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Dovey Junction Tidal Flap Replacement (0704) Water Framework Directive (WFD)





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1. INTRODUCTION

- 1.1.1 EcoVigour was instructed by MGroup – Rail Division to undertake a Water Framework Directive Assessment (WFD) for the scheduled remedial works to the Dovey Junction North Tidal Flap.
- 1.1.2 This assessment includes a summary of the current local conditions and, where appropriate, identifies mitigation measures for any likely significant effects (LSE) that may arise as part of the construction and operation of the Proposed Scheme. This WFD Assessment is required to demonstrate that the proposed works will not result in deterioration in the water body status and adjoining water bodies or prevent them from meeting their Water Framework Directive objective.
- 1.1.3 The main watercourse of concern is the Afon Dyfi, which flows directly below the structure in question and eventually flows into Pembroke Bay.

1.2 PROJECT CONTEXT

- 1.2.1 Network Rail engineers have designated the specific components making up the structure (Railway Tidal Flap) at Dovey Junction as “Operationally Life Expired”, consequently, through the CP7 framework, Network Rail have commissioned the principal contractor (MGroup Ltd) to undertake a full replacement of the tidal flap, headwalls, and relining of the culvert barrels.



Figure 1: Dovey Junction Tidal Flap.



- 1.2.2 The Tidal Flap Replacement is scheduled to be undertaken between February 2027 to later February 2027. This will occur during a scheduled rail blockage which will be undertaken along wider sections of the DJP line section.
- 1.2.3 Preparation works and de-mobilisation of project assets will occur before and after the possession dates as those tasks will not relate to an open rail corridor.
- 1.2.4 MGroup will undertake remedial measures to the concrete culvert and tidal flap. These works will broadly involve:
- ◆ Replacement of headwall and provision of new pre-cast wingwalls,
 - ◆ Installation of a metal handrail and safety fencing,
 - ◆ Rebuilding of cess (if required),
 - ◆ Repair or relining of culvert,
 - ◆ Localised vegetation clearance for material laydown as required.
- 1.2.5 Please refer to 0704 HRA for further information on project methodology.



2. INTRODUCTION TO THE WATER FRAMEWORK DIRECTIVE

2.1 THE WATER FRAMEWORK DIRECTIVE

- 2.1.1 The Water Framework Directive (WFD) (Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000) is a European Union Directive which committed member states to achieve good qualitative and quantitative status of all water bodies by 2015. Under the Directive water bodies are defined as all ground and surface waters, including rivers, lakes, transitional waters and coastal waters (up to one nautical mile from shore).
- 2.1.2 It was not possible to achieve good status of all water bodies by 2015; therefore, outstanding water bodies have objectives set for 2021 or 2027. Interim assessments were undertaken in 2024.
- 2.1.3 The WFD is transposed into law in England and Wales by The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (the 2017 Regulations). These revoke and replace The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003 (subject to transitional provisions in article 38 of the 2017 Regulations).

2.2 SCOPE OF THIS ASSESSMENT

- 2.2.1 All new activities in the water environment need to take account of the requirements of the WFD. For a project or activity to be compliant with the WFD, it should demonstrate that:
- ◆ There is no risk of it causing a deterioration of the status of any element, in addition, for groundwater, it will limit or prevent the input of pollutants;
 - ◆ There is no risk of it preventing WFD protected areas from achieving their objectives;
 - ◆ It will not jeopardise any waterbody from achieving good status/potential; and
 - ◆ It will contribute to the protection, enhancement and restoration of waterbodies.
- 2.2.2 This WFD Assessment considers all activities that will take place as part of the proposed scheme, during both construction and operation, and identifies the potential risks associated with these activities and the WFD receptors that are at risk.
- 2.2.3 The NRW guidance includes detailed screening criteria that can be used to determine whether a proposed activity is not likely to cause a deterioration in the status of a waterbody. This includes a list of activities that in general will not cause a deterioration, such as 'temporary' works that do not normally last more than six months and are not likely to have a residual impact on a waterbody. The guidance also lists other physical works and defines screening thresholds for each; these thresholds help to determine whether any activity presents a risk to a waterbody and any requirements for further assessment. However, these thresholds are for guidance only and expert judgement is required to determine if a proposed activity may have an impact on a waterbody.
- 2.2.4 Published guidance also states that the assessment must consider the potential for impacts on the following:
- ◆ Protected Areas – these are defined under Article 6 of the Directive.
 - ◆ Priority Habitats – these are 'habitats of principal importance for conservation and biodiversity', which are defined under Section 41 of a Natural Environment and Rural Communities (NERC) Act 2006 in England and Section 7 of the Environment (Wales) Act 2016 in Wales.
 - ◆ Invasive non-native species (INNS) – assessment of INNS is required if a development could cause the introduction or spread of INNS to a waterbody.



- 2.2.5 A detailed Compliance Assessment would be required if it cannot be concluded that the scheme would not cause deterioration or inhibit the objective status of a waterbody. Further to this and in line with WFD requirements, there would be a need to apply the Article 4.7 test to seek approval for progression of the scheme if after the full WFD

2.3 DETERMINATION OF GOOD STATUS

- 2.3.1 Good status is determined from the ecological and chemical status of surface waters. These statuses are assessed according to the following criteria:
- ◆ Biological quality (fish, benthic invertebrates, aquatic flora);
 - ◆ Hydromorphological quality (e.g. riverbank structure, river continuity and substrate of the riverbed); and
 - ◆ Physical-chemical quality (e.g. temperature, oxygenation and nutrient conditions).
- 2.3.2 The chemical quality refers to environmental quality standards for river basin specific pollutants. These standards specify maximum concentrations for specific water pollutants. The WFD works on a 'one out, all out' basis, so if one such concentration is exceeded, then the water body will not be classed as having a good status. The chemical status of surface waters is therefore classified as good or fail.
- 2.3.3 The ecological status of surface waters is classified as being high, good, moderate, poor or bad, whilst water bodies that have been modified (e.g. canals or contain significant flood defences) are classed as 'Heavily Modified Water bodies' (HMWB) and have to reach at least good potential by their objective year.



3. ASSESSMENT METHODOLOGY

3.1 METHODOLOGY

3.1.1 This WFD Assessment was completed using the following methodology:

- ◆ The collection of baseline data to identify the current status, as well as future baseline and ability of the water bodies within and in close proximity to the proposed works to meet the WFD objectives;
- ◆ A Consultation with relevant authorities;
- ◆ The review of the proposed works and the potential impacts to the identified surface and groundwater bodies; this involves identifying the impacts that could reduce the WFD status and affect the ability of the water bodies to meet the objectives of the WFD;
- ◆ The consideration of mitigation that can be included in the design, and
- ◆ The provision of an assessment of residual risks.

3.1.2 This assessment has been prepared using the following WFD screening/scoping assessment guidance:

- ◆ Guidance for assessing activities and projects for compliance with the Water Framework Directive, OGN72, Version 1.1, May 2017, Natural Resources Wales.
- ◆ Advice Note 18: The Water Framework Directive, Version 1, June 2017, The Planning Inspectorate. Available at: https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2017/06/advice_note_18.pdf
- ◆ Local Authority services and the water environment: Advice note on the Water Framework Directive, Natural Resources Wales. Available at: <https://naturalresources.wales/media/2627/wfd-docs-eng.pdf>
- ◆ Water Framework Directive assessment: estuarine and coastal waters – How to assess the impact of your activity in estuarine (transitional) and coastal waters for the Water Framework Directive (WFD), 9 November 2017, Environment Agency.
- ◆ Available at: <https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters>.



- 4.1.4 The West Wales Marine (WWM) SAC boundary is outside of the project boundary but is however connected via the Dyfi estuary. Although this site will not be discussed specifically, this assessment does acknowledge the importance of the marine site and consequently, the mitigative measures to be implement for the project will ensure the protection of the key habitat and species features outlined within the WWM conservation objectives.

4.2 CURRENT ON SITE CONDITIONS

- 4.2.1 An initial site walkover was undertaken on the 03/05/26 to inform this Appropriate Assessment. The figures below illustrate the habitat polygons available via the Lle Data portal and images from the walkover with further disruption.

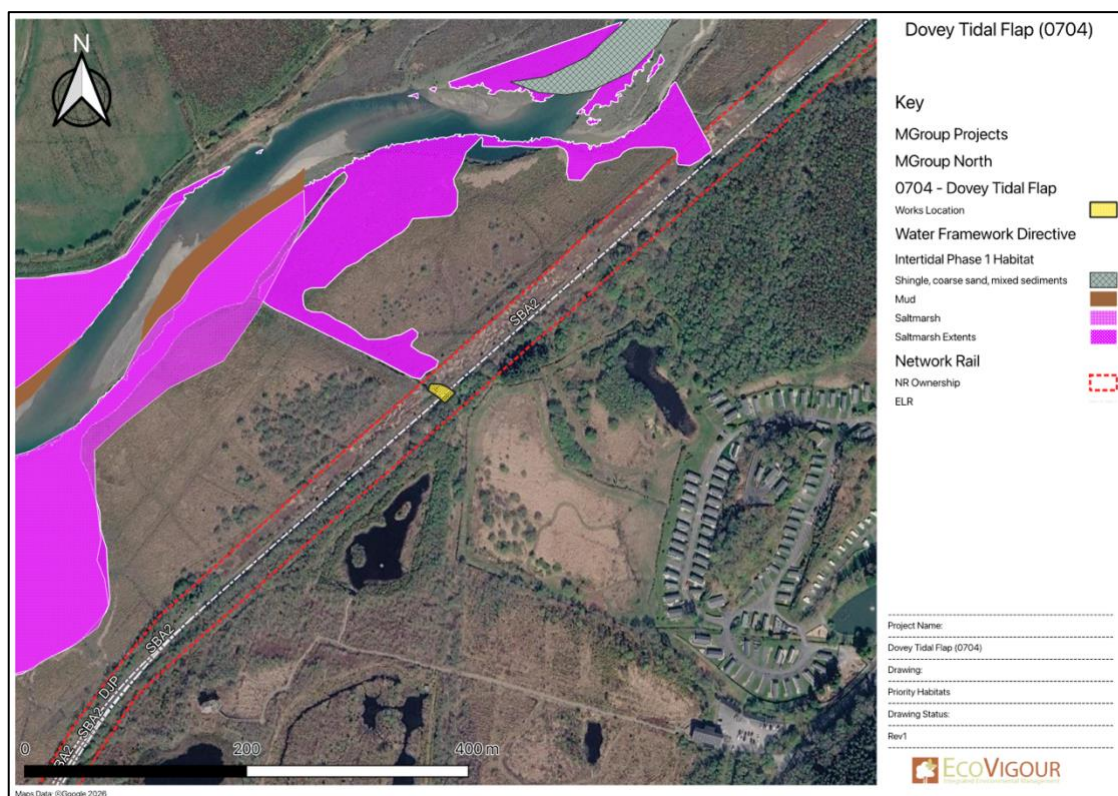


Figure 3: Map data via Lle Portal.

- 4.2.2 The available data sets in this area a primarily limited to Saltmarsh units, however there are defined mudflat units further upstream and downstream of the structure. The figure above should be viewed has a broad overview as several habitats are missing.



Figure 4: Tidal flap and headwall to be replaced.



Figure 5: Adjacent reed bed habitat.



Figure 6: Downstream tidal flap in distance.



Figure 7: Surrounding Rail Corridor.



4.3 Dyfi SSSI

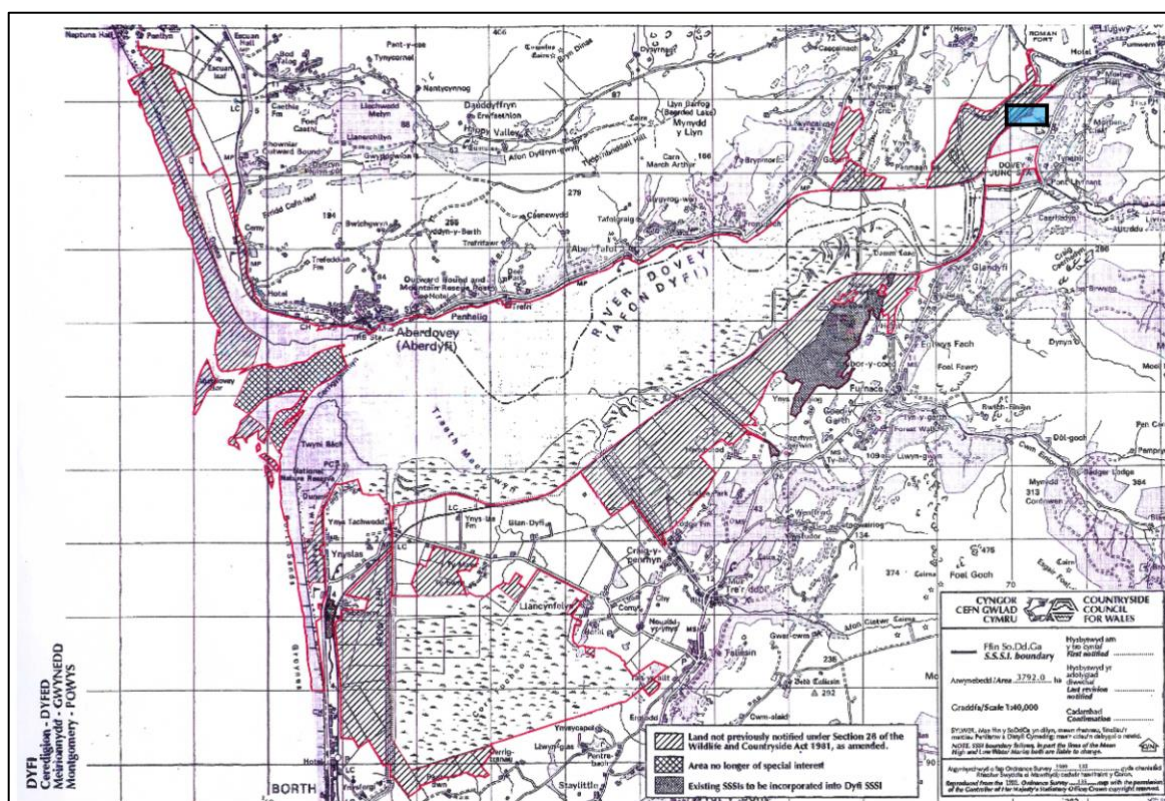


Figure 8: Project in wider context to the SSSI.

- 4.3.1 The Dyfi estuary is designated as a SSSI due to its diverse biological and geological features. It is outstanding for the size, range and the quality of its habitats and their transitions, and for its botanical, entomological and ornithological interest.
- 4.3.2 The estuary of the River Dyfi includes a range of habitats, with river channels and creeks, and extensive areas of sandbanks, mudflats and saltmarsh, including by far the largest area of saltmarsh in Ceredigion.
- 4.3.3 Within the Site Management Statement (SMS), the features below are listed which form the overall status of the designated site:
- ◆ Post-glacial geology
 - ◆ The Estuary
 - ◆ Saltmarshes
 - ◆ Sand-dunes
 - ◆ Estuarine raised bogs
 - ◆ Lower Plants
 - ◆ Higher Plants
 - ◆ Otter populations
 - ◆ Wintering wildfowl populations
 - ◆ Breeding bird assemblage
 - ◆ Reptile assemblage
 - ◆ Invertebrate assemblage of bog/wetland habitats
 - ◆ Invertebrate assemblage of dune habitats
- 4.3.4 From the available habitat data and on-site walkovers, the relevant habitat from the SMS in proximity to the project area are:
- ◆ The Estuary
 - ◆ Intertidal mud flats
 - ◆ Salt marsh



- 4.3.5 There is a list of potential damage vectors to the designated site highlighted within the SMS Potentially Damaging Operations (PDO) list. Below are the activities considered relevant to the proposed project (**Error! Reference source not found.** below).

Table 1: Potentially Damaging Operations (PDO) list.

SMS Ref No:	Type of operation
21.	Destruction, construction, removal, rerouting, or regrading of roads, tracks, walls, fences, hardstands, banks, ditches or other earthworks, including soil and rock exposures.
22.	Storage of materials.
23.	Erection of permanent or temporary structures or the undertaking of engineering works, including drilling or the laying, maintenance or removal of pipelines and cables, above or below ground.
24.	Modification of natural or man-made features (including cave entrances) and clearance of boulders, large stones, loose rock or scree and the battering, buttressing or grading of geological exposures.
26.	Use of vehicles or craft.

- 4.3.6 Note: All the above operations occur outside of the designated boundary, with no physical works interacting with the designated or highlighted intertidal habitat above.
- 4.3.7 Mitigation measures for SSSI features which overlap SAC are discussed further in section 13.



4.4 LLEYN PENINSULA AND THE SARNAU (SAC)

- 4.4.1 The Llyn Peninsula and the Sarnau SAC is comprised of sea, coast and estuary that supports a wide range of marine habitats and dependant wildlife. The nature of the seabed and coast including the range of environmental conditions present vary throughout the SAC. (See figure 3) for project location in relation to the SAC boundary). For the qualifying habitats and species listed in the table below (**Error! Reference source not found.**), the Llyn Peninsula and the Sarnau SAC is one of the best areas in the United Kingdom.

Table 2: PLAS Annex I & II Features.

EU Code	Feature
Annex I habitats that are a primary reason for selection of this site	
1110	Sandbanks which are slightly covered by sea water all the time
1130	Estuaries
1150	Coastal lagoons (* Priority feature)
1160	Large shallow inlets and bays
1170	Reefs
Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site	
1140	Mudflats and sandflats not covered by seawater at low tide
1310	Salicornia and other annuals colonizing mud and sand
1330	Atlantic salt meadows (Glauco-Puccinellietalia maritimae)
8330	Submerged or partially submerged sea caves
Annex II species present as a qualifying feature, but not a primary reason for site selection	
1349	Bottlenose dolphin (Tursiops truncatus)
1355	Otter (Lutra lutra)
1364	Grey seal (Halichoerus grypus)

- 4.4.2 As the projected occur directly adjacent to the SAC, it is necessary to identify any Annex I & II features that could be impacted.
- 4.4.3 Annex II species will be assumed as these species are highly mobile. The Annex I habitat however are discussed in the following subsections.



5 BASELINE CONDITIONS

5.1 WFD STATUS OF WATERBODIES

- 5.1.1 Data on the location and status of WFD waterbodies and WFD Protected Areas has been obtained from the Water Watch Wales website (Waterwatchwales.naturalresourceswales.gov.uk) and the Multi-Agency Geographic Information for the Countryside (MAGIC) website (magic.defra.gov.uk/MagicMap.aspx).
- 5.1.2 Table 3 (below) presents summary information on the current WFD status of each of the constituent quality elements of the waterbodies downstream of the works. This information has been obtained from the Water Watch Wales website. Each of the quality elements will be assessed to determine whether the proposed scheme has the potential to adversely affect their status.



Table 3: Summary of the WFD status of the rivers / watercourses flowing via connected watercourses from the structure.

Waterbody name, ID, Type, Management Catchment, River Basin District.	Hydro-morphological designation	Current overall status & objectives	Biological elements	Physico-chemical elements	Water body Protected Area Links
Dyfi & Leri (GB511006407000) Type: Transitional (Estuary) Man Catchment: Meirionnydd Transitional Coastal RBD: Western Wales Area Name: WA North	Not designated as heavily modified Morphology = Not High Hydrological Regime = Not High	Current overall status = Moderate; Current ecological status = Good; Current chemical status = Fail;	Fish = Not assessed Macroalgae = Good Phytoplankton = Not assessed Opportunistic Macroalgae = High Invertebrates = High Infaunal Quality Index = High Salt Marsh	Dissolved oxygen = High Dissolved Inorganic Nitrogen – High Annex 8 Chemicals = High Copper = High Zinc = High Cadmium = High Brominated diphenylether (BDPE) Calc = Moderate Benzopyrene = High Hexachlorobutadiene = High Hexachlorobenzene = high Mercury = High Fluoranthene = High Lead = High Nickel = High	Protected Area = Yes Bathing Waters = Yes Special Protection Area = No Drinking Water Protected Area = No Special Area of Conservation = Yes Nitrate Vulnerable Zone = No Shellfish Water = Yes
Cardigan Bay North (GB621009600000) Type: Coastal Man Catchment: Western Wales TraC RBD: Western Wales Area Name: WA North		Current overall status = Moderate; Current ecological status = Good; Current chemical status = Fail (TBT);	Fish = Not assessed Macroalgae = High Phytoplankton = High Rocky Shore Macroalgae = High Opportunistic Macroalgae = High Invertebrates = Good Infaunal Quality Index = Good Imposex = Good	Dissolved oxygen = High Dissolved Inorganic Nitrogen – Good Annex 8 Chemicals = High Arsenic = High Copper = High Iron = High Zinc = High Cadmium = High Brominated diphenylether (BDPE) Calc = Moderate Hexachlorobutadiene = High Hexachlorobenzene = high Mercury = High Fluoranthene = High Lead = High	Protected Area = Yes Bathing Waters = Yes Special Protection Area = No Drinking Water Protected Area = No Special Area of Conservation = Yes Nitrate Vulnerable Zone = No Shellfish Water = Yes





Waterbody name, ID, Type, Management Catchment, River Basin District.	Hydro-morphological designation	Current overall status & objectives	Biological elements	Physico-chemical elements	Water body Protected Area Links
				Nickel = High	
Meirionnydd (GB41002G203200) Type: Groundwater Man Catchment: Meirionnydd Ground Water RBD: Western Wales		Current overall status = Poor; Current Quantitative status = Good Current chemical status = Poor.			Protected Area = Yes Special Protection Area = Yes Drinking Water Protected Area = Yes Special Area of Conservation = Yes Nitrate Vulnerable Zone = No



6 WATER FRAMEWORK DIRECTIVE ASSESSMENT: SCOPING FOR ACTIVITIES IN ESTUARINE AND COASTAL WATERS

Consider the potential risks of your activity to each of these receptors: hydromorphology, biology (habitats and fish), water quality and protected areas. Also consider invasive non-native species (INNS).

6.1 SECTION 1: HYDROMORPHOLOGY

6.1.1 The first stage is to consider if there is hydromorphology at risk from your activity.

Table 4: Summary table to find out the hydromorphology status of the water body, if it is classed as heavily modified and for what use.

Consider if your activity:	Hydromorphology risk issue(s)
Could impact on the hydromorphology (for example morphology or tidal patterns) of a water body at high status	There will be no changes to the below MHWS sections of the structures. During construction and temporary works at MHWS will be removed at the end of each shift. The works will therefore not impact the hydromorphology of the bay or the watercourse.
Could significantly impact the hydromorphology of any water body	Please see above - No impacts on any other water bodies.
Is in a water body that is heavily modified for the same use as your activity	The bay is considered to be heavily modified.



6.2 SECTION 2: BIOLOGY, HABITAT & FISH

6.2.1 The second stage is to consider if habitats, Biology and Fish Species are at risk from your activity. The figures and tables below illustrate and discuss the features present within the relevant units.

Table 5: Water body summary table and Magic maps, or other sources of information if available, to find the location and size of these habitats.

Area Name & ID		Milford Haven Inner (GB531006114100)	
Higher sensitivity habitats		Lower sensitivity habitats	
Habitat Type	Potential Impacts	Habitat Type	Potential Impacts
Saltmarsh	Potential for indirect impacts due to chemical and hydrocarbon emissions from the works, if sufficient controls are not put in place.	Intertidal Soft Sediment (Sand, Mud & Mixed A2.2, A2.3, A2.4)	Potential for indirect impacts due to chemical and hydrocarbon emissions from the works, if sufficient controls are not put in place.
Seagrass beds (LS.LMp.LSgr.Znol)	Potential for indirect impacts due to chemical and hydrocarbon emissions from the works, if sufficient controls are not put in place.		
Chalk reef	Potential for indirect impacts due to chemical and hydrocarbon emissions from the works, if sufficient controls are not put in place.		
polychaete reef	Potential for indirect impacts due to chemical and hydrocarbon emissions from the works, if sufficient controls are not put in place.		
Subtidal kelp beds	Potential for indirect impacts due to chemical and hydrocarbon emissions from the works, if sufficient controls are not put in place.		
Subtidal seagrass	Potential for indirect impacts due to chemical and hydrocarbon emissions from the works, if sufficient controls are not put in place.		

² Higher sensitivity habitats have a low resistance to, and recovery rate, from human pressures.

³ Lower sensitivity habitats have a medium to high resistance to, and recovery rate from, human pressures.



Table 6: Biology.

Consider if the footprint ⁴ of your activity is:	Biology habitats risk issue(s)
0.5km ² or larger	The total licensed area of the at and to access the structure is approximately 350m ² and hence the worksite will be below 0.5km ² (500000m ²).
1% or more of the water body's area	The transitional waterbody covers an area of approximately 14434748m ² . The footprint of the works is therefore less than 1% of the defined area.
Within 500m of any higher sensitivity habitat	Works will be undertaken within the following designated sites: ◆ Dyfi Site of Special Scientific Interest (SSSI). ◆ Pen Llyn a'r Sarnau / Lleyrn Peninsula and the Sarnau (PLAS) Special Area of Conservation (SAC). ◆ Aber Dyfi Special Protection Area (SPA). ◆ Cors Fochno and Dyfi RAMSAR. The impact of the works on the SSSI and SAC are considered in the sections below.
1% or more of any lower sensitivity habitat	

⁴ Note that a footprint may also be a temperature or sediment plume. For dredging activity, a footprint is 1.5 times the dredge area.



Table 7: Potential fish species at risk from your activity, but only if your activity is in an estuary or could affect fish in or entering an estuary.

Consider if your activity:	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	There will be no physical blocks to fish migrating through the estuary. No works will be undertaken within the estuary channel. We do not have data on the use of the un-named watercourse flows through the culvert and tidal flap, but in consideration of the nature of tidal flaps, consider that it is unlikely that it is extensively used by migratory fish. Works within the estuary will predominantly be undertaken outside the key fish migratory periods, but will occur within the migratory period of some fish species known to use the area. As works will be undertaken at essentially, an impermeable barrier, along a section of upstream watercourse, not linked to the main channel, there will be a negligible direct impact on fish, except potential water quality (which will be addressed via pollution control measures). Error! Reference source not found.
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)	Please refer to information above. Works will not cause a barrier to migrating fish species.
Could cause entrainment or impingement of fish	No identified impacts.



6.3 SECTION 3: WATER QUALITY

6.3.1 Stage 3 - Consider if water quality is at risk from your activity.

Table 8: Water body summary table to find information on phytoplankton status and harmful algae.

Consider if your activity:	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)	Sediment Release: Very limited, with only earth along the vegetated bank being directly interfaced with. Use of Hydrocarbons: No refuelling of equipment will occur within the bay. All items of static equipment will be placed within a plant nappy when not in use. Fuelled equipment will be checked for defects and leaks prior to the start of each shift. Within the compound, a refuelling procedure will be implemented, whereby plant nappies will be placed beneath fuelling apertures during fuelling and refuelling will only be undertaken by designated, trained individuals using equipment specifically designed for that purpose. Network Rail have a spillage plan and specialised contractor in place to respond to and clean up spills. Impact Assessment – To assess the potential impacts of these activities, the following should be considered: Fuel powered equipment will be used on the asset within the estuary/bay and hence there is a heightened risk of hydrocarbon release due to leaks of fuels and oils. The contractor will refer to guidance from: ◆ GPP 2 - Above ground oil storage tanks, ◆ GPP 5 - Works and maintenance in or near water, ◆ GPP 7 - Safe storage – The safe operation of refuelling facilities, ◆ GPP 21 - Pollution incident response planning, ◆ GPP 22 - Dealing with spills, ◆ GPP26 - Safe storage – drums and intermediate bulk containers.



Consider if your activity:	Water quality risk issue(s)
	This includes controls for the operation of equipment using biodegradable hydraulic oil (where this is within the manufacturers permitted specification), the re-fuelling of equipment, inspection and maintenance routines to identify defects which could result in the release of liquids, biosecurity protocols, silt mitigation procedures, waste management procedures. The ESMP also includes details on incident response and reporting, including hydrocarbon spills, remediation and reporting to NRW. Conclusion: Provided detailed mitigation plans are developed as part of the Task Specific Method Statements, in line with the broad guidance above, risks to water clarity, temperature, salinity, oxygen levels, nutrients or microbial patterns have therefore been assessed as low.
Is in a water body with a phytoplankton status of moderate, poor or bad	N/A (No Data)
Is in a water body with a history of harmful algae	N/A



Table 9: Assessing whether water quality is at risk from your activity through the use, release or disturbance of chemicals.

If your activity uses or releases chemicals (for example through sediment disturbance or building works) consider if:	Water quality risk issue(s)
The chemicals are on the Environmental Quality Standards Directive (EQSD) list	Impact Assessment: Chemicals which will be taken into the estuary as part of the works will be: Hydrocarbons within machinery. Conclusion: Provided the project complies with the measures set out within the ESMP, which in turn contains guidance from the relevant GPPs, the risk of release of hydrocarbons and cementitious materials is low.
It disturbs sediment with contaminants above Cefas Action Level 1	Impact Assessment: There is a low risk of sediment release during disturbance to ground at the base of exaction where the old (defunct tidal flap) will be removed. Conclusion: Risks from sediment release are negligible.



Table 10: Assessing whether project falls within mixing zone.

If your activity has a mixing zone (like a discharge pipeline or outfall) consider if:	Water quality risk issue(s) /Assessment of Risk / Mitigation Proposals.
The chemicals released are on the Environmental Quality Standards Directive (EQSD) list	The works are maintaining an existing asset.

⁵ Carry out your impact assessment using the Environment Agency's surface water pollution risk assessment guidance, part of Environmental Permitting Regulations guidance.

6.4 SECTION 4: WFD PROTECTED AREAS

6.4.1 Stage 4 is to consider if WFD protected areas are at risk from your activity. These include:

- ◆ Special Areas Of Conservation (SAC)
- ◆ Special Protection Areas (SPA)
- ◆ Shellfish Waters
- ◆ Bathing Waters
- ◆ Nutrient Sensitive Areas

Table 11: Location of protected areas in your water body (and adjacent water bodies) within 2km of your activity.

Consider if your activity is: Within 2km of any WFD protected area ⁶	Protected areas risk issue(s)
- Llyn Peninsula and the Sarnau (SAC).	The works will be undertaken within the Llyn Peninsula and the Sarnau (SAC). It is not anticipated that there will be any direct impacts on the SAC but without sufficient controls in place, there is potential for the release of deleterious materials from the works. This is considered within the following sections and also in the Habitat Regulations Assessment for the scheme. Mitigation will be implemented through the project Social and Environmental Management Plan, which will include details derived from the WFD and HRA. This is produced closure to the works commencement.
Aberdyfi / Aberdyfi Rural Designated Bathing Waters	There is potential for impacts from the works due to the following: - Hydrocarbon release from plant and equipment – Plant will not enter the estuary and will only be operated within the rail corridor. Where possible, plant will be operated with biodegradable hydraulic oil. All plant will be less than 3 years old. - Hydrocarbon release from plant and equipment - A strict process for the inspection, maintenance and re-fuelling of plant has been included within the Environmental and Social Management Plan (ESMP). This also includes an Emergency



Consider if your activity is: Within 2km of any WFD protected area ⁶	Protected areas risk issue(s)
	Preparedness and Response process to be implemented in the case of an incident. This includes clean up and reporting of hydrocarbon spillage. Bulk fuel will be stored overnight in the main compound, remote from the estuary. If it is not possible for plant to return to the compound to re-fuel, fuel will be transported to the estuary worksite in a small bowser. - Chemical release – It will be required to make good the abutment to allow the installation of the pre-cast concrete bridge bearing sections. A marine grade, rapid set cement will be used for this, such as Webercem HB40 with Webercem fairing coat. Only small volumes of mortar are proposed to be utilised and will be cast above the above/landward of MHS. All shuttering will have a thorough pre-pour inspection by the Section Engineer or Temporary Works Coordinator prior to concrete being poured. Method Statements will detail the permitted rise rate for concrete pours and this will be controlled by the Section Engineer. Concrete used will be a rapid drying marine standard. No concrete / cementitious materials will be stored in areas within the tidal range of the estuary or in areas liable to flooding. - All plant, machinery, materials and wastes will be removed to the site compound during each shift and will be stored in covered, fenced skips to prevent them from becoming wind blown. - Reference has been made to GPP 2: Above ground oil storage tanks, GPP 5: Works and maintenance in or near water and PPG 6: Working at construction and demolition sites, GPP 7: Safe storage – The safe operation of refuelling facilities, GPP 21: Pollution incident response planning, GPP 22: Dealing with spills, GPP26: Safe storage – drums and intermediate bulk containers in the preparation of the ESMP.
Shellfish Waters	Impacts and proposed mitigation will be the same as for the Designated Bathing Waters area, above.

⁶ Note that a regulator can extend the 2km boundary if your activity has an especially high environmental risk.

6.5 SECTION 5: INVASIVE NON-NATIVE SPECIES (INNS)

6.5.1 Stage 5 is to consider if there is a risk your activity could introduce or spread INNS.

6.5.2 Risks of introducing or spreading INNS include:

- ◆ Materials or equipment that have come from, had use in or travelled through other water bodies.
- ◆ Activities that help spread existing INNS, either within the immediate water body or other water bodies.



Table 12: Risk from INNS.

Consider if your activity could:	INNS risk issue(s)
Introduce or spread INNS	No INNS have been identified within the worksite. The risk of introducing INNS into the estuary environment will be controlled through Biosecurity Best Practice - Equipment to be used within and adjacent to the estuary will be subject to the Check, Clean, Dry process and will be treated with an aquatic safe disinfectant such as Virkon S. A Biosecurity Management Plan has been prepared for the project, which assesses the risk from INNS and proposes mitigation for this. Please refer to Appendix A.

6.6 SUMMARY OF WFD PRE-ASSESSMENT FINDINGS

Table 13: Summary of Pre-Assessment Stage Findings.

Receptor	Potential risk to receptor?	Note the risk issue(s) for impact assessment
Hydromorphology	The repairs will connect to previous structure repairs along the lower defence alignment. There will be no new independent structures placed into the bay and no temporary structures such as scaffolding used.	Mitigation to be out in place to minimise impacts – Please refer to Table 15 for proposed mitigation.
Biology: habitats	No identified impacts on habitats, provided adequate pollution control measures are put in place i.e. sealed crash downstream of the structure, controls on the storage and use of hydrocarbons and chemicals, controls on the use of cements, grouts and concrete.	Mitigation to be specified within the Social and Environmental Management Plan (ESMP)
Biology: fish	No identified impact. There will be no physical blocks to fish migrating through the estuary/river. Key impacts on fish will therefore be noise and vibration from works and the use of a equipment near channel. As the works will occur during low tide, noise and vibration will not be transmitted directly into the water column.	As above
Water quality	Potential impacts to water quality has been assessed.	Mitigation for these potential impacts is described within Table 15.
Protected areas	Works will be undertaken within the Dyfi & Lynfi SSSI and Llyn Peninsula and the Sarnau (SAC)	Working procedures and mitigation to be put in place to minimise potential for sediment release



Receptor	Potential risk to receptor?	Note the risk issue(s) for impact assessment
		and hydrocarbon release. Mitigation described in Table 15.
Invasive non-native species	A Biosecurity Management Plan has been developed for the project, which includes INNS. Please refer to Appendix A.	Please refer to Biosecurity Risk Assessment

6.2.2 The WFD guidance stipulates if a pre-assessment has not identified any receptors at risk during scoping, you don't need to continue to the impact assessment stage and your WFD assessment is complete.

6.2.3 However, if the pre-assessment identifies one or more receptors at risk during scoping, you should continue to the impact assessment stage.

Table 14: Water Framework Directive (WFD) Assessment for the Meirionnydd groundwater waterbody.

WFD elements	Assessment
Chemical status	<u>Temporary impacts during construction</u> No identified impacts <u>Permanent effects during operation</u> No predicted impacts from the operation of the rail structure as it is not proposed to amend the finished level of the railway and hence no excavation will be required and hence no new conduits between the rail track and ground water will be formed. <u>Assessment outcome</u> No adverse effects on the chemical status of the groundwater body have been identified and therefore this is scoped out of further assessment.
Quantitative status	<u>Temporary impacts during construction</u> No interaction with groundwater during construction. <u>Permanent effects during operation</u> No predicted impacts from the operation of the rail structure. <u>Assessment outcome</u> Effects to the quantitative status of the groundwater body have been scoped out of further assessment.



7 PROPOSED PROJECT MITIGATION

7.1 CONSTRUCTION PHASE MITIGATION

7.1.1 In Table 15 below, measures have been set out detailing mitigation to be implemented to minimise the potential project impacts.

Table 15: Proposed Mitigation Matrix.

Potential Hazard	Mitigating Circumstances / Mitigation Measures	Likelihood of Impact with Mitigation
Estuarine habitat - Loss of habitat from project activities.	During the project, all welfare, storage, parking and general works will occur within third party agricultural fields and the immediate area below the structure during low tide only. No Annex I habitat removal is required. The only physical interaction with the watercourse bed will be during the low tide periods where the old tidal flap and head wall will be removed. Plant/machinery will not deviate from the designated routes at any time (the rail line itself). Personnel will walk into the designated site boundary, but will avoid area of defined saltmarsh.	Negligible likelihood of significant impacts.
Salt marshes (also part of estuarine habitat) - Loss of habitat from project activities.	No loss of habitat is projected to occur as all site access takes place landward of the proposed works.	Negligible likelihood of impacts, with suitable mitigation in place.
Mudflats and sandflats not covered by seawater at low tide – muddy gullies in the Estuary - Loss of habitat from project activities.	Access will be limited to the existing footpaths, roads rail lines. is no direct access into the lower river or Dyfi itself.	Negligible likelihood of impacts.
Release of contaminative chemicals from sediments within the estuary/river	Unlikely for significant release to limited footprint of works.	Negligible likelihood of impacts with mitigation in place.
Contamination of the estuary from spillage of hydrocarbons during refuelling of plant and equipment or due to equipment failure.	Plant/Machinery will only operate from the rail line itself. No refuelling of plant machinery or equipment will occur within the estuary habitat. All items of static plant will be paced within a plant nappy when in use or being stored. Plant will be checked for defects and leaks prior to the start of each shift.	Negligible likelihood of impacts with mitigation in place.



Potential Hazard	Mitigating Circumstances / Mitigation Measures	Likelihood of Impact with Mitigation
	Bulk fuels will be stored in a bowser with secondary containment. This will be located in the site compound. Within the compound, a refuelling procedure will be implemented, whereby plant nappies will be placed beneath fuelling apertures during fuelling and refuelling will only be undertaken by designated, trained individuals using equipment specifically designed for that purpose. Network Rail have a spillage plan and specialised contractor in place to respond to and clean up spills. The Contractor will develop and implement an Emergency Awareness and Response Plan. This will describe how spills will be contained and cleaned up. The emergency plan will appoint an Incident Coordinator, define roles and responsibilities during an incident, detail response procedures and contain an inventory of response equipment to be maintained on site. Plant will also be available to remove contaminated ballast from site if required. All machinery entering the estuary will undergo regular checks and only use approved biodegradable oils. If oil leaks or damage to hydraulic hoses is noted, plant and machinery will be removed from the site and isolated within the site compound with containment measures beneath the leak, until it has been repaired and signed off by a competent fitter. The contractor will develop and emergency response plan in the event a machine becomes standard in the estuary from mechanical failure. Equipment will be available to syphon the fuel from the disabled machine in order to reduce the potential release of hydrocarbons into the estuary/bay.	
Contamination of the estuary from release of concrete.	Works will only occur during low tide conditions. Concrete used will be a rapid drying marine standard which will have cured by the time the tide returns to the working area. No concrete / cementitious materials will be stored in areas within the tidal range of the estuary or in areas liable to flooding.	Negligible likelihood of impacts with mitigation in place.
Aggregations of non-breeding birds Noise disturbance / Visual Disturbance / Habitat Destruction.	Project activities will create a source of light and noise over 24hr hours during the day. Times will vary depending on specific tasks. Working hours will be generally between 07:00-19:00, but will have to be dictated by times. Over-pumping may be required over night, as part of extended working hours. To ensure the fitment of the new headwall and tidal flap is successful. It is likely that local bird populations are habituated to a level of human activities.	Negligible likelihood of impacts with mitigation in place.
Individual wintering birds - Noise disturbance / Visual Disturbance / Habitat Destruction.	The works are scheduled to occur within circa February-latter February 2027, outside of the important peak wintering period.	Impact Not Likely to be Significant



Potential Hazard	Mitigating Circumstances / Mitigation Measures	Likelihood of Impact with Mitigation
Otter - Noise disturbance / Visual Disturbance / Habitat Destruction.	Toolbox Talks will inform site personnel on identifying the Annex II Species. No otter holts have been noted to date within proximity to the structure, access route or Morfa Compound area. The project does not represent a hard boundary preventing access to the wider estuary by this species. Habitat impact is limited, however there may be a temporary impact to prey species disturbed by ongoing works. It is not anticipated that these works will have an impact on the population. Additionally, no equipment or excavation will be left in such a manner that during high tide an animal could become snared and trapped within the working area. Should an Otter be encountered during works, personnel will temporarily stand down until the animal has vacated the immediate area under its own volition. Salmon, which are a prey of Otter will not be prevented from travelling up the estuary during the project. Although there will be an elevated human presence around the structure, it is unlikely that this will present an impassable barrier to salmon migrating to spawn. Directional lighting measures as with those proposed for bat species will be implemented for Otter population to limit disturbance.	Impact Not Likely to be Significant, with appropriate mitigation
Fish Assemblage – Pollution and water quality impacts.	Pollution control and Biosecurity measures implemented as described above will minimise water quality impacts on fish species.	Impact Not Likely to be Significant, with appropriate mitigation
Fish Assemblage - Noise disturbance / Visual Disturbance / Habitat Destruction.	The works will be undertaken towards the start of the fish spawning season for migratory fish such as salmon, trout and eel (mid Oct – Mid April). However, no working at the structure within the normal tidal limits. Task lighting will be designed to illuminate the works area but limit light spill into the estuary.	Works have potential to cause a Minor Significant impact.
Fish Assemblage - Contamination of the estuary from spillage	See comments under estuarine habitat	Impact Not Likely to be Significant
Biosecurity	A detailed Biosecurity Plan has been prepared for the project. This includes the following: - All site personnel and site visitors will be informed of any known INNS present on site and that they are jointly responsible for preventing their spread/impacts. They will be made aware of what these species look like so they can avoid it where possible and take appropriate actions. - All site personnel and visitors will be inducted in good biosecurity practices. This will include adoption of the CHECK-CLEAN-DRY campaign (NNSS, 2015). - The CHECK-CLEAN-DRY poster will be displayed in the site office as a reminder of good biosecurity practices: - http://www.nonnativespecies.org/checkcleandry/ - All equipment, tools, vehicles and personal protective equipment (PPE) used on site will be checked for seeds originating from any identified INNS	Impact Not Likely to be Significant



Potential Hazard	Mitigating Circumstances / Mitigation Measures	Likelihood of Impact with Mitigation
	before leaving the area. If seeds from identified invasive species are identified, the items will be cleaned and removed seeds will be destroyed. - The spread of waterborne diseases will be limited through the adoption of the CHECK-CLEAN-DRY campaign. This would entail the use of a suitable disinfectant e.g. Virkon® S Aquatic to decontaminate all machinery and PPE prior to it entering site and upon leaving site. Following application of a suitable disinfectant, machinery and PPE will be allowed to fully dry for at least 72 hours before being used on another aquatic site. The Biodiversity Management Plan can be found in Appendix A.	
Blue Mussels - Contamination of the estuary from spillage and increased sediment loading.	Works will be undertaken at low tide and hence these will not be immediately released into the estuary but there is some potential for incoming tides to wash out small volumes of mobilised sediment.	Impact Not Likely to be Significant
Vascular plant assemblage associated with salt marsh (part of estuarine habitat) - No impact	See comments under estuarine habitat	No impact



8. WFD CONCLUSION

- 8.1.1 Due to the nature and scale of the works to be undertaken during the Dovey Tidal Flap replacement works, providing the mitigation outlined within this document and within this document and the supporting Habitat Regulations Assessment (HRA) is implemented, this project will not prevent any of the water bodies associated with the project from meeting their Water Framework Directive objectives.



9 APPENDIX A - BIOSECURITY MANAGEMENT PLAN & RISK ASSESSMENT

