



Pennant Walters

Mynydd y Glyn Wind Farm

Appendix 10D WFD Assessment



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1. Introduction

1.1 Purpose of this document

- 1.1.1 This document presents the Water Framework Directive (WFD) (EC; 2000/60/EC)¹ Assessment for the Mynydd y Glyn Wind Farm, hereafter referred to as ‘the Proposed Development’. The purpose of this document is to identify whether the Proposed Development is compliant with the objectives of the WFD. A single document to cover all aspects of WFD compliance is presented, as it has the benefit of being able to draw conclusions on WFD compliance based on the relevant technical assessments in the Draft Environmental Statement (ES) in **Chapter 10: Water Environment**.

1.2 Context

- 1.2.1 Pennant Walters (‘the Applicant’) is proposing to develop Mynydd y Glyn Wind Farm (‘the Proposed Development’) located on land at Mynydd y Glyn in the Rhondda Valley, approximately 600 metres (m) from the south-eastern edge of the town of Porth (National Grid Reference ST 03626 89459). The Proposed Development would comprise of seven turbines, a substation, two temporary construction compounds, site offices, crane pads and cabling and access track construction. The assessment of WFD compliance in this document is provided separately for the Wind Farm Development (wind turbines and crane pads, access tracks, temporary construction compounds (TCCs) and substation within red line boundary), and the Grid Connection Corridor (overhead line (OHL), which lies within the red line boundary, and underground cable, which lies outside the red line boundary), which are collectively referred to as the Proposed Development
- 1.2.2 Natural Resources Wales (NRW) is the relevant permitting authority in relation to its role in issuing Environmental Permits under the Environmental Permitting (England and Wales) Regulations 2010 (as amended)², and other consents. Local Planning Authorities may also be required to make decisions on applications for permissions associated with the Proposed Development. Each of these bodies is required to take account of the requirements of the WFD in making their regulatory decisions.
- 1.2.3 A single WFD assessment to cover all aspects of WFD compliance has been prepared to facilitate the regulatory decision-making process. This is true of the Proposed Development, which has the potential to affect WFD surface water and groundwater water bodies. A single WFD assessment also has the benefit of being able to make conclusions on WFD compliance based on the outputs of numerous Draft ES chapters in one dedicated place.
- 1.2.4 The Wind Farm Development area and wider Water Environment study area, as defined in the Draft ES **Chapter 10: Water Environment**, are underlain by a WFD reportable groundwater body identified as the SE Valleys Carboniferous Coal Measures (GB40902G201900). It is also identified that the Wind Farm development area and wider Water Environment study area crosses three WFD surface water body catchments which have a hydrological connectivity with the Proposed Development, namely:

¹ European Commission (2000). Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (the Water Framework Directive). [Online] Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32000L0060> [Accessed October 2022]

² UK Government. (2016). The Environmental Permitting (England and Wales) Regulations 2016. [Online] Available at: <https://www.legislation.gov.uk/uksi/2016/1154/contents> [Accessed October 2022]

- The Nant Muchudd (GB109057027110, source to confluence with Afon Elai) surface water body in the south of the Wind Farm development area;
- The Afon Rhondda Fawr (GB109057027230, confluence with Afon Rhondda Fach to confluence with Afon Taf) surface water body in the north and east of the Wind Farm development area; and
- The Afon Elai (GB109057027120, source to confluence with Nant Clun) surface water body to the west of the Wind Farm development area.

1.2.5 The proposed Grid Connection corridor (OHL and underground cable) is also underlain the SE Valleys Carboniferous Coal Measures (GB40902G201900) (a WFD reportable groundwater body). It is identified that the proposed Grid Connection corridor crosses four WFD surface water body catchments which have a hydrological connectivity with the Grid Connection, namely (from west to east):

- The Nant Muchudd (GB109057027110, source to confluence with Afon Elai) surface water body from the on-site substation to the edge of the proposed development red line boundary ;
- The Afon Rhondda Fawr (GB109057027230, confluence with Afon Rhondda Fach to confluence with Afon Taf) surface water body from the edge of red line boundary to Pen-y-Coedcae ;
- The Nant Clun (GB109057027100, source to confluence with Afon Elai) surface water body from Pen-y-Coedcae to Church village; and
- The Afon Taf (GB109057027270, confluence with Afon Rhondda to Castle Street) Surface Water Body from Church Village to the WPD electrical connection point at Upper Boat.

1.2.6 In Wales, whilst the responsibility for ensuring that the WFD is implemented lies with NRW, all public bodies have a duty to ‘have regard’ to the objectives of the WFD in exercising their functions. Public bodies include Rhondda Cynon Taff County Borough Council (RCTCBC), which is the Lead Local Flood Authority (LLFA) responsible for consenting works in Ordinary Watercourses³ associated with the Proposed Development. Failure to take account of WFD requirements by any permitting authority could provide grounds for a challenge to a decision to consent the planning application for development consent.

1.3 Structure of the WFD assessment

1.3.1 The WFD assessment is structured as follows:

- Section 1 discusses the legislative requirements and context of the WFD in relation to the Proposed Development;
- Section 2 provides an overview of the methodology adopted in order to undertake the WFD assessment;
- Section 3 sets out the process followed to ‘screen’ the Proposed Development activities to gain a better understanding of those that are low risk (‘screened out’) and those that require further assessment (‘screened in’);

³ Works in, near or liable to affect watercourses will be subject to control via an NRW Flood Risk Activities Permit for Main Rivers or a LLFA Land Drainage Consent for Ordinary Watercourses

- Section 4 sets out the WFD baseline for the surface water, and groundwater water bodies in the study area;
- Section 5 sets out the process used to undertake a further / detailed assessment on those relatively ‘high-risk’ activities that were screened in as part of Section 4; and
- Section 6 takes the outputs from Sections 4 and 5 and provides a statement of compliance with the objectives of the WFD.

1.4 The legislative context – Water Framework Directive

1.4.1 In formulating development proposals, consideration must particularly be given to the EU-WFD⁴ which came into force in 2000 and was transposed into UK law in 2003, with the principal aims of protecting and improving the water environment and promoting the sustainable use of water. Though the UK is now no longer a Member State, the Directive remains relevant as the transposed regulations are part of the UK’s own legal framework. Environmental status, objectives and measures for water bodies (both surface and groundwater) can be found in the relevant River Basin Management Plan (RBMP). Environmental Quality Standards (EQSs) for priority substances were set by the daughter directive to the WFD (the EQS Directive⁵ and subsequent amendments^{6 7} (EQSD)) and the Groundwater Directive⁸. The environmental objectives of the WFD and its daughter directives are to:

- protect, enhance and restore water bodies to good status, which is based on ecology (with its supporting hydromorphological and physico-chemical factors) and chemical factors for surface water, and water quantity and chemical status for groundwater;
- comply with water related standards and objectives for environmentally protected areas established under other European Union (EU) legislation;
- progressively reduce pollution from priority substances and cease or phase out discharges from priority hazardous substances; and
- prevent or limit input of pollutants into groundwater and reverse any significant or sustained upward trends in the concentration of any groundwater pollutant.

1.4.2 The WFD sets a default objective for all rivers, lakes, estuaries, groundwater and coastal water bodies to achieve good status by 2027 at the latest. Where it is not possible to achieve good status by 2027, alternate water body objectives can be set. The current (baseline) status, and the measures required to achieve the 2027 status objectives are set out, for each water body, in the relevant river basin management plans (RBMPs), as

⁴ European Commission (2000). Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (the Water Framework Directive). [Online] Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32000L0060> [Accessed October 2022]

⁵ European Commission (2008). Directive 2008/105/EC of the European Parliament and of the Council of 16 December 2008 on environmental quality standards in the field of water policy, amending and subsequently repealing Council Directives 82/176/EEC, 83/513/EEC, 84/156/EEC, 84/491/EEC, 86/280/EEC and amending Directive 2000/60/EC of the European Parliament and of the Council (the Priority Substances Directive). [Online] Available at: <https://eur-lex.europa.eu/eli/dir/2008/105/oj> [Accessed October 2022]

⁶ European Commission (2013). Directive 2013/39/EU of the European Parliament and of the Council of 12 August 2013 amending Directives 2000/60/EC and 2008/105/EC as regards priority substances in the field of water policy. [Online] Available at: <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32013L0039> [Accessed October 2022]

⁷ UK Government (2015). The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015. [Online] Available at: https://www.legislation.gov.uk/uksi/2015/1623/pdfs/uksiod_20151623_en_auto.pdf [Accessed October 2022]

⁸ European Commission (2006). Directive 2006/118/EC of the European Parliament and of the Council of 12 December 2006 on the protection of groundwater against pollution and deterioration (the Groundwater Directive) including Commission Directive 2014/80/EU which amends Annex II of the original Directive 2006/118/EC. [Online] Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32006L0118> [Accessed October 2022]

prepared by the EA and NRW every six years. The first RBMPs were published in 2009, and the Cycle 2 RBMPs were published in December 2015. Consultation on the draft RBMPs for the third cycle (2021 – 2027) closed in April 2022, and the latest interim draft Cycle 3 2021 data and Draft RBMPs have become available. The plans provide the baseline condition of the water environment at the time of publication, and indicate the measures needed to achieve their target status.

- 1.4.3 For surface water bodies (rivers, lakes, estuaries and coastal waters), overall waterbody status has an ecological and a chemical component. Ecological status is measured on the scale of high, good, moderate, poor and bad. Chemical status is measured as good or fail, based on the presence or absence of priority substances which present a risk to the environment. Good ecological status (GES) is defined as a slight variation from undisturbed natural conditions, with minimal distortion arising from human activity. The ecological status of water bodies is determined by examining biological elements (e.g. fish, invertebrates, plants) and a number of supporting elements and conditions, including physico-chemical (e.g. metals and organic compounds), and hydromorphological (e.g. depth, width, flow, and 'structure') factors.
- 1.4.4 Whilst GES is defined as a slight variation from undisturbed conditions in 'natural' water bodies, surface waterbodies can also be designated as artificial and heavily modified water bodies (AWBs and HMWBs) where there has been significant human influence on the nature of the water body. These waterbodies are considered to be unable to achieve GES. Instead, AWBs and HMWBs have a target to achieve good ecological potential (GEP), which recognises their important uses, whilst making sure ecology is protected as far as possible. The ecological potential for AWBs and HMWBs is also measured on the scale high, good, moderate, poor and bad. The chemical status of these water bodies is measured in the same way as for natural water bodies.
- 1.4.5 For groundwater bodies, good status has a quantitative and a chemical component. Together these provide a single final classification: good or poor status. Quantitative status is evaluated on the basis of overall aquifer water balance, impacts of abstraction on dependent surface waters or wetlands and potential for saline intrusion. Chemical status is evaluated on the basis of evidence for impacts of poor water quality on dependent surface waters or wetlands or deterioration of the quality of groundwater used for potable supply.

2. Overview of the WFD assessment approach

2.1 Overview of the WFD assessment approach

- 2.1.1 The assessment of impacts in **Chapter 8: Biodiversity** and **Chapter 10: Water Environment** of the Draft ES concludes that effects on individual WFD elements as a result of the Proposed Development are **Not Significant**. This assessment has been combined in a single WFD Assessment report presented here. The assessment methodology is described below.
- 2.1.2 All aspects of construction and operation of the Proposed Development have been assessed to determine whether they will have an effect on WFD water bodies. Decommissioning effects are likely to be similar to, but of a lower magnitude than, construction stage effects. They have been assessed as such in the WFD assessment and against a future baseline environment. Accordingly, the WFD assessment needs to consider the following key questions:
- at the water body level, on a non-temporary basis, will the Proposed Development result in deterioration of any of the WFD classification components from one status class to the next, (e.g. from good to moderate) irrespective of whether or not it results in the lowering of overall status?
 - will the Proposed Development prevent the assessed water body from achieving GES or GEP or, where relevant, any alternative objective?
 - will the Proposed Development, in combination with other projects, contribute towards a cumulative deterioration of WFD status or prevent the cumulative enhancement of status in the long term (up to 2027)?
 - will the Proposed Development compromise the achievement of the WFD objectives in multiple water bodies that are hydrologically linked? and
 - can the Proposed Development assist in the delivery of any RBMP measures as part of achieving water body objectives?
- 2.1.3 Assessment against WFD objectives may include consideration of additional or more stringent standards applied to protected areas if these are present, including standards set by other relevant legislation. For example, a new scheme would not be considered to be compliant with the WFD if it will have an adverse impact on the conservation objectives of a Natura 2000 protected area (unless the tests for overriding public interest under Article 6.4 of the Habitats Directive are met) or designated bathing waters.
- 2.1.4 The potential impact has been assessed for each specific component of the Proposed Development that may interact with or pose a potential risk to a water body or protected area. Interactions between these components in terms of effects on water bodies have also been assessed.

2.2 Available guidance

- 2.2.1 At present the principal source of relevant guidance on WFD Compliance Assessment in the UK is the Environment Agency (EA) *Clearing the Waters for All*⁹ and PINS Advice Note 18¹⁰. The EA's guidance *Clearing the Waters for All* relates specifically to activities in estuarine or coastal water bodies that require a Marine Licence, which would not be required as part of the Proposed Development as it is an entirely onshore and land based development. The guidance interprets the 'no deterioration criterion' as applying to each element as well as the overall status classification of the water body. This approach is consistent with a recent European Court of Justice case¹¹ (known as the 'Bund' case) on dredging activities in Germany, where deterioration of supporting elements that do not lead to overall water body status deterioration was in fact ruled to be in breach of the objectives of the WFD.
- 2.2.2 The Cycle 3 RBMPs indicate that within-class deterioration of any constituent element (i.e. an effect that results in the lowering of the quality of an element that does not result in a lowering of the status of that element) is permissible, but should be limited as far as practicable. There are two exceptions to this: first, where the water body is at the lowest possible class (bad ecological status/potential) where no such within class deterioration is allowed and, second, elements that are at high status (with the exception of morphology), which may be allowed to deteriorate to good status provided a number of additional conditions are met.

2.3 Assessment Process

Introduction

- 2.3.1 The assessment of impacts provided in **Chapter 8: Biodiversity** and **Chapter 10: Water Environment** of the Draft ES has been used to fulfil the assessment steps below taking into account any statutory consultation comments received.
- 2.3.2 The WFD assessment considers the potential for both short-term and long-term impacts on WFD water bodies which have a connection to the Proposed Development.
- 2.3.3 The WFD assessment comprises the following stages:
- stage 1: Screening;
 - stage 2: Scoping;
 - stage 3: Further assessment; followed by, if required;
 - stage 4: Identification and evaluation of measures; and
 - stage 5: Article 4.7 considerations.

⁹ Environment Agency (2016) *Clearing the Waters for All: How to assess the impact of your activity in estuarine (transitional) and coastal waters for the Water Framework Directive (WFD)*. [Online] Available at: <https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters> [Accessed October 2022]

¹⁰ The Planning Inspectorate (2017). *Advice Note Eighteen: The Water Framework Directive Version 1*. [Online] Available at: <https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/advice-note-18/> [Accessed October 2022]

¹¹ Earll, B (2015). *Definition of deterioration under the Water Framework Directive: implications for new projects* – Jan Brooke [Online] Available at: <http://www.cmscoms.com/?p=4281> and also the official summary of the case at: <http://curia.europa.eu/jcms/upload/docs/application/pdf/2015-07/cp150074en.pdf> [Accessed October 2022]

Screening and Scoping

- 2.3.4 Certain types of proposals do not require specific applications for permission but can be undertaken under existing general powers and provisions, such as developments authorised through the General Permitted Development Order. Such proposals can be identified at the screening stage as not requiring a WFD assessment. Furthermore, certain types of maintenance activity do not require assessment. All such activities would not require a WFD assessment.
- 2.3.5 However, the Proposed Development has the potential to have effects on the water environment. Moreover, it is not a continuation of a previously permitted activity. Therefore, it is clear that a WFD compliance assessment is required to support applications for Environmental Permits and potentially other permissions.
- 2.3.6 The focus of the screening and scoping stages is to identify component activities of the Proposed Development that have the potential to cause an impact to the WFD quality elements.
- 2.3.7 Each water body potentially affected directly or indirectly by the Proposed Development is considered. Water bodies are screened out at this stage if it can be robustly demonstrated that there will be no impacts.
- 2.3.8 The screening stage includes identifying risks from the Proposed Development's activities to receptors based on the relevant (screened in) water bodies and their water quality elements. In terms of screening new physical works, the EA 488_10 guidance¹² provides a protocol for rapid screening of development proposals based upon the type and scale of activities that are being undertaken. A similar process is set out for scoping activities against water quality elements, based on the likelihood of potential risks posed towards WFD objectives. The scoping process is based on the type and extent of activities, providing a traffic light screening and scoping outcome depending on the level of potential risk against different elements. Proposed Development activities / infrastructure types that are considered unlikely to cause any risk to the delivery of WFD objectives are given a green traffic light (screened/scoped out).
- 2.3.9 Proposed Development activities / infrastructure types that are considered likely to carry a significant risk to the delivery of WFD objectives are given a red traffic light (screened/scoped in for further assessment). Proposed Development activities / infrastructure types that carry a possible risk to the delivery of WFD objectives are given an amber traffic light (screened/scoped in on precaution for further assessment). The screening and scoping do not consider the implementation of design principles and environmental measures.

Further Assessment

- 2.3.10 For the activities / infrastructure types that are 'Screened / 'Scoped in' a further assessment is required. The aim of this is to provide a proportionate view on: (i) the likelihood of a new development causing non-temporary water body-scale deterioration in WFD status and (ii) whether the development may preclude the ability of the water body to achieve its target status. Those activities / infrastructure types that are eliminated at the screening and scoping stage are not carried forward to the further assessment stage.
- 2.3.11 The further assessment process involves the examination of sources of potential effect, pathways by which water bodies could be affected, and consideration of effects on each

¹² Environment Agency (2015) position 488_10 "Protecting and improving the water environment: WFD compliance of physical works in rivers", Doc No. 488_10.

WFD quality element for each WFD water body type (river, coastal, estuarine, or groundwater), taking into account embedded environmental measures.

Identification and evaluation of measures

- 2.3.12 Where the assessment identifies an activity which would cause a risk of non-compliance with the WFD but which may become compliant with some form of bespoke mitigation (i.e. above and beyond the embedded design principles and environmental measures that are considered during the further assessment stage), the mitigation required is described. Where mitigation cannot be identified that would result in WFD compliance and no suitable alternatives can be identified, the provisions of Article 4.7 of the WFD would apply (below).

Article 4.7 considerations

- 2.3.13 The provisions of Article 4.7 will only apply where:
- failure to meet good groundwater status, GES or GEP or to prevent deterioration in status arises from new modifications to the physical characteristics of the water body or alteration of groundwater levels; or
 - failure to prevent deterioration from high to good overall status of a surface water body is the result of new sustainable human development activities.

3. Screening and scoping assessment

3.1 Proposed Development and associated activities

- 3.1.1 A full description of the Proposed Development is provided in **Chapter 4: Description of the Proposed Development**.
- 3.1.2 The Proposed Development activities/ infrastructure types that are proposed within each individual water body catchment and have the potential to impact the water environment are presented in **Table 3.1** below.

Table 3.1 Proposed Development activities and the WFD

WFD Waterbody Receptor	Planned activity/Infrastructure type	Potential changes and effects on WFD Waterbody Receptor
Construction Phase		
Wind Farm Development <ul style="list-style-type: none"> Nant Muchudd (GB109057027110) Afon Rhondda Fawr (GB109057027230) Afon Elai (GB109057027120) Grid Connection <ul style="list-style-type: none"> Nant Muchudd (GB109057027110) Afon Rhondda Fawr (GB109057027230) Afon Elai (GB109057027120) Afon Taff (GB109057027270) 	<ul style="list-style-type: none"> Enabling works (construction/upgrade of access tracks, establishment of site compounds) Development of site infrastructure elements 	<p>Temporary increase in sediment-loading of surface water runoff from construction areas leading to deterioration in the status of WFD surface water bodies.</p> <p>Potential effects on the hydromorphology and flow conveyance as a result of increased sediment inputs or direct watercourse disturbance leading to deterioration in the status of WFD surface water bodies.</p>
Wind Farm Development <ul style="list-style-type: none"> Nant Muchudd (GB109057027110) Afon Rhondda Fawr (GB109057027230) Afon Elai (GB109057027120) SE Valleys Carboniferous Coal Measures (GB40902G201900) Grid Connection <ul style="list-style-type: none"> Nant Muchudd (GB109057027110) Afon Rhondda Fawr (GB109057027230) Afon Elai (GB109057027120) Afon Taff (GB109057027270) SE Valleys Carboniferous Coal Measures (GB40902G201900) 	<ul style="list-style-type: none"> Enabling works (construction/upgrade of access tracks, establishment of site compounds) Development of site infrastructure elements 	<p>Accidental release of pollution into surface water or ground by leaks/spillages of oil/fuel, leaching from excavated soils and concrete leaching leading to deterioration in the status of WFD surface water and groundwater bodies.</p> <p>Discharge of potentially polluted water generated from construction activities (e.g. dewatering/water ingress activities, concrete batching, surface water runoff) into surface water or ground leading to deterioration in the status of WFD surface water and groundwater bodies.</p>

WFD Waterbody Receptor	Planned activity/Infrastructure type	Potential changes and effects on WFD Waterbody Receptor
<p>Wind Farm Development</p> <ul style="list-style-type: none"> Nant Muchudd (GB109057027110) Afon Rhondda Fawr (GB109057027230) Afon Elai (GB109057027120) SE Valleys Carboniferous Coal Measures (GB40902G201900) <p>Grid Connection</p> <ul style="list-style-type: none"> Nant Muchudd (GB109057027110) Afon Rhondda Fawr (GB109057027230) Afon Elai (GB109057027120) Afon Taff (GB109057027270) SE Valleys Carboniferous Coal Measures (GB40902G201900) 	<ul style="list-style-type: none"> Enabling works (dewatering of excavations (e.g. turbine foundations, OHL foundations and underground cable) 	<p>Potential change in groundwater levels due to dewatering activities leading to decrease in groundwater baseflow to aquatic environment receptors and deterioration in the status of WFD surface water and groundwater bodies.</p>
Operational Phase		
<p>Wind Farm Development</p> <ul style="list-style-type: none"> Nant Muchudd (GB109057027110) Afon Rhondda Fawr (GB109057027230) Afon Elai (GB109057027120) SE Valleys Carboniferous Coal Measures (GB40902G201900) 	<ul style="list-style-type: none"> Maintenance and emergency repairs 	<p>Accidental spillage of pollutants (fuel or oil) during maintenance activities leading to deterioration in the status of WFD surface water and groundwater bodies.</p>
Decommissioning		
<p>It is envisaged that similar potential changes and effects to the construction phase would occur during the decommissioning phase.</p>		

4. Water Framework Directive Baseline

4.1 Introduction

4.1.1 This section provides a summary of the baseline water environment and sets out the approach to the screening of water bodies for the WFD Assessment. More detail on the wider baseline context can be found in the Draft ES **Chapter 10: Water Environment**.

4.2 WFD waterbodies included in the assessment

4.2.1 The approach to the screening of WFD water bodies is as follows:

- all freshwater surface water bodies that overlap the Site boundaries, and the downstream transitional water bodies; and
- all groundwater bodies which underlie the Site.

4.2.2 The Proposed Development area and wider study area are underlain by a WFD reportable groundwater body identified as the SE Valleys Carboniferous Coal Measures (GB40902G201900).

4.2.3 The Wind Farm development area and wider Water Environment study area crosses three WFD surface water body catchments which have a hydrological connectivity with the Wind Farm development:

- The Nant Muchudd (GB109057027110, source to confluence with Afon Elai) surface water body in the south of the Wind Farm development area;
- The Afon Rhondda Fawr (GB109057027230, confluence with Afon Rhondda Fach to confluence with Afon Taf) surface water body in the north and east of the Wind Farm development area; and
- The Afon Elai (GB109057027120, source to confluence with Nant Clun) surface water body to the west of the Wind Farm development area.

4.2.4 The proposed Grid Connection corridor (OHL and underground cable) crosses four WFD surface water body catchments which have a hydrological connectivity with the Grid Connection, namely:

- The Nant Muchudd (GB109057027110, source to confluence with Afon Elai) surface water body from the on-site substation to the edge of the proposed development red line boundary;
- The Afon Rhondda Fawr (GB109057027230, confluence with Afon Rhondda Fach to confluence with Afon Taf) surface water body from the edge of red line boundary to Pen-y-Coedcae ;
- The Nant Clun (GB109057027100, source to confluence with Afon Elai) surface water body from Pen-y-Coedcae to Church village; and
- The Afon Taf (GB109057027270, confluence with Afon Rhondda to Castle Street) Surface Water Body from Church Village to the WPD electrical connection point at Upper Boat.

4.3 Baseline summary

Groundwater

4.3.1 The SE Valleys Carboniferous Coal Measures groundwater body which underlies the Wind Farm development and Grid Connection and wider study area, has an overall classification of 'Poor' in the 2021 WFD classification (Cycle 3). A summary of the WFD groundwater waterbody status is provided in **Table 4.1**.

Surface water

4.3.2 A summary of the status of the WFD surface waterbodies which are within the current Wind Farm development and wider study area is provided in **Table 4.1**. The Afon Rhondda Fawr WFD surface water body achieved an overall classification of 'Good', the Afon Ebwy Fach WFD surface water body achieved an overall classification of 'Moderate' and the Afon Elai WFD surface water body achieved an overall classification of 'Poor' in the 2021 WFD classification (Cycle 3).

Table 4.1 Summary of the WFD water bodies and its associated status definitions within the Wind Farm development and wider study area

WFD Water Body	Nant Muchudd (source to confluence with Afon Elai)	Afon Rhondda Fawr (confluence with Afon Rhondda Fach to confluence with Afon Taf)	Afon Elai (source to confluence with Nant Clun)	SE Valleys Carboniferous Coal Measures
Type	River	River	River	Groundwater
Water body identifier	GB109057027110	GB109057027230	GB109057027120	GB40902G201900
Catchment	South East Valleys	South East Valleys	South East Valleys	N/A
Heavily Modified Designation	Natural	Natural	Natural	N/A
Overall status*	Moderate	Good	Poor	Poor
Ecological status*	Moderate	Good	Poor	N/A
Chemical status*	High	High	High	N/A
Quantitative	N/A	N/A	N/A	Good
Chemical	N/A	N/A	N/A	Poor

* Source: <https://waterwatchwales.naturalresourceswales.gov.uk/en/> (Accessed 31/08/22). Status definitions from 2021 WFD classification (Cycle 3).

4.3.3 A summary of the status of the WFD surface waterbodies which are crossed by the Grid Connection corridor (OHL and underground cable) is provided in **Table 4.2**. The Afon Rhondda Fawr WFD surface water body achieved an overall classification of 'Good', the

Nant Muchudd and Afon Taff WFD surface water bodies achieved an overall classification of 'Moderate' and the Nant Clun WFD surface water body achieved an overall classification of 'Poor' in the 2021 WFD classification (Cycle 3).

Table 4.2 Summary of the WFD water bodies and its associated status definitions within the Grid Connection corridor

WFD Water Body	Afon Rhondda Fawr (confluence with Afon Rhondda Fach to confluence with Afon Taf)	Nant Muchudd (source to confluence with Afon Elai)	Nant Clun (source to confluence with Afon Elai)	Afon Taff (confluence with Afon Rhondda to Castle Street)	SE Valleys Carboniferous Coal Measures
Type	River	River	River	River	Groundwater
Water body identifier	GB109057027230	GB109057027110	GB109057027100	GB109057027270	GB40902G201900
Catchment	South East Valleys	South East Valleys	South East Valleys	South East Valleys	N/A
Heavily Modified Designation	Natural	Natural	Natural	Heavily Modified	N/A
Overall status*	Good	Moderate	Poor	Moderate	Poor
Ecological status*	Good	Moderate	Poor	Moderate	N/A
Chemical status*	High	High	High	Moderate	N/A
Quantitative	N/A	N/A	N/A	N/A	Good
Chemical	N/A	N/A	N/A	N/A	Poor

5. Further assessment and measures

5.1 Overview

- 5.1.1 The screening and scoping of activities / infrastructure types that was undertaken in **Section 3** did not include a consideration of any embedded environmental measures that will be implemented as part of the Proposed Development. However, in practice these measures will be incorporated in order to manage any potential effects on the water environment to an acceptable level.
- 5.1.2 This section provides a further assessment on the potential impacts to WFD receptors and a summary of the key mitigation that is incorporated into the development proposals in order to avoid, reduce or compensate for the potential adverse effects on the WFD water bodies identified in Section 3.

5.2 Further assessment

- 5.2.1 Further assessment of the potential effects to WFD receptors can be found in **Section 10.9** of the Draft ES **Chapter 10: Water Environment**, taking into consideration the embedded environmental measures outlined in **Section 10.6** and summarised in **Table 5.1** below.
- 5.2.2 The assessment concludes that the significance of potential effects to the WFD surface water bodies is **Not Significant**.

5.3 Embedded environmental measures

- 5.3.1 The environmental measures and assessments of effects are captured in the Draft ES **Chapter 10: Water Environment**, the relevant sections of these documents are listed in the table below.

Table 5.1 Summary of embedded environmental measures and their relevance regarding potential affects

WFD element	Potential effect on WFD element	Embedded environmental measures to manage potential effect
Hydromorphology	Alteration of flow regime – via input to watercourses and via indirect changes within the catchment	Chapter 10: Water Environment, Table 10.11: -ID1 (Good working practices) -ID2 (Water Management Plan) -ID3 (Water Discharges) -ID4 (Materials Management Plan) -ID5 (Soil Stockpiles) -ID6 (Standoff distance) -ID7 (Watercourse crossings) -ID11 (Detailed Drainage Design)
Hydromorphology	Alteration of channel morphology	Chapter 10: Water Environment, Table 10.11: -ID2 (Water Management Plan) -ID3 (Water Discharges) -ID7 (Watercourse crossings) -ID11 (Detailed Drainage Design)

WFD element	Potential effect on WFD element	Embedded environmental measures to manage potential effect
Chemical and Physico – chemical	<p>Mobilisation of sediment or contaminated sediment / material in the catchment that has the potential to enter the watercourse network.</p> <p>Introduction and / or mobilisation of sediment or contaminated sediment / material within the channel that has the potential to be transported downstream</p> <p>Introduction of contaminants within the channel that has the potential to be transported downstream</p>	<p>Chapter 10: Water Environment, Table 10.11:</p> <ul style="list-style-type: none"> -ID1 (Good working practices) -ID2 (Water Management Plan) -ID3 (Water Discharges) -ID4 (Materials Management Plan) -ID5 (Soil Stockpiles) -ID6 (Standoff distance) -ID9 (Fuel, oil and chemicals storage – construction phase) -ID11 (Detailed Drainage Design) -ID12 (Fuel, oil and chemicals storage – operational phase)
Groundwater Quantity	<p>Alteration to groundwater quantity</p>	<p>Chapter 10: Water Environment, Table 10.11:</p> <ul style="list-style-type: none"> -ID1 (Good working practices) -ID2 (Water Management Plan) -ID3 (Water Discharges) -ID9 (Fuel, oil and chemicals storage – construction phase) -ID12 (Fuel, oil and chemicals storage – operational phase)
Groundwater Chemical	<p>Alteration to groundwater quality</p>	<p>Chapter 10: Water Environment, Table 10.11:</p> <ul style="list-style-type: none"> -ID3 (Water Discharges) -ID9 (Fuel, oil and chemicals storage – construction phase) -ID12 (Fuel, oil and chemicals storage – operational phase)

6. Conclusions

6.1 Overview

- 6.1.1 Each WFD water body was considered to have activities/ infrastructure types resulting from the Proposed Development within them or in close enough proximity that could cause some degree of risk to the delivery of the WFD objectives. Upon assessment of these activities/ infrastructure types, and taking into account the effectiveness of mitigation in managing any effects, it can be concluded that the Proposed Development is compliant with the WFD. Therefore, there is no requirement for an Article 4.7 assessment.

6.2 Will the Proposed Development lead to deterioration in WFD status of any water body in the Study Area?

- 6.2.1 Based on the assessment provided in this document, along with the findings presented in the Draft ES **Chapter 10: Water Environment**, no components or phases of the Proposed Development would lead to a deterioration of any WFD elements or the WFD status of any water body in the study area. It is concluded that the mitigation package presented in Section 4 would avoid deterioration as a result of the Proposed Development.

6.3 Will the Proposed Development compromise the achievement of good status in any WFD water body in the Study Area?

- 6.3.1 Based on the assessment provided in this document, no components or phases of the Proposed Development would compromise the ability of any WFD water body to attain WFD target status.

6.4 Will the Proposed Development contribute towards a cumulative deterioration of WFD status (in combination with other projects) or prevent the cumulative enhancement of status (up to 2027)?

- 6.4.1 The standard mitigation measures committed to as part of the Proposed Development will ensure that there is no potential for the Proposed Development to contribute to any cumulative effects, and, as such, cumulative effects will not preclude the delivery of WFD objectives.

6.5 Will the Proposed Development compromise the achievement of Protected Area objectives?

- 6.5.1 Based on the information provided in the Draft ES **Chapter 10: Water Environment** and the findings within this document, no components or phases of the Proposed Development would compromise the conservation objectives of any protected areas.

