at Haverfordwest (west) and Blackpool Mill (east) to the mouth of the Haven at Dale Point and Thorn Island (Cyngor Cefn Gwlad Cymru & Countryside Council for Wales, 2002); features of special interest include:

- Geology
- Ancient woodland
- Saltmarsh
- Swamp
- Saline lagoon
- Migratory waterfowl
- Greater and lesser horseshoe bats (*Rhinolophus ferrumequinum* and *R. hipposideros*)
- Otter (*Lutra lutra*)
- Rare plants and invertebrates.

6.4.3 Lower Cleddau Shellfish Waters Protected Area

Part of the HDD footprint (approximately 73m²) lies within the Lower Cleddau Shellfish Waters protected area; this area will account for 0.00018% of the total footprint of the protected area at approximately 41km².

There is potential for changes in water quality downstream of the proposed works, with the potential for adverse effects due to accidental breakout through the soil of pressurised lubricant liquid bentonite during the HDD drilling. The CEMP (National Grid, 2025a) includes standard water quality protection measures which will be implemented site wide; including:

- Measures to control surface water run-off
- Ensure safe storage of materials
- Details of spill and incident response procedures
- Pumping permits to ensure appropriate sediment control measures.

However, the bentonite is inert, at a depth of 15-20m, with low environmental risk associated and at a low volume compared to the water available within the protected area. Preventative and protective measures will also be in place before drilling in the event of an accidental breakout. Therefore, it is unlikely to reach the surface and enter the watercourse or cause adverse effects on the protected area and no negative impacts



on the water quality is anticipated from the materials used in the HDD works (RSK Biocensus, 2026).

Any potential effect on WFD water quality elements is considered to be temporary, low magnitude, and highly localised, with no significant or non-temporary deterioration expected. The activity is therefore not predicted to cause failure of any WFD water quality standards leading to the disturbance of shellfish populations.

7 Conclusion

This Technical Report has been prepared to satisfy the requirements laid out within the Habitats Directive and Water Framework Directive.

With regards to the WFD assessment, this Report concluded that no significant effects on the Milford Haven Inner, Western Cleddau, Coastal streams of North Milford Haven - Llangwm Pill to St Anne's Head, and Cleddau and Pembrokeshire waterbodies are predicted to occur as a result of the proposed works, assuming best practice environmental controls are implemented to limit sediment resuspension and prevent pollution incidents.

The Milford Haven Inner waterbody is currently at 'Moderate' ecological status, with a target of achieving 'Good' status by 2027. The proposed works are temporary, spatially restricted, in a high-energy marine environment, and are not planned to interact directly with the waterbody; minimising the potential for accumulation or long-term impact.

Potential pressures such as habitat disturbance, temporary fish behavioural effects, and short-term changes in water quality have been assessed and are not anticipated to lead to any significant or non-temporary changes to any biological, hydromorphological or physico-chemical quality elements. The nearby Pembrokeshire Marine/Sir Benfro Forol Special Area of Conservation, Milford Haven Waterway Site of Special Scientific Interest, and Lower Cleddau Shellfish Water Protected Area have all been considered within the assessment. No deterioration in water quality is anticipated that could compromise the protected area's ability to support protected populations or jeopardise their WFD objectives.

The works are within 2km of three WFD Protected Areas. However, there is no perceivable pathway for in-combination or cumulative effects in relation to the WFD.

Furthermore, the proposed works do not conflict with the measures set out in the Western Wales River Basin Management Plan for Milford Haven, which are largely aimed at reducing pollution from wastewater, urban runoff and diffuse sources (nitrate and phosphate pollution). The works are short-term and do not interact with these existing pressures or associated improvement measures.

It can therefore be concluded that the Milford Haven HDD proposed works will not cause a deterioration in the current WFD classification of the Milford Haven waterbodies, nor will they compromise the ability of the waterbody to achieve Good Status by 2027.

The proposed works are therefore considered compliant with the objectives and requirements of the Water Framework Directive and Habitats Directive.

8 References

- CYNGOR CEFN GWLAD CYMRU & COUNTRYSIDE COUNCIL FOR WALES (2002), *SITE OF SPECIAL SCIENTIFIC INTEREST SUMMARY CITATION PEMBROKESHIRE MILFORD HAVEN WATERWAY*. Available online: https://naturalresources.wales/media/639589/SSSI_0282_Citation_EN0010ded.pdf (accessed: May 2026).
- Environment Agency (EA) (2016), 'Water Framework Directive assessment: estuarine and coastal waters'. Guidance. Available online: <https://www.gov.uk/guidance/water-framework-directiveassessment-estuarine-and-coastal-waters> (accessed: July 2025).
- Energy networks association (2017), Electric and magnetic fields. Available online: https://www.emfs.info/sites/g/files/atxybb296/files/202403/EMF_The_Facts_250917.pdf (accessed: May 2026).
- Joint Nature Conservation Committee (JNCC) (2022), 'Marine Activities and Pressures Evidence (PAD) v1.5'. Available online: <https://hub.jncc.gov.uk/assets/97447f16-9f38-49ff-a3af-56d437fd1951> (accessed: May 2026).
- Joint Nature Conservation Committee (JNCC) (2026), Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) - Special Areas of Conservation. (n.d.). Available online: <https://sac.jncc.gov.uk/habitat/H1330/> (accessed: May 2026).
- Material Safety Data Sheet (MSDS) (2025), Bio-DRILL MSDS 06.05.2015.pdf – TA Drilling (Sales) Ltd.
- National Grid (2015), Underground high voltage electricity transmission lines. The technical issues. Issue 2015. Available online: 39111-Undergrounding_high_voltage_electricity_transmission_lines_The_technical_issues_INT.pdf (accessed: July 2025).
- National Grid (2025a), Golden Hill to Milford Haven 132kV Cable Reinforcement, Construction Environmental Management Plan (CEMP).
- Natural Resources Wales (NRW) (2018), Pembrokeshire Marine / Sir Benfro Forol Special Area of Conservation (pp. 2–131). Available online: <https://cdn.naturalresources.wales/687999/eng-pembrokeshire-marine-reg-37-report-2018.pdf> (accessed: May 2026).
- Natural Resources Wales (NRW) (2025), Wales Otter Survey. Occurrence dataset. Available online: <https://doi.org/10.15468/mkvhb4> accessed via GBIF.org on 2026-05-22 (accessed: May 2026).
- OCU Utility Services (2026a), 'WESTFIELD PILL, PEMBROKE - Method Statement & Risk Assessment'.
- OCU Utility Services (2026b), 'WESTFIELD PILL, PEMBROKE - HDD Lost fluid procedure'.
- RSK Biocensus (2026), 'PEMBROKE 132KV CABLE REINFORCEMENT Habitats Regulations Assessment - Information to Inform an Appropriate Assessment'.
- Thompson, D. & Sea Mammal Research Unit (2025), Census of grey seals (*Halichoerus grypus*) around Wales during August 2023 using aerial survey. In T. Stringell (Ed.), NRW Evidence Report Series (No. 865; pp. 1–28). Natural Resources Wales. Available online: <https://cdn.cyfoethnaturiol.cymru/v3dkzlyh/grey-seal-aerial-survey-2023-wales-accessible-final-aug-2025-1.pdf> (accessed: May 2026).



Warwick, R.M., Tweedley, J.R., Camplin, M. and Bullimore, B. (2025), January. Ecological Condition of the Benthos in Milford Haven Waterway: the Centre of the UK's Oil and Gas Industry in an Area of High Conservation Value. In *Oceans* (Vol. 6, No. 1, p. 2). MDPI.