WATER FRAMEWORK DIRECTIVE ASSESSMENT

Point of Ayr Cable Route Foreshore Works

Town and Country Planning Act 1990

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1. INTRODUCTION

1.1. BACKGROUND

1.1.1. This Water Framework Directive (WFD) assessment has been produced to assess the potential impacts of a forthcoming Town and Country Planning Application (TCPA) to install an underground combined electrical and fibre-optic cable under Gronant Dunes, and across Talacre Beach on a revised alignment to that previously consented. The proposed activities are hereafter referred to as the Proposed Development.

1.1.2. These activities are being developed in parallel with, and as a key part of, the HyNet Carbon Dioxide Pipeline (the Project). This Project is designed to transform the North West region of the UK into the world's first low carbon industrial cluster by 2030.

1.1.3. The Proposed Development interacts with three WFD water bodies throughout its length, comprising transitional, coastal, and groundwater water bodies. Each activity associated with the Proposed Development will be assessed against the biological, physico-chemical and hydromorphological quality elements that comprise the WFD. The Proposed Development lies at the transition between onshore and offshore sections of Talacre, Flintshire, Wales.

1.1.4. Natural Resources Wales (NRW) requires an assessment of the impact of any works / modifications to water bodies in the UK, under the European Union's Water Framework Directive (WFD) (2000/60/EC) (Ref. 1.1). The WFD is transposed into law in England and Wales under The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (the 2017 Regulations) (SI 2017/407) (Ref. 1.2). For groundwater, the WFD is transposed into the policy paper entitled The Groundwater (Water Framework Directive) (England) Direction 2016 (Ref. 1.3).

1.1.5. The purpose of this WFD assessment is to evaluate the potential construction, operational and decommissioning (end of life) impacts of the Proposed Development for WFD compliance. Construction impacts are included within the assessment, due to the duration of construction activities which may have medium to long-term impacts upon the water environment.

1.2. STUDY AREA

1.2.1. The Study Area used for undertaking this WFD assessment is defined as the boundary of the Proposed Development, which comprises the

Red Line Boundary (RLB) as submitted in the planning application, plus a 500 m buffer for surface water bodies and a 1 km buffer for groundwater bodies (see Figure 1-1). This includes the specific works areas such as the Horizontal Directional Drilling (HDD) exit pit and cable routes across Talacre Beach. Note that protected areas have been considered within a 2 km buffer of the Proposed Development boundary (Section 3.6 – Protected Areas).

1.2.2. The Proposed Development could potentially impact the following water bodies (refer to Figure 1-1):

- Unclassified (non-reportable) surface water bodies that drain the onshore area of the Point of Ayr and the Talacre Beach. These water bodies flow directly onto the shore and are not within a surface water WFD Water Body. This specifically relates to PoA Ditch 1 and PoA Ditch 2 which are located within the 500 m buffer of the Proposed Development (Refer to Section 3.3 for more detail);
- The Dee (North Wales) Transitional WFD Water Body (GB531106708200), which lies within the Dee Estuary TraC Operational Catchment, the Dee TraC Management Catchment, and the Dee River Basin District;
- The North Wales Coastal WFD Water Body (GB6410116500000), which lies in the North Wales TraC Operational Catchment, the Western Wales TraC Management Catchment, and the Western Wales River Basin District; and
- The Dee Carboniferous Coal Measures Groundwater WFD Water Body (GB41102G204800), which lies in the North East Wales Operational Catchment, the River Dee Management Catchment, and the River Dee River Basin District.

1.2.3. The total footprint of the works, in terms of the area of the Proposed Development Red Line Boundary (RLB), is approximately 0.42 km^2 whereby, 0.24 km^2 is within the North Wales Coastal WFD Water Body and 0.18 km^2 is situated within the Dee Carboniferous Coal Measures Groundwater WFD Water Body. The Dee (North Wales) Transitional WFD Water Body is situated 0.9 km to the east of the RLB but may still be impacted due to its hydrological connection with the North Wales Coastal WFD Water Body, particularly given the tidal influence. Furthermore, this water body falls within the 2 km buffer for protected areas considered in this assessment, and a precautionary approach has been applied due to the ecological significance of the Dee Estuary, which supports various protected habitats and species.

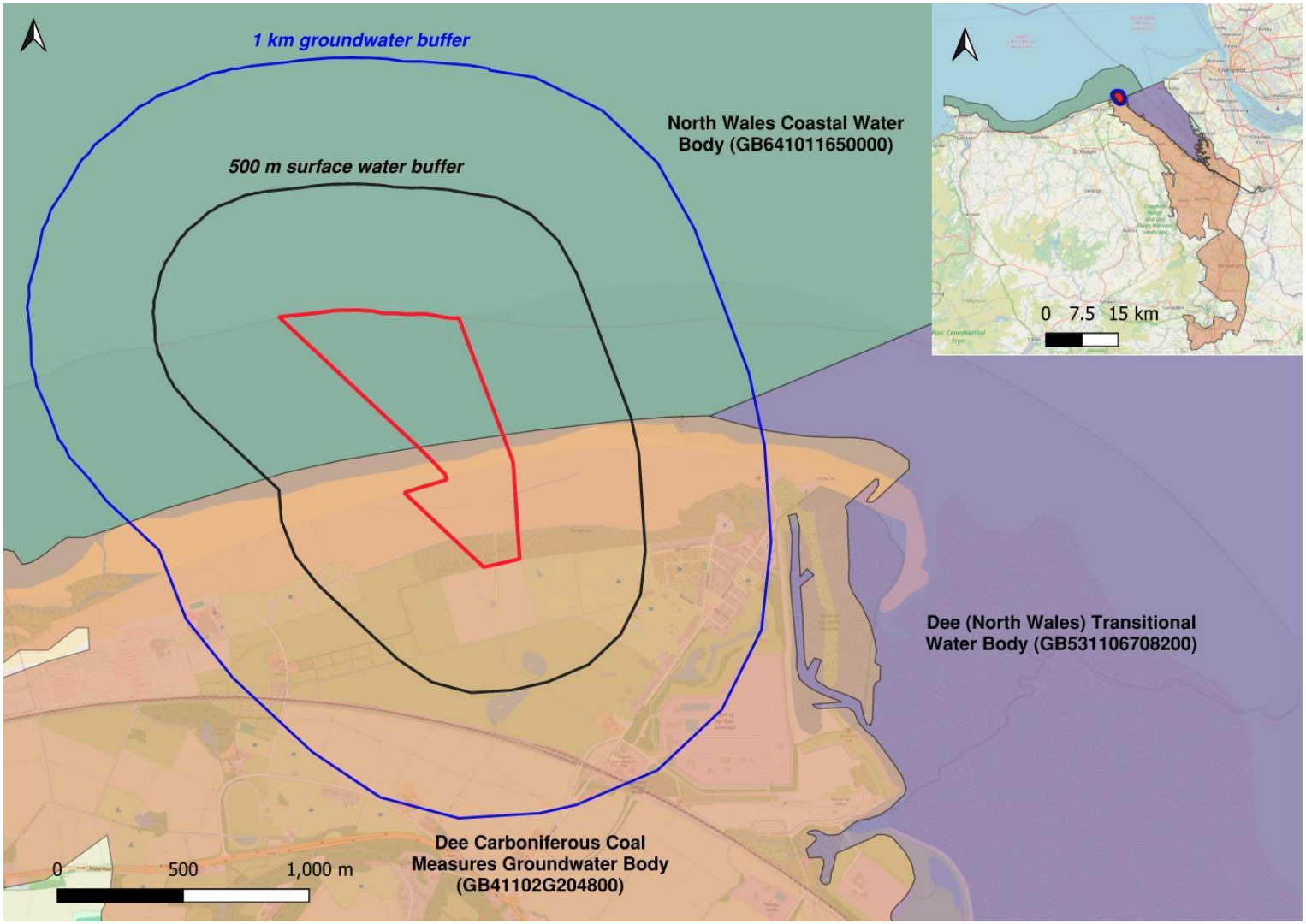

Figure 1-1 - Water Framework Directive Water Bodies which could potentially be impacted by the Proposed Development

1.3. THE PROPOSED DEVELOPMENT

1.3.1. The Proposed Development comprises the "Installation of an underground section of HDD conduit under Gronant Dunes, originating from the HDD entry pit (consented under FUL/000246/23), to a buried HDD exit pit at the Mean High Water Spring (MHWS) line, and burial of a combined electrical and fibre optic cable across Talacre Beach and Foreshore to the Mean Low Water Spring (MLWS) line, located to the north-west of the Point of Ayr (PoA) gas terminal".

1.3.2. The Proposed Development components and construction activities required are as follows:

- Construction of part of a cable conduit under the Gronant Dunes using a trenchless HDD method of installation;
- A HDD exit pit entailing installation, at approximately 3 m below beach level, of a temporary steel prefabricated containment sump, approximately 3 m x 3 m in width and length, to capture any drilling fluid emitted from the drilling process. This will be of the order of 10 m3 capacity. Installation of a 20m x 20m cofferdam around the HDD Exit Pit. Reinstatement of the HDD exit pit beach area on completion;
- The installation of a combined electrical and fibre optic cable within the HDD conduit; and
- The simultaneous lay and burial of the cable across Talacre Beach from the HDD exit pit to the MLWS line.

1.3.3. Further details on the Proposed Development and its associated construction activities are described in the Environmental Studies Report.

1.4. BACKGROUND TO THE WFD

1.4.1. The primary aim of the WFD is to improve/maintain the Ecological Status/Potential of all water bodies and to prevent deterioration in status of the water bodies and their associated WFD quality elements. Ecological Status/Potential is determined by a suite of biological, physico-chemical and hydromorphological quality elements. This WFD assessment aims to establish the baseline conditions, evaluate potential impacts of the Proposed Development, and assess compliance against WFD objectives.

1.4.2. The overarching objective of the WFD is for water bodies in Europe to attain overall 'Good Ecological Status' (GES) or 'Good Ecological Potential' (GEP). GES refers to situations where the ecological

characteristics show only a slight deviation from natural/near natural conditions. In such a situation, the biological, chemical, physico-chemical and hydromorphological conditions are associated with limited or no human pressure. Artificial and heavily modified water bodies have a target to achieve GEP, which recognises their important uses, whilst ensuring the quality elements are protected as far as possible. As stated previously, the WFD has been fully transposed into UK law and has remained in place following the European Union (Withdrawal) Act 2018.

1.4.3. The WFD sets several objectives including:

- Prevent deterioration in status for water bodies;
- Aim to achieve Good biological and Good surface water chemical status in water bodies. Those water bodies that did not achieve GES by 2024 need to achieve compliance by 2027;
- For water bodies that are designated as artificial or heavily modified (A/HMWB), the objective is to achieve GEP. Those A/HMWB that did not achieve GEP by 2015 or 2021 need to achieve compliance by 2027;
- Where is it considered either technically infeasible or disproportionately expensive to achieve GES or GEP by 2024 or 2027, alternative objectives have been set for the WFD Water Body , such as a target to achieve Moderate status;
- Comply with objectives and standards for protected areas, where relevant; and
- Reduce pollution from priority substances and cease discharges, emissions, and losses of priority hazardous substances.

1.4.4. The introduction of a new modification, change in activity or change to structure on a WFD Water Body needs to be considered in relation to whether it could cause deterioration in the Ecological Status or Potential of any WFD Water Body. New modifications or changes to activities or structures may also result in any proposed mitigation measures or actions to achieve GES/GEP being ineffective. This could result in the WFD Water Body failing to meet GES/GEP. Where a development is considered to cause deterioration or where it may contribute to the failure of the WFD Water Body to meet GES/GEP, then an Article 4.7 assessment will be required which makes provision for deterioration of status provided that certain stringent conditions are met.

2. METHODOLOGY

2.1. DATA COLLECTION

DESK STUDY

2.1.1. A desk-based study was carried out to collect baseline information and inform the WFD assessment. The following data sources were used for the desk study:

- Contemporary OS maps;
- Geology and soil maps (Ref. 2.1);
- Current aerial photography;
- WFD status and objectives from Water Watch Wales (Ref. 2.2);
- NRW Marine Fish Surveys Database;
- NRW Freshwater Fish Surveys Database;
- Environment Agency Fish National Fish Population Database (NFPD): TraC Fish Counts for all Species for all Estuaries and all years (Ref. 2.3);
- National Biodiversity Network (NBN) Wales (Ref. 2.6);
- Environment Agency Water Quality Archive (WIMS) (Ref. 2.7);
- Hydrological data (Ref. 2.8);
- Historical maps (Ref. 2.9);
- Nature on the Map for designated areas, habitats and species, landscape and marine data (Ref. 2.10);
- Various literature sources, including published articles and technical reports;
- WFD status and objectives from the Western Wales (Ref. 2.11) and Dee River Basin Management Plans (RBMPs) (Ref. 2.12);
- PoA Consented Development Application Documents (FUL/000246/23); and
- Marine Licence Documents (Licence number: CML2365).

FIELD SURVEY

Hydromorphology walkover survey

2.1.2. On 14 February 2022, a hydromorphology walkover was conducted by an experienced geomorphologist throughout the Study Area. The survey was intended to cover WFD unclassified (non-reportable) watercourses that feed the adjacent coastal and transitional water

bodies. Weather conditions were wet, and heavy rains had occurred in the preceding days. Water level was within the normal flow range. Photographic records as well as further detail on the hydromorphology walkover is provided in Annex A.

2.1.3. The hydromorphology survey and assessment has been undertaken in accordance with the CEN/ISO Water quality guidance which is the standard guidance for assessing the hydromorphological features of transitional and coastal waters (Ref. 2.13) and determining the degree of modification of the hydromorphological features of transitional and coastal waters (Ref. 2.14). This is a requirement under Appendix V of the WFD legislation.

Freshwater Habitat Walkover

2.1.4. Aquatic habitat walkover surveys were carried out by suitably experienced aquatic ecologists on 12 and 13 January 2022. The aim of the habitat walkover surveys was to assess the potential for each watercourse within the Study Area to support legally protected and/or notable aquatic species through field observations, including macrophytes. Channel and bank characteristics including substrate type and water depth, riparian vegetation, the presence of large wood, artificial modifications and notable features were recorded. The assessment was supported by standard sources of guidance on habitat suitability assessments for key faunal groups including salmonid fish (Ref. 2.16), white-clawed crayfish (Ref. 2.17) and eel (Ref. 2.18).

Intertidal Habitat Walkover

2.1.5. A walkover survey was conducted on the seaward side of the MHWS line to validate the results of the 2022 surveys, and map additional areas within the RLB, following the amendment of the foreshore cable route. This survey was conducted on the 2 April 2025 by a suitably qualified and experienced marine ecologist with 8+ years of experience in undertaking marine ecology surveys. The validation survey was undertaken following methods described in the JNCC Marine Monitoring Handbook for in situ biotope recording. The survey was undertaken during a 0.9 m spring tide and involved the compilation of target notes and georeferenced photographs of ecological features and habitat types. A further onsite investigation of infauna was also undertaken by digging and sieving substrate at representative locations within the RLB, and recording species observed.

2.1.6. The results of the survey undertaken on the 2 April 2025, were compared to the results of the intertidal phase 1 habitat survey conducted on the 2 and 3 April 2022.

eDNA surveys

2.1.7. Four watercourses draining the Point of Ayr area were surveyed for fish eDNA in 2022. The watercourses included PoA Ditch 1 (OS NGR SJ 11351 84419), PoA Ditch 2 (OS NGR SJ 12129 83773), the Talacre Brook (OS NGR SJ 11968 83976), and the Point of Ayr Brook (OS NGR SJ 12333 83612). These watercourses can be seen in Figure 3-1 within the Baseline section. To conduct eDNA surveys, water samples were collected from each of the four watercourses and sent for eDNA analysis by a third party.

Aquatic macroinvertebrate surveys

2.1.8. Four watercourses draining the Point of Ayr area were surveyed for aquatic macroinvertebrates in spring 2022. The watercourses included PoA Ditch 1 (OS NGR SJ 11351 84419), PoA Ditch 2 (OS NGR SJ 12129 83773), the Talacre Brook (OS NGR SJ 11968 83976), and the Point of Ayr Brook (OS NGR SJ 12333 83612).

2.2. ENGAGEMENT

2.2.1. Regulators were engaged prior to the execution of site visits in 2022 and reporting. During a meeting with NRW on 7 February 2022, the nature of the works, the current WFD status of local water bodies, screening and scoping of quality elements, and mitigation procedures were presented. The meeting was held to discuss the wider Project, including the Consented Development, which included features within the Proposed Development study area.

2.2.2. NRW highlighted that consideration should be given to smaller watercourses within the WFD assessment and they should be included. They should be referred to as non-reportable water bodies. On the whole, NRW were happy with the proposed approach. Minutes of the meeting are provided in Annex D.

2.3. WFD ASSESSMENT PROCESS

2.3.1. For transitional water bodies, the WFD methodology adopts the process set out in the guidance 'Clearing the Waters for All - Water Framework Directive Assessment: estuarine and coastal waters' (Ref. 2.19). This guidance sets out three stages for the WFD assessment process for transitional waters, and the outcome of each stage determines whether the assessment needs to progress to the next stage. The three stages are:

- Stage 1 Screening – this stage excludes any activities that do not need to go through the scoping or impact assessment stages.

- Stage 2 Scoping – identifies the receptors that are potentially at risk from the Proposed Development, which need impact assessment. Potential risks to hydromorphology, biology (habitats and fish), water quality, WFD protected areas and invasive non-native species ('INNS') should be assessed.
- Stage 3 Impact assessment – considers the potential impacts of the Proposed Development, identifies ways to avoid or minimise impacts, and determines whether the Proposed Development may cause deterioration or jeopardise the WFD Water Body achieving Good status.

2.3.2. If the assessment progresses to Stage 3, a further assessment is undertaken to review mitigation measures set for the WFD Water Body and an assessment of the proposed activities against WFD status objectives.

2.3.3. Low risk activities, as defined in the Clearing the Waters for All guidance, may be screened out and not progressed to the scoping stage. During scoping, a more detailed assessment is undertaken, examining the risks to each potential receptor, which are associated with the WFD quality elements. The key receptors for assessment are:

- Hydromorphology;
- Biology – habitats;
- Biology – fish;
- Water quality;
- Protected Areas; and
- Invasive Non-native Species (INNS).

2.3.4. Potential construction impacts may have detrimental impacts on the WFD quality elements and construction periods may sometimes be of long duration or have impacts detrimental to the WFD quality elements. Thus, construction impacts are considered, along with mitigation to reduce or eliminate potential impacts on the WFD Water Body and WFD quality elements.

2.3.5. In this report, WFD analysis is also undertaken for the unclassified (non-reportable) surface water bodies located within the Study Area (Figure 3-1 in the baseline section). The outcome of that assessment is then incorporated into the WFD assessment conclusions provided in the context of the coastal and transitional water bodies.

Hydromorphology

2.3.6. Hydromorphology is a physical characteristic which supports biological elements. Where the hydromorphology of a surface WFD Water Body has been significantly altered for anthropogenic purposes (e.g., navigation), it can be designated as an Artificial or Heavily Modified Water Body ('A/HMWB'). An alternative environmental objective, good ecological potential ('GEP') applies in these cases.

Biology – Habitats

2.3.7. An assessment should be undertaken where the footprint of the activity is:

- 0.5 km² or larger;
- 1% or more of the Water Body 's area;
- within 500 m of any higher sensitivity habitat; or
- 1% or more of any lower sensitivity habitat.

2.3.8. As per Environment Agency (**Ref. 2.19**) guidance, benthic habitats are divided into higher sensitivity and lower sensitivity habitats and are listed in **Table 2-1**.

Table 2-1 – Habitat sensitivity as defined by WFD guidance (Ref. 2.19)

Higher Sensitivity	Lower Sensitivity
Chalk reef	Cobbles, gravel and shingle
Clam, cockle and oyster beds	Rocky shore
Intertidal mudflats	Subtidal boulder fields
Intertidal seagrass	Subtidal rocky reef
Maerl	Subtidal soft sediments
Mussel beds, including blue and horse mussel	
Polychaete reef	
Saltmarsh	
Subtidal kelp beds	
Subtidal seagrass	

Biology – Fish

2.3.9. Fish species should be considered if activities:

- are in an estuary;
- are outside an estuary but could delay or prevent fish from entering an estuary; or
- could affect fish migration through an estuary to freshwater.

Water Quality

2.3.10. Water quality encompasses the chemical status of the WFD Water Body , but also clarity, temperature, salinity, oxygen levels, nutrients and microbial patterns. Water quality should be considered as a receptor if activities:

- could affect water clarity, temperature, salinity, oxygen levels, nutrients or microbial patterns continuously for longer than a spring neap tidal cycle (about 14 days);
- are in a WFD Water Body with a phytoplankton status of moderate, poor or bad; or
- are in a WFD Water Body with a history of harmful algae.

WFD Protected Areas

2.3.11. WFD protected areas encompass sites protected under Natura 2000 (i.e., Special Areas of Conservation ('SACs') and Special Protection Areas ('SPAs'), bathing waters, shellfish waters and nutrient sensitive areas ('NSAs'). Guidance stipulates that WFD protected areas located within 2 km of the proposed activity must be identified (Ref. 2.19). It also acknowledges that the footprint of an activity may be extended because of temperature changes, or release of a sediment plume, and for dredging activity, a footprint is considered to be 1.5 times the dredge area.

Invasive Non-Native Species

2.3.12. The introduction and spread of INNS can occur directly through the release of individuals of INNS species into the environment via activities, e.g., through release of ballast water (Ref. 2.20), on the hull of ships even if recently cleaned or anti-fouled (Ref. 2.21; Ref. 2.22), or indirectly by creating opportunities for organisms to settle or spread (e.g. habitat creation or disturbance), thereby allowing for them to out-compete native species. Therefore, consideration should be given to:

- where materials or equipment have come from, been used or whether they have travelled through other water bodies; or

- whether activities will help spread existing INNS, either within the immediate WFD Water Body or to other water bodies.

Measures to Achieve Environmental Objectives

2.3.13. For each River Basin District, a programme of measures has been drawn up to enable the achievement of objectives of the RBMP. These include:

- Current measures;
- Measures to enable improvements by 2027; and
- Additional measures identified to achieve WFD objectives.

2.3.14. These are integrated with measures for protected areas via site specific action plans. Current measures taken from the Cycle 3 Dee and Western Wales RBMPs include:

- Physical Modifications (e.g., Flood Risk Management activities, Shoreline Management Plan policy for coastal defence management, National Habitat Creation Programme, Sustainable Fisheries Programme, The Agenda For Change for Fisheries, Barriers to fish passage, River Restoration Programme);
- Managing pollution from waste water;
- Managing INNS;
- Managing pollution from mines;
- Manage pollution from towns, cities and transport including the impacts of acidification;
- Changes to natural flow and levels of water; and
- Managing pollution from rural areas.

2.3.15. These are managed through the application of relevant legislation, policy and guidance by regulators and operators, as well as future planning, joint planning and coordination between regulators and operators. Additional measures include improved flood resilience, climate change adaptation, increased biodiversity and social cohesion.

2.4. LIMITATIONS AND ASSUMPTIONS

2.4.1. Observations recorded during the site visits represent a snapshot of that moment in time; for example, the aquatic field surveys were conducted during low tide and fair-weather conditions.

2.4.2. No detailed sediment transport assessment has been undertaken, only a high-level review of site observations and information available online

have been used. The analysis performed provides sufficient assessment of sediment transport processes for this WFD assessment.

2.4.3. It is assumed that no sediment will be removed off site during the Foreshore Cable Installation.

2.4.4. During the aquatic and intertidal ecology walkover, no voucher specimens were retained to be identified by a taxonomist under laboratory conditions during the aquatic validation survey. Guidance detailed in the Marine Monitoring Handbook (Ref. 3.12.), and Procedural Guidelines for in-situ intertidal biotope recording (Ref. 3.15) only advises collection of voucher specimens if species cannot be identified in the field and/or if the species are considered important to identify the biotope. Where necessary, photographs were taken showing diagnostic features which were recorded during the survey to accurately identify species. In addition, all species identified within the field were common and widespread in the environments surveyed.

2.4.5. No hydraulic or water quality modelling has been undertaken to inform this assessment.

2.4.6. Ecological survey data are typically valid for up to 18 months unless otherwise specified, for example if conditions are likely to change more quickly due to ecological processes or anticipated changes in management. The likelihood of surveys needing to be updated increases with time and is greater for mobile species or in circumstances where the habitat or its management has changed significantly since the surveys were undertaken. Factors to be considered include (but are not limited to): whether a site supports, or may support, a mobile species which could have moved on to site, or changed its distribution within a site (Ref. 3.14.). Where survey data is older than 18 months in this report, it is considered suitable to support this assessment given that the baseline habitat conditions have not changed significantly since the initial surveys were carried out. Where necessary, updated validation surveys have been carried out.

2.4.7. eDNA sampling in a river or stream environment can only detect taxa that are in or upstream of the sampling location. Organisms located downstream of the sites will not be detected.

2.4.8. Rivers and streams have varying flow rates, which can affect how eDNA moves and where it settles, leading to variable detection results across different parts of the stream.

2.4.9. Whilst eDNA can detect the presence of a species, it is difficult to use it to estimate population size. There is no direct relationship between the

amount of eDNA detected and the actual abundance of the species at a given location.

2.4.10. eDNA detected in a sample does not indicate the presence of living specimens of a given taxon. Dead organisms still contribute to the eDNA in water.

3. BASELINE

3.1. CATCHMENT CHARACTERISTICS

3.1.1. The drainage network is heavily modified, composed of multiple ditches and modified channels. Varying types of river morphologies occur within a few metres from the shoreline at the River Dee estuary, including meandering and braided. The Dee Estuary is a large, funnel-shaped estuary that becomes tidally influenced downstream from Chester Weir. In the Lower Dee Estuary reach between Flint to Talacre, the Dee Estuary channel transitions from a single-thread channel to a multi-thread, extensively braided estuary with broad intertidal sandbanks, mudflats and saltmarshes. No major tributaries join the mainstem within the catchment.

3.1.2. The transitional water body, where cable installation is planned, are influenced in part by sediment supply from the River Dee. The River Dee rises in Snowdonia, Wales, and flows generally east via Chester, England, before discharging into the sea through an estuary between Wales and the Wirral Peninsula in England. While the Dee contributes to the sediment dynamics in the estuarine and nearshore environments, coastal sediment supply is also likely influenced by offshore sources, including reworked glacial deposits from areas such as Morecambe Bay to the north. The river has a total length of 113 km.

CATCHMENT GEOLOGY AND SOILS

3.1.3. Superficial geology in the River Dee catchment comprises deposits of fines (sand, silt and clay) of tidal influence near the current shoreline that transitions upstream wards to till from the Ice Age. Alluvial deposits are widespread along the valleys of the mainstem and its major tributaries. The soil distribution follows a similar pattern, with loamy and clayey soils along the boundary between the estuary and the shore, and along the river valley floor. In the upper parts of the catchment, where alluvial deposition is less intense, the soils are more porous and more permeable as attested by wide occurrence of freely draining acid loamy soils and slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils.

CATCHMENT HYDROLOGY

3.1.4. The nearest gauge station to the proposed activities (67 - Dee (Cheshire)) is located approximately 34 km upstream (**Ref. 3.1**). The gauge record indicates that abstraction activities are responsible for a reduction of 6 m^3/s with regards to the upstream flow. The factors affecting runoff are the presence of reservoirs, regulation of surface and

groundwater, and public water supply abstraction. The mean flow is 34.0 m^3/s, the Q95 is 5.1 m^3/s and the Q5 is 119.0 m^3/s. The baseflow index of the gauge station is 0.5, indicating that half of the annual discharge has a groundwater source. Rainfall increases steadily from east to west, ranging from 650 mm to 3,000 mm.

3.1.5. Land use within the catchment is primarily grassland (62.8%) and woodland (13.6%), with smaller mountain (9.5%), arable (8.8%), and urban (3.6%).

HISTORICAL CHANNEL CHANGE

3.1.6. The oldest available online maps (Ref. 2.9), 1st edition OS mapping from approximately the late 19th century, show that the drainage at the landward section of the Point of Ayr around Talacre and Warren had been ditched, straightened, and therefore heavily modified prior to the 20th Century. Since then, despite localised construction and drainage rearrangement works the site has remained with a static drainage geometry. The drainage along the shoreline had been straightened sometime before 1955 due to the construction of a sluice house gutter. This straightened section persisted to at least the 1970s, when it has since become a more natural, sinuous planform that has migrated laterally over the years.

3.1.7. The River Dee estuary has significantly changed since the first available historical maps. These changes include the rearrangement of multiple channels bordering the estuary area, variations in drainage density, and channel width.

3.2. BASELINE CHARACTERISTICS AGAINST WFD QUALITY ELEMENTS

3.2.1. A summary of the WFD status of the North Wales Coastal WFD Water Body (GB641011650000) is provided in Table B.1 (Ref 2.2) in Annex B.

3.2.2. A summary of the WFD status of the Dee (North Wales) Transitional (GB531106708200) is provided in Table B.2 (Ref 2.2) in Annex B. Please note that the Dee (North Wales) Transitional WFD Water Body is situated 0.9 km to the east of the RLB but may still be impacted due to its hydrological connection with the North Wales Coastal WFD Water Body, particularly given the tidal influence. Furthermore, this water body falls within the 2 km buffer for protected areas considered in this assessment, and a precautionary approach has been applied due to the ecological significance of the Dee Estuary, which supports various protected habitats and species.

3.2.3. The baseline status for the Dee Carboniferous Coal Measures (GB 41102G204800) groundwater WFD Water Body is provided in Table B.3 (Ref 2.2) in Annex B.

3.3. HYDROMORPHOLOGY QUALITY ELEMENTS

UNCLASSIFIED (NON-REPORTABLE) WATERCOURSES

3.3.1. Four unclassified (non-reportable) watercourses draining the Point of Ayr area were surveyed for hydromorphology. They are referred to in Table 3-1.

Table 3-1 – Watercourses surveyed for hydromorphology within proximity of the Proposed Development

Watercourse Name	Centroid Location (NGR)
PoA Ditch 2	SJ 12316 83749
	SJ 11919 83934
Talacre Brook	SJ 12021 84232
PoA Ditch 3	SJ 12482 84736

3.3.2. Note, that these four survey points in Table 3-1 are situated outside of the Study Area as they were carried out for the Consented Development FUL/000246/23 (Figure 3-1). However, the characteristics of the Talacre Brook and PoA Ditch 2 hydromorphological surveys will be similar to that of the section of PoA Ditch 1 and PoA Ditch 2 that is present within the 500 m buffer of the Proposed Development. This is because the ditches in question are largely artificial water bodies and display very uniform characteristics—namely, low gradient and sinuosity, absence of perceptible flow, and a trapezoidal cross-section with resectioned banks and channel. These features result in limited hydromorphological diversity and minimal spatial variability, making it reasonable to infer that similar conditions persist within the 500 m buffer. Consequently, the hydromorphological quality elements relevant to WFD assessment are unlikely to differ materially, supporting the validity of extrapolating survey results to this area.

3.3.3. PoA Ditch 3 is outside of the Study Area, therefore this will not be discussed further in this report. Additional details, if required, on the PoA Ditch 3 hydromorphological survey can be found in Annex A.

3.3.4. The survey findings of PoA Ditch 2 and Talacre Brook are described in the sub-sections below.

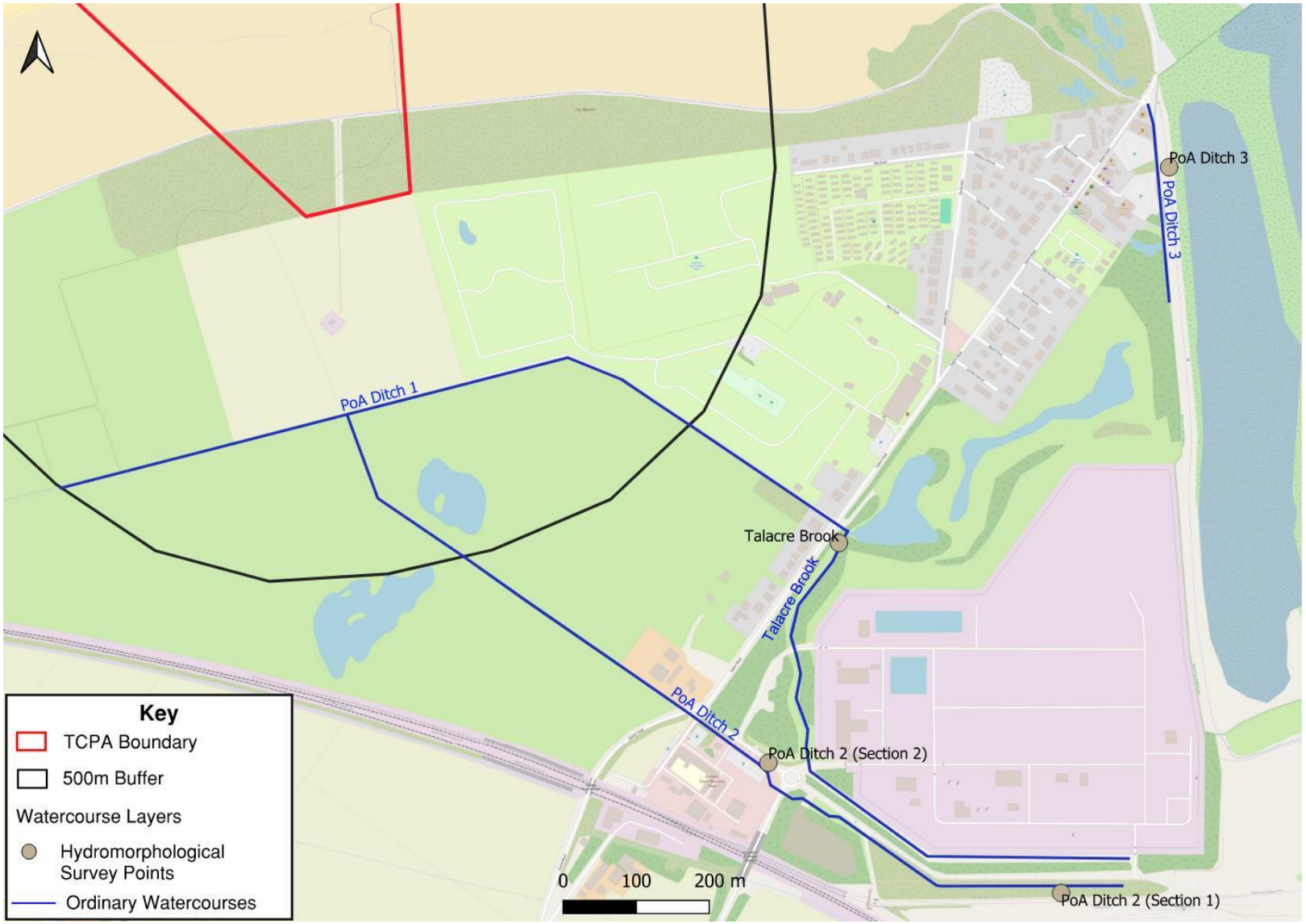

Figure 3-1 - Watercourses within the Proposed Development 500 m buffer relative to the watercourses that hydromorphological surveys were carried out on.

Quantity and Dynamics of Flow

3.3.5. No gauge stations exist for any of the unclassified watercourses. Therefore, the quantity and dynamics of flow are from field observation only.

PoA Ditch 2

3.3.6. The channel was that of a low gradient and no perceptible flow. The water level was approximately 0.5 m deep at the time of the survey.

Talacre Brook

3.3.7. The channel was that of a low gradient and no perceptible flow, and, as a result, flow direction was determined from OS mapping. The water level was approximately between 0.3 m and 1 m deep at the time of the survey.

Connection to Groundwater

PoA Ditch 2

3.3.8. The PoA Ditch 2 is likely to be connected to the water table and hold a hyporheic zone where surface and groundwater is exchanged. However, low permeability clay and silty sand beds within the tidal flat deposits may limit the hydraulic connection of the surface and groundwater. Furthermore, the low flow during survey time indicates that the interaction between channel and groundwater flows is much lower than in a channel with significant velocity.

Talacre Brook

3.3.9. The Talacre Brook is likely to be connected to the water table and hold a hyporheic zone where surface and groundwater is exchanged. However, low permeability clay and silty sand beds within the tidal flat deposits may limit the hydraulic connection of the surface and groundwater. Furthermore, the low flow during survey time indicates that the interaction between channel and groundwater flows is much lower than in a channel with significant velocity.

River Continuity

PoA Ditch 2

3.3.10. No artificial barriers and no water abstraction were observed along the investigated section. Where the channel flows through woodland it has lateral connectivity within the adjacent woodland habitat. The reach flowing through the open mosaic wasteland habitat, the watercourse is over-deepened and isolated from its floodplain, therefore impacting lateral connectivity.

Talacre Brook

3.3.11. No water abstraction was observed along the investigated section. However, the watercourse is culverted, which may impact on lateral and longitudinal connectivity.

River Width and Depth Variation

PoA Ditch 2

3.3.12. The PoA Ditch 2 is a trapezoidal ditch with a straight planform, over-deepened with resectioned channel and banks. The channel dimensions are approximately 1 m wetted width and approximately 0.5 m deep water at the time of survey; bankfull is approximately 5 m wide with a bankfull water depth estimated at 2.5 m.

Talacre Brook

3.3.13. The Talacre Brook is a modified channel with a straight planform, over-deepened with resection channel and banks. The channel dimensions are approximated at 4 m wetted width; 1 m water depth; 5 m bankfull width; and a water depth at bank full estimated at around 2 m. The bed was not visible.

Structure and Substrate of the Riverbed

PoA Ditch 2

3.3.14. Turbidity was high, and the channel bed was not visible during the survey.

Talacre Brook

3.3.15. Turbidity was high, and the channel bed was not visible during the survey.

Structure of Riparian Zone

PoA Ditch 2

3.3.16. The bank face has a simple vegetation structure on both banks and is managed. The left bank land use is a car park, the right bank top land use is a road with low volume traffic for access to the business park and industrial areas. The second section from the PoA Ditch 2 has a riparian zone dominated by tall herbs with some scrub vegetation. The drain flows around the perimeter of the gas terminal with wasteland dominating the 50 m land use on the other bank top.

Talacre Brook

3.3.17. The Talacre Brook has a continuous line of trees on the left bank with a complex vegetation structure, and no trees along the top of the right bank. The right bank is mown grassland with uniform vegetation structure. The 5 m land use is broadleaf woodland and grassland on the right bank. Urban/commercial development is present in the 50 m land use.

COASTAL AND TRANSITIONAL WATER BODIES

Dee (North Wales) Transitional WFD Water Body (GB531106708200)

Depth variation

3.3.18. The River Dee Estuary has adjoining river channels with mean depth ranging from approximately 1 m to 2 m. These channels transition from the shore, where marsh occurs a few metres above sea level, to their outlet at the sea. The sea depth reaches approximately 14 m in the northernmost section of the WFD Water Body.

Quality, structure, and substrate of the bed

3.3.19. The River Dee Estuary is a low-lying muddy area with a vegetated, stable morphology on the landward side of the water body, and a more sandy, unstable morphology on the seaward side. The channels draining the estuary have primarily fine-grained sediments on both banks and beds and a meandering planform.

Structure of the intertidal zone

3.3.20. The River Dee Transitional WFD Water Body is partly within the intertidal zone. Tide variation affects hydraulic properties in the river mouth (e.g., river depth, width, and velocity).

Freshwater zone

3.3.21. Freshwater is likely to be restricted to the watercourses upstream, and, potentially to the upper boundary of the River Dee Transitional WFD Water Body. Saline mixture with base flow is likely to be an existing limitation to the occurrence of a widespread freshwater zone within the studied WFD Water Body.

Wave exposure

3.3.22. Wave exposure in the Dee Estuary appears to be limited to the upper few metres of the intertidal zone (<10 m), likely due to the estuary's northwest orientation, which offers partial protection from the predominant wave direction (Ref. 3.2). Additionally, the very shallow bathymetry at the estuary mouth dissipates incoming wave energy.

Although wave data from the nearby Liverpool Bay wave buoy indicate significant wave activity from the northeast, the estuary's geomorphology and sheltering effects limit wave penetration into the inner estuary.

Physico-Chemical Quality Elements and Water Quality

3.3.23. No water quality data is available through the NRW Water Quality Archive for this WFD Water Body. The nearest monitoring station is from the North Wales Coastal WFD Water Body, and it is described below.

3.3.24. The nearest monitoring station in the Dee Catchment recorded the following range of values for the water quality elements in March 2022 - February 2023:

- pH: 7.74 - 8.49;
- Salinity: 30 – 32.3 ppt;
- Temperature: 5.8 – 19.75 ^{O}C;
- Dissolved oxygen: 81.7 - 118.8;
- Turbidity: 2.1 - 169.3 FTU; and
- Mean suspended grain size: 0.235mm.

North Wales Coastal WFD Water Body (GB641011650000)

Depth variation

The North Wales Coastal WFD Water Body has a depth of up to approximately 21 m in the northernmost section of the WFD Water Body.

Quality, structure, and substrate of the bed

3.3.26. The North Wales Coastal WFD Water Body has a long, elongated beach on its shoreline. The grain size distribution coarsens from the intertidal zone to the backshore of the beach by the dunes. The intertidal zone is sand-dominated, and the backshore is gravel-dominated. The dunes have a sand-matrix and preserved stratigraphy.

Structure of the intertidal zone

3.3.27. During the Phase 1 intertidal walkover survey undertaken in April 2022 by RPS, observations on the structure of the intertidal zone were made **(Ref 3.13).** The validation survey in April 2025 did not observe any significant change to the structure of the intertidal zone, apart from those indicated below.

3.3.28. During the 2022 survey, the majority of the shore had a gentle slope with a narrow steep reflective foreshore at the top of the beach. A moderately sloping backshore was fringed by steep sand dunes built up by marram grass *Ammophila arenaria*. The incoming tide flooded the beach from northeast to southwest though the surf zone the flood tide followed sandbar troughs from east to west. Drainage, for the most part, occurred in the opposite direction. During the 2025 WSP survey, the berm and backshore present at the base of the dunes was replaced by a steep backshore and band of cobbles and pebbles which varied in width from 5-10m.

3.3.29. During the 2022 RPS survey, the upper swash zone of the beach was widest (approximately 400 m) in the west of the Study Area, though was virtually absent at the eastern end of the site. Sands in this location were fine, low lying and permanently waterlogged due to groundwater seepage. An anoxic layer was patchily distributed. No changes to these observations were noted during the 2025 WSP surveys.

3.3.30. During the 2022 RPS survey, the mid-section of the beach was dominated by wide mobile sandbars comprised mainly of fine to medium grained sand, with small amounts of large shell fragments and gravels. An anoxic layer was not present. The sand here was elevated, mobile, free draining and consequently supported a low density of life. Typically, three large parallel sandbars occurred at any transect line down the intertidal zone, comprising a surf zone spanning a distance of approximately 400 m. Narrow waterlogged depressions (troughs) lay between sandbars and contained a finer grained sand with a slightly higher mud content. No updates to these observations were made during the 2025 WSP survey.

3.3.31. During the 2022 RPS survey, the lowest part of the shore was comprised predominantly of fine to medium sand and, although the mud content was relatively low, it was highest in this location. An anoxic layer was generally present though was often only faintly visible in the top 25 cm of sediment. This layer occurred at variable depths below the surface across the lower shore and appeared absent in places. No updates to these observations were made during the 2025 WSP survey.

Freshwater zone

3.3.32. Freshwater is likely to be confined to the interface with the Dee Estuary. Saline mixture with base flow is likely to be an existing limitation to the occurrence of a widespread freshwater zone within the studied Water Body.

Wave exposure

3.3.33. The beach was mainly dissipative in terms of wave energy, with some reflective characteristics. It was an exposed high energy system (due to its open orientation toward the Irish Sea) with a breaker zone and well-developed surf and swash zones. The area receives wave energy from both the northwest and northeast, as shown by data from the nearby Liverpool Bay wave buoy. While shallow nearshore bathymetry can help to attenuate incoming wave energy in some locations, the general lack of natural shelter along much of this coastline allows for sustained wave action beyond the immediate shoreline.

3.4. PHYSICO-CHEMICAL QUALITY ELEMENTS AND WATER QUALITY

3.4.1. Water quality samples taken between 2000 and 2020, and collected from a marine monitoring point, located approximately 1.4 km from the PoA Terminal (Coastal Survey 168 Welsh Channel: Wla 10), were made available by NRW (Ref. 2.6). The most recent data about specific pollutants, priority substances and priority hazardous substances, dissolved inorganic nitrogen, dissolved oxygen, turbidity, and water temperature are detailed below. No sediment samples were taken and analysed for contaminants.

SPECIFIC POLLUTANTS

3.4.2. A list of the specific pollutants found in the Water Body is provided in Table 3-2. The last available data ranges from 2007 to 2008, and the only elements found are Arsenic, Chromium and Copper.

Table 3-2 - Specific pollutants found in the Water Body

Notation	Determinant	Units	16/05/2007	09/08/2007	03/10/2007	13/02/2008	22/04/2008
6045	Arsenic, Dissolved	µg/l	1.39	1.83	2.2	1.8	2
3409	Chromium, Dissolved	µg/l		< 0.5	2.49	< 0.5	< 0.5
6450	Copper, Dissolved	µg/l	3.46	1.33	2.39	1.3	3.5

3.4.3. A list of the Priority Substances and Priority Hazardous Substances found in the Water Body is provided in the tables below (Table 3-3 and

Table 3-4). The available data ranges from 2001 to 2008, and 19 chemical elements were identified.

Table 3-3 - Priority Substances and Priority Hazardous Substances found in the Water Body. Samples collected in 2001

Notation	Determinant	Units	15/01/2001	09/05/2001	20/09/2001
569	Endosulfan A	µg/l	< 0.005		
570	Endosulfan B	µg/l	< 0.005		
6648	Hexachlorobutadiene	µg/l	< 0.005		
576	Hexachlorobenzene	µg/l		< 0.005	< 0.005
3272	1,2-Dichloroethane	µg/l	< 1		
3002	Atrazine	µg/l	< 0.03		
9618	1,2-Dichlorobenzene	µg/l	< 1		
9619	1,3-Dichlorobenzene	µg/l	< 1		
9050	1,2,3-Trichlorobenzene	µg/l	< 0.01		
9051	1,2,4-Trichlorobenzene	µg/l	< 0.01		
9052	1,3,5-Trichlorobenzene	µg/l	< 0.01		
4049	1,4-Dichlorobenzene	µg/l	< 1		
576	Hexachlorobenzene	µg/l	< 0.001		
1085	Pentachlorophenol	µg/l	< 0.1		
3373	Chloroform :- {Trichloromethane}	µg/l	< 0.1		

Table 3-4 - Priority Substances and Priority Hazardous Substances found in the Water Body. Samples collected in 2007 and 2008

Notation	Determinant	Units	16/05/2007	09/08/2007	03/10/2007	13/02/2008
103	Mercury, Dissolved	µg/l	< 0.01	< 0.01	0.013	< 0.01
105	Mercury	µg/l	< 0.01	< 0.01	< 0.01	< 0.01
52	Lead, Dissolved	µg/l	0.192	0.099	0.237	0.083
3410	Nickel, Dissolved	µg/l	0.508	0.726	0.92	0.5

3.4.4. A list containing Dissolved Inorganic Nitrogen, Dissolved Oxygen, Turbidity, and Water Temperature found in the Water Body is provided in Table 3-5. The available data ranges from 2017 to 2020.

SUMMARY

3.4.5. Overall, a majority of the physico-chemical elements are within the recommended range for transitional and coastal water bodies, respectively. Elements that are not within a natural range are discussed below:

3.4.6. Dissolved oxygen being between 81.7 – 118.8% for the Dee Transitional WFD Water Body shows slightly elevated saturation levels, whereby 80 - 100% saturation is the normal range. This elevation in saturation rates, suggests photosynthetic overactivity possibly from eutrophication or algal blooms .

3.4.7. Turbidity is also very high, whereby a typical estuarine turbidity is approximately between 1-100 FTU (Formazin Turbidity Unit), with readings of up to 169.3 FTU. This could be due to sediment resuspension, runoff or pollution – such that it could reduce light penetration and affect photosynthesis.

Table 3-5 - Priority Dissolved Inorganic Nitrogen, Dissolved Oxygen, Turbidity, and Water Temperature found in the Water Body . Samples collected from 2017 to 2020

Notation	Determinant	Units	17/09/2017	26/01/2018	13/05/2018	28/06/2018	15/09/2018	20/01/2019	12/05/2019	10/07/2019	14/09/2019	21/01/2020
4	Time of high tide	hh.mm	9.43	17.54	10.23	12.12	15.47	10.12	18.06	5.52	12.2	8.16
6	Sample Depth below surface	m	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
76	Temperature of Water	°C	14.6	6.1	11.9	18.9	15.7	6.2	12.2	17.4	16.2	6.4
3428	Water Depth	m	16.65	14.38	16.2	16.78	16.39	17.54	14.8	16.59	17.3	16.87
3976	Turbidity : In Situ	ftu	7.2	26.8	3.1	1.8	14.9	25.8	2.8	16.5	5.2	18.3
4925	Nitrogen, Dissolved Inorganic: as N	mg/l	0.289	0.2	< 0.12	< 0.12	0.149	0.166	< 0.12	< 0.077	< 0.014	0.22
9901	Oxygen, Dissolved, % Saturation	%	90.1	102.2	110.5	116.3	90.1	91.9	147.1	118.5	109.6	97.2
9924	Oxygen, Dissolved as O2	mg/l	7.62	10.4	9.87	8.96	7.35	9.28	13.1	9.43	8.92	9.8
9943	Nitrogen, Total Oxidised, Filtered as N	mg/l	0.19	0.18	< 0.1	< 0.1	< 0.1	0.14	< 0.1	< 0.07	< 0.007	0.2
9993	Ammoniacal Nitrogen, Filtered as N	mg/l	0.099	< 0.02	< 0.02	< 0.02	0.049	0.026	< 0.02	< 0.007	< 0.007	0.02

3.5. BIOLOGICAL QUALITY ELEMENTS

FISH

Dee (North Wales) Transitional and North Wales Coastal WFD Water Bodies

3.5.1. Records from Cefas (Ref. 2.5) and Ellis et al. (Ref. 2.4) revealed marine fish species that may be present within the intertidal zone and/or Dee estuary, with a further search of the NFPD returning data from Environment Agency fish surveys within Liverpool Bay, see Table 3-6.

3.5.2. The desk study returned records of marine fish species that may be present within the intertidal zone and/or Dee estuary (Ref. 2.4; Ref. 2.5). Species recorded within the Dee estuary are included due to its proximity to the Proposed Development.

3.5.3. Many of the recorded species are of commercial and/or conservation importance and utilise the outer estuary and surrounding coastal area as spawning and nursery grounds (Ref. 2.4). Additionally, the area supports migratory fish species.

3.5.4. Brown/sea trout, Atlantic salmon, twaite shad and European eel are all migratory species listed under Section 41 of the NERC Act (Ref. 3.3) as SPIs. European eel are further protected under The Eels (England and Wales) Regulations (Ref. 3.6) and are also listed on the IUCN Red List of Threatened Species as being critically endangered (Ref. 3.7). Whiting, plaice, herring, lesser sandeel, cod, plaice, smelt, mackerel, and sole are also listed as SPI in England and Wales.

Table 3-6 - Marine fish species that have been recorded within the intertidal zone, coastal zone, and/or Dee estuary

Common Name	Latin Name	Habitat Use		
		Nursery	Spawning	Migratory
Tope Shark	*Galeorhinus galeus*	X		
Thornback Ray**	*Raja clavata*	X		
Spotted Ray	*Raja montagui*	X		
Herring**	*Clupea harengus*	X		
Cod**	*Gadus morhua*	X	X	
Whiting**	*Merlangius merlangus*	X	X	
Anglerfish**	*Lophius piscatorius*	X		
Sandeels	Ammodytidae	X	X	
Mackerel**	*Scomber scombrus*			
Plaice**	*Pleuronectes platessa*	X	X	
Sole**	*Solea solea*	X	X	
Flounder**	*Pleuronectes flesus*	X		
Bass**	*Dicentrarchus labrax*	X		
Thicklip grey mullet	*Chelon labroscus*	X		

Common Name	Latin Name	Habitat Use		
		Nursery	Spawning	Migratory
Thinlip grey mullet	*Liza ramada*	X		
European Eel*	*Anguilla Anguilla*			X
Atlantic Salmon*	*Salmo salar*			X
Sea trout*	*Salmo trutta*			X
Sea lamprey*	*Petrmyzon marinus*			X
Twaite shad*	*Alosa fallax*			X
Smelt*	*Osmerus esperlanus*			X
European sturgeon*	*Acipenser sturio*			X

3.5.5. The desk study returned records from three Natural Resource Wales (NRW) Marine Fish Surveys (Ref. 3.3) recorded within the last five years. Otter trawl netting surveys were undertaken on the 20 September 2022, approximately 400 m from the cable route ((National Grid Reference) NGR SJ 11297 86003, NGR SJ 11181 86020), and on the 25 September 2024, approximately 3km from the cable route (NGR SJ 12430 85789). A total of 20 taxa were recorded, six species of commercial interest were recorded (Table 3-7). Herring, whiting, plaice, and sole, were all recorded during the survey and are listed as SPI under the NERC Act. Sandy goby, and common goby are also protected under appendix III of the Bern Convention.

Table 3-7 NRW Wales Marine Fish Survey Data for the Dee (North Wales) Transitional and North Wales Coastal WFD Water Body

Common Name	Scientific Name	Listed under conventions, directives and/or legislation	Number of individuals
Pogge	*Agonus cataphractus*	None	24
Solenette	*Buglossidium luteum*	None	3
Tub gurnard	*Chelidonichthys lucerna*	None	3
Five-bearded rockling	*Ciliata mustela*	None	1
Herring**	*Clupea harengus*	Species of principle importance (SPI) England and Wales.	1
n/a	*Clupeidae*	n/a	16
Lesser weever fish	*Echiichthys vipera*	None	1
Grey gurnard	*Eutrigla gurnardus*	None	3
Dab**	*Limanda limanda*	None	357
Whiting**	*Merlangius merlangus*	SPI (England and Wales)	145

Common Name	Scientific Name	Listed under conventions, directives and/or legislation	Number of individuals
Starry smooth-hound	*Mustelus asterias*	None	50
Flounder**	*Platichthys flesus*	None	180
Plaice**	*Pleuronectes platessa*	SPI (England and Wales)	108
Common goby	*Pomatoschistus microps*	Berne Convention Appendix III	13
Sand goby	*Pomatoschistus minutus*	Berne Convention Appendix III	12
Small-spotted catshark	*Scyliorhinus canicula*	None	26
Sole**	*Solea solea*	SPI (England and Wales)	22
Lesser pipefish	*Syngnathus rostellatus*	None	1
Greater weever fish	*Trachinus draco*	None	101
Pouting	*Trisopterus luscus*	None	56
TOTAL			1, 123

** indicating species of commercial importance

3.5.6. The desk study returned records from one Environment Agency (EA) otter trawl survey carried out in Liverpool Bay (NGR SD 23253 03974), approximately 20 km from the Study Area, on 25 September 2024 (**Ref. 3.4**). A total of 14 species were recorded, including four SPI in England and Wales (whiting, plaice, herring and sole) and one listed under the Bern Convention Appendix III (sand goby). Seven of the recorded species are also of commercial interest (**Table 3-8**).

3.5.7. One other protected species, river lamprey *Lampetra fluviatilis,* was previously recorded within Liverpool Bay at NGR SD 22667 03809. One individual was recorded in an Environment Agency survey in November 2013. River lamprey is protected under Section 41 of the

NERC (Ref. 3.3) as a SPI and listed under Annex II and Annex V of the EC Habitats Directive (Ref. 3.5).

Table 3-8 Fish species data obtained from the EA Ecology and Fish Data Explorer (NGR SD 23253 03974), on 25 September 2024

Common Name	Scientific Name	Listed under conventions, directives and/or legislation	Number of Individuals
Dab**	*Limanda limanda*	None	*126*
Whiting**	*Merlangius merlangus*	SPI (England and Wales)	*204*
Flounder**	*Platichthys flesus*	None	*15*
Common dogfish	*Scyliorhinus canicula*	None	*9*
Plaice**	*Pleuronectes platessa*	SPI (England and Wales)	*32*
Herring**	*Clupea harengus*	SPI (England and Wales)	*28*
Solenette	*Buglossidium luteum*	None	*18*
Sole**	*Solea solea*	SPI (England and Wales)	*5*
Thornback ray**	*Raja clavata*	None	*12*
Sand goby	*Pomatoschistus minutus*	Berne Convention Appendix III	*180*
Grey gurnard	*Eutrigla gurnardus*	None	*5*
Tub gurnard	*Chelidonichthys lucerna*	None	*1*
Pogge	*Agonus cataphractus*	None	*1*
Pouting	*Trisopterus luscus*	None	*1*

** indicating species of commercial importance

Dee (North Wales) Transitional WFD Water Body (GB531106708200)

3.5.8. The desk study returned records from 62 NRW Marine Fish Surveys in the Dee (North Wales) Transitional WFD Water Body undertaken in September 2024 (Ref. 3.10). A range of survey methodologies were used including beam trawl netting (15 surveys), otter trawl netting (2

surveys), seine netting (30 surveys) and fyke netting (15 surveys). The surveys were located throughout the Dee (North Wales) Transitional WFD Water Body from SJ 14026 84923, approximately 3km southeast of the cable alignment route to SJ 38652 65438, approximately 35km southeast of the cable route on the River Dee.

3.5.9. A total of 35 taxa were recorded including seven SPI in England and Wales (European eel, lesser sand eel, smelt, whiting, plaice, herring and sole) and two listed under the Bern Convention Appendix III (sand goby and common goby). Eight of the recorded species are also of commercial interest (Table 3-9).

3.5.10. European eel are a migratory species listed under Section 41 of the (NERC) Act (Ref. 3.3) as a SPI and further protected under The Eels (England and Wales) Regulations (Ref. 3.6). The species is also listed on the IUCN Red List of Threatened Species as being critically endangered (Ref. 3.7).

Table 3-9 NRW Wales Marine Fish Survey Data for the Dee (North Wales) Transitional WFD Water Body

Common Name	Scientific Name	Listed under conventions, directives and/or legislation	Number of individuals
Pogge	*Agonus cataphractus*	None	43
Lesser sand eel	*Ammodytes marinus*	SPI England and Wales	1
European eel	*Anguilla anguilla*	SPI England and Wales The Eels (England and Wales) Regulations 2009	45
Sand smelt	*Atherina presbyter*	None	31
Solenette	*Buglossidium luteum*	None	1
Thick-lipped mullet	*Chelon labrosus*	None	8

Five-bearded rockling	*Ciliata mustela*	None	20
Herring**	*Clupea harengus*	SPI England and Wales.	1
Conger eel	*Conger conger*	None	4
Sea bass**	*Dicentrarchus labrax*	None	42
Lesser weever fish	*Echiichthys vipera*	None	6
Grey gurnard	*Eutrigla gurnardus*	None	1
Three-bearded Rockling	*Gaidropsarus vulgaris*	None	2
Three-spined stickleback	*Gasterosteus aculeatus*	None	5
Dab**	*Limanda limanda*	None	69
Thin-lipped Mullet	*Liza ramada*	None	18
Whiting**	*Merlangius merlangus*	SPI (England and Wales)	39
n/a	*Mugilidae*	None	1
Starry smooth-hound	*Mustelus asterias*	None	8
Shorthorn sculpin	*Myoxocephalus scorpius*	None	1
Smelt	*Osmerus esperlanus*	SPI (England and Wales)	5
Perch	*Perca fluviatalis*	None	5
Flounder**	*Platichthys flesus*	None	331
Plaice**	*Pleuronectes platessa*	SPI (England and Wales)	167
Lozano's goby	*Pomatoschistus lozanoi*	None	2
Common goby	*Pomatoschistus microps*	Berne Convention Appendix III	1376

Sand goby	*Pomatoschistus minutus*	Berne Convention Appendix III	387
Thornback ray**	*Raja clavata*	None	5
Brill**	*Scopthalmus rhombus*	None	1
Small-spotted catshark	*Scyliorhinus canicula*	None	30
Sole**	*Solea solea*	SPI (England and Wales)	52
Sprat**	*Sprattus sprattus*	None	3121
Great pipefish	*Syngnathus acus*	None	2
Lesser pipefish	*Syngnathus rostellatus*	None	4
Pouting	*Trisopterus luscus*	None	29
TOTAL			5, 863

** indicating species of commercial importance

Unclassified watercourses

3.5.11. The desk study revealed no available fish data for the unclassified water bodies.

3.5.12. Four watercourses draining the Point of Ayr area were surveyed for fish e-DNA. They are: PoA Ditch 1 (OS NGR SJ 11351 84419), PoA Ditch 2 (OS NGR SJ 12129 83773), the Talacre Brook (OS NGR SJ 11968 83976), and the Point of Ayr Brook (OS NGR SJ 12333 83612). The survey findings are described in the sub-sections below.

PoA Ditch 1

3.5.13. Three species of fish were detected in the eDNA sample taken at the confluence of PoA Ditch 1 and PoA Ditch 2. One species of fish was detected in the downstream PoA Ditch 2 sample. Whilst, three species of fish were detected in the Talacre Brook e-DNA sample. The species detected and the relative proportion of the sequences found in the sample are detailed in **Table 3-10**.

Table 3-10 – The proportion of sequencing output allocated to the fish taxa identified in the e-DNA sample from PoA Ditch 1, 2 and Talacre Brook

Common Name	Latin name	Percentage composition (%)		
		PoA Ditch 1	PoA Ditch 2	Talacre Brook
Three-spined stickleback	*Gasterosteus aculeatus*	69.44	100	28.62
Nine-spined stickleback	*Pungitius pungitius*	23.05		56.82
European eel*	*Anguilla anguilla*	5.07		14.55

*Indicates protected species

AQUATIC MACROINVERTEBRATES

Unclassified watercourses

3.5.14. The same four watercourses draining the Point of Ayr area were surveyed for aquatic macroinvertebrates.

3.5.15. No protected aquatic macroinvertebrate species were recorded in any of the four watercourses. However, the invasive non-native New Zealand mud snail *Potamopyrgus antipodarum*, was recorded at all sampling locations.

3.5.16. Analysis of the aquatic macroinvertebrate assemblages recorded in spring, indicates all four sites can be classified as heavily sedimented, along with a communities of moderate conservation value, with the exception of Point of Ayr Brook which recorded a low conservation value.

MACROPHYTES

Unclassified watercourses

3.5.17. During the initial habitat walkover assessments of the four unclassified watercourses that drain the Point of Ayr area, no macrophyte species of conservation interest, nor any INNS were noted.

BENTHIC MACROINVERTEBRATES & HABITATS

3.5.18. Benthic macroinvertebrate data were collected during a Phase 1 Intertidal Survey, undertaken by RPS on 1 April 2022, followed by an intertidal validation survey in April 2025. The intertidal validation survey was undertaken as the RLB for Proposed Development was outside of

the area surveyed in 2022. Table 3-11 lists the habitats and species identified during the 2022 and 2025 surveys.

Table 3-11 – Comparison of habitats and species between the 2022 survey and the 2025 validation survey.

Habitat/species identified	2022 survey	2025 survey
Talitrids on the upper shore and strandline	✓	✓
polychaete/bivalve-dominated muddy sand shores	✓	✓
barren or amphipod-dominated mobile sand shores	✓	✓
Macoma balthica and *Arenicola marina* in littoral muddy sand	✓	✓
Shingle and pebble shores		✓
Green shore crab *Carcinus maenas*	✓	*✓
Blow lugworm *Arenicola marina*	✓	✓
Baltic Tellin *Macoma balthica*	✓	*✓
Thin tellin *Macomangulus tenius*	✓	
Bristle worm *Lagis koreni*	✓	✓
Sand mason worms *Lanice conchilega*	✓	✓
Tube worm *Owenia fusiformis*	✓	
Common cockle *Cerastoderma edule*	✓	*✓
Brown shrimp *Crangon crangon*	✓	
Juvenile flounder *Platuchthys flesus*	✓	
Common periwinkle *Littorina littorea*	✓	✓
Scrobicularia plana	✓	*✓
A single juvenile blue mussel *Mytillus edulis*	✓	*✓
necklace shell *Polinices catenus* (now *Euspira catena*	✓	✓
European mud scud *Corophium volutator*		✓
Nephtys sp		✓
Razor clam		*✓

*Denotes dead shells/specimens were recorded.

3.5.19. During the intertidal validation survey in April 2025, three species additional to those identified in 2022 were recorded. These consisted of: what we

- Nephthys worm;
- European mud scud *Corophium volutator*; and
- Razor clam.

3.5.20. None of the species recorded in 2022 or 2025 were classed as uncommon or protected. In addition, the protected habitats are shown in Figure 3-2. These include, saltmarsh, intertidal reef, mudflats and sandflats, and subtidal reef.

3.5.21. The upper shore and strandline was defined by the biotope LS.LSa.St.Tal Talitrids. In the mid shore, the biotope LS.LSa.MuSa Polychaete/bivalve-dominated muddy sand shores occurring near the upper shore and in mid-shore areas in narrow low-lying troughs at the base of sandbars. Whilst the biotope LS.LSa.MoSa Barren or Amphipod dominated mobile sand community occurred on sandbars intersecting troughs in the mid shore. In the lower shore , the biotope LS.LSa.MuSa.MacAre *Macoma balthica* and *Arenicola marina* in littoral muddy sand was present in the lower shore.

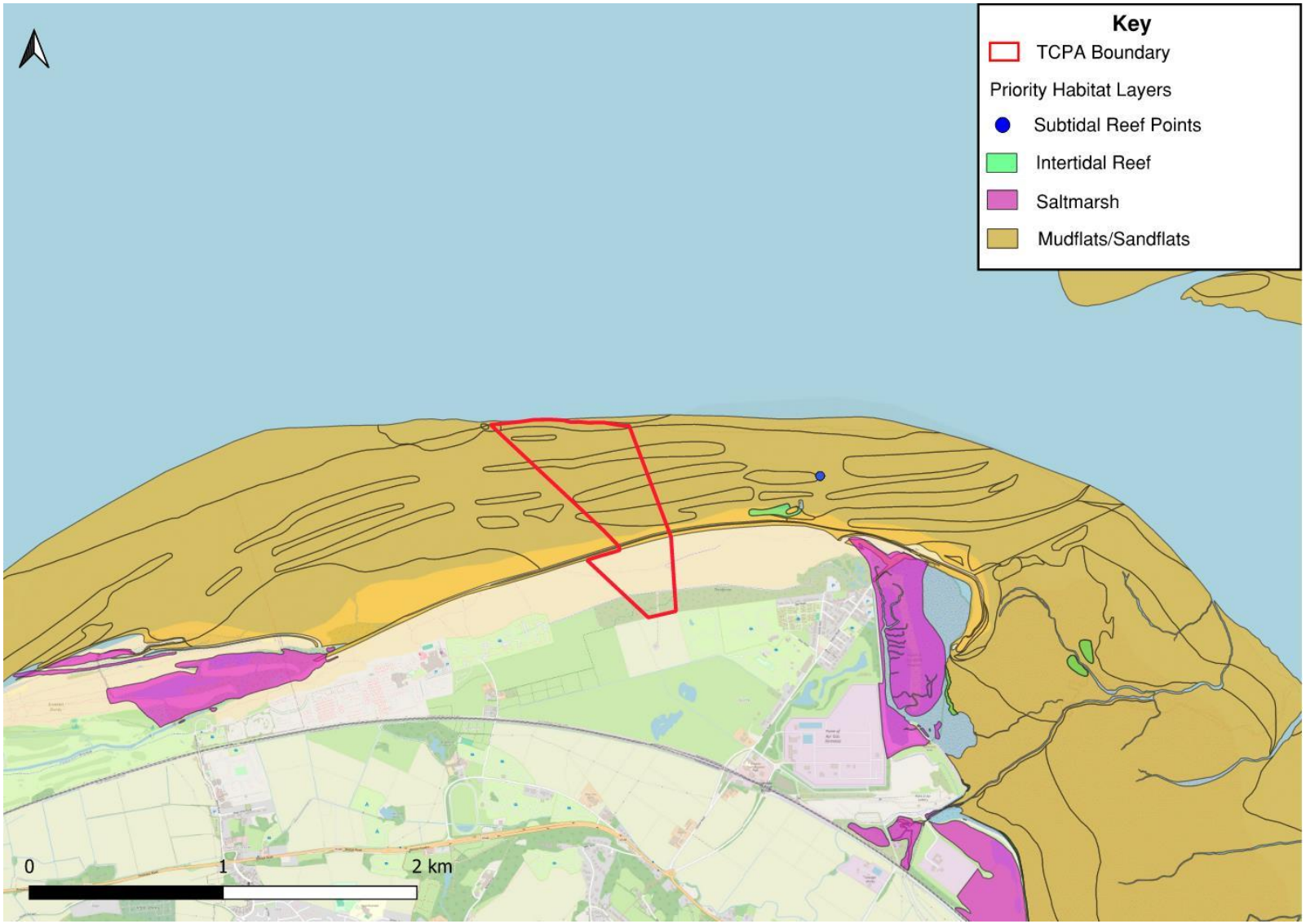

Figure 3-2 WFD Priority Habitats within proximity to the Proposed Development.

SHELLFISH

3.5.22. The Upper Dee Estuary contains a fishery for two commercially important shellfish species, common cockle *Cerastoderma edule*, and blue mussel *Mytilus edulis*, which are protected under the Dee (West) shellfish protection area. In addition to cockles and mussels, the Dee estuary also supports a small razor clam *Ensis spp*. fishery (Ref. 2.5).

MACROALGAE

3.5.23. Records have shown that a specialised biotope community including hydroids, ephemeral seaweeds and *Littorina littorea* in shallow eulittoral mixed substrata pools is present within the Dee (North Wales) Transitional WFD Water Body (Ref. 3.8).

PHYTOPLANKTON

3.5.24. No data was available for phytoplankton within the Study Area.

3.6. PROTECTED AREAS

STATUTORY SITES

3.6.1. There are several designated sites with aquatic habitats and features as qualifying features within 2 km of the Proposed Development. This is summarised in Table 3-12. These protected areas are presented in a spatial manner in Figure 3-3.

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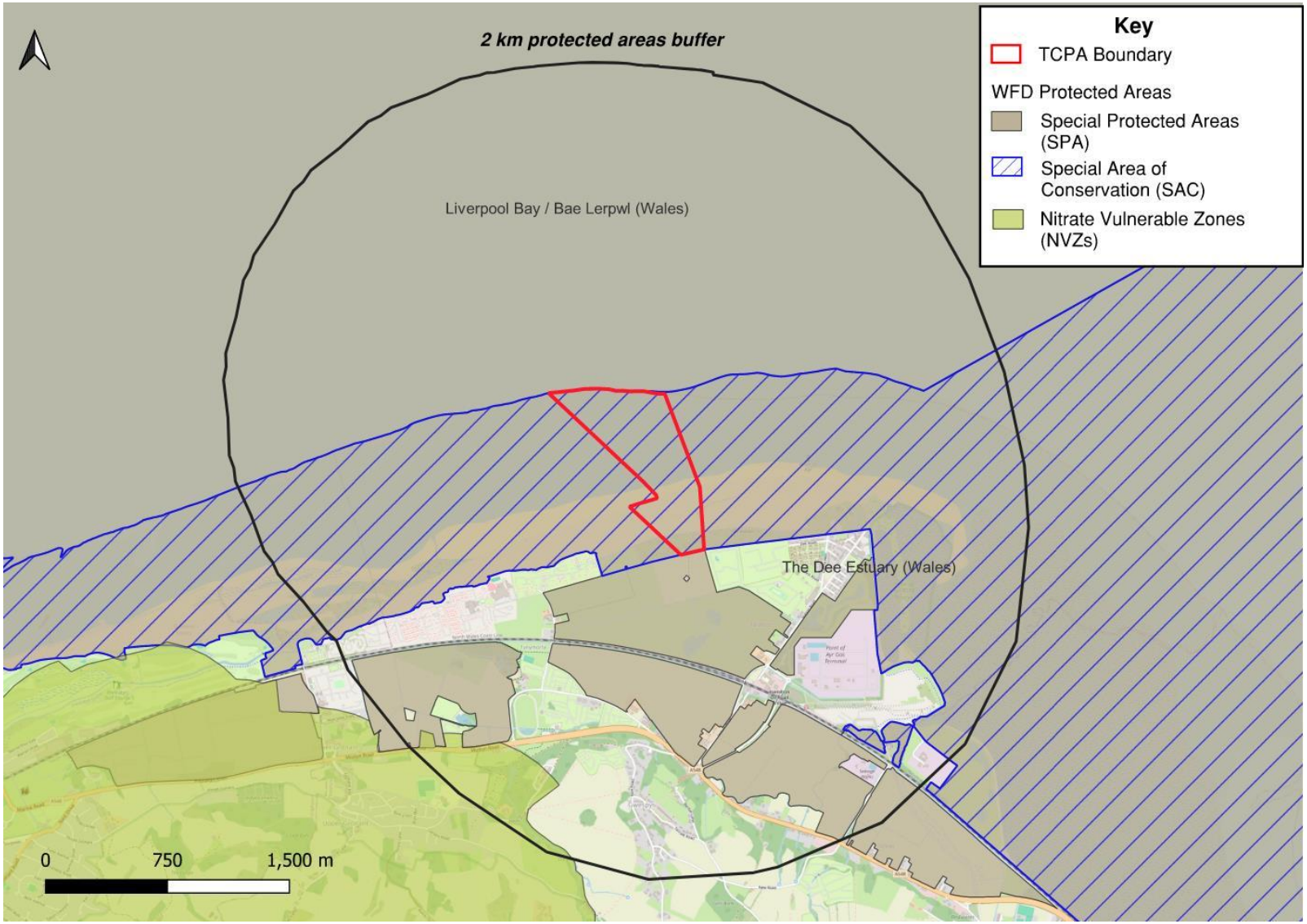

Figure 3-3 – Protected Areas within proximity to the Proposed Development Boundary.

Table 3-12 Statutory designated sites of international and national importance

Site Name	Designation	Size (ha)	Approximate Distance and Orientation from the Proposed Development	Description
The Dee Estuary	SAC	14,000	0 km	The Dee Estuary SAC spans across England and Wales. Annex I habitats that are a primary reason for the selection of this site: • Mudflats and sandflats not covered by seawater at low tide • *Salicornia* and other annuals colonizing mud and sand • Atlantic salt meadows *Glauco-Puccinellietalia maritimae* • Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site: • Estuaries • Annual vegetation of drift lines • Vegetated sea cliffs of the Atlantic and Baltic Coasts • Embryonic shifting dunes • Shifting dunes along the shoreline with *Ammophila arenaria* • Fixed coastal dunes with herbaceous vegetation • Humid dune slacks

Site Name	Designation	Size (ha)	Approximate Distance and Orientation from the Proposed Development	Description
				Annex II species present as a qualifying feature, but not a primary reason for site selection: • Sea lamprey *Petromyzon marinus* • River lamprey *Lampetra fluviatilis* • Petalwort *Petalophyllum ralfsii* • Shad *Alosa fallax* • Grey seal *Halichoerus grypus* • Otter *Lutra lutra*
Liverpool Bay/Bae Lerpwl (Wales)	SPA	252,800	0 km	Liverpool Bay SPA is protected for Annex I species: red throated diver *Gavia stellata,* little tern *Sternula albifrons,* common tern Sterna Hirundo and little gull *Hydrocoloeus minutus*. It also protected for its waterbird assemblages, and the presence of regularly occurring migratory species common scoter *Melanitta nigra*.
The Dee Estuary	SPA	14,300	0 km	The Dee estuary has been designated as an SPA for supporting the following over wintering species: bar-tailed godwit *Limosa lapponica*, black-tailed godwit *Limosa limosa islandica,* curlew *Numenius arquata,* dunlin *Calidris alpina alpina,* grey plover *Pluvialis squatarola*, knot *Calidris canutus,* oystercatcher *Haematopus ostralegus,* pintail *Anas acuta*, redshank *Tringa totanus*, shelduck *Tadorna tadorna*

Site Name	Designation	Size (ha)	Approximate Distance and Orientation from the Proposed Development	Description
				and teal *Anas crecca*. The site has also supports breeding common tern *Sterna hirundo* and little tern *Sterna albifrons*, as well as supporting on passage sandwich tern *Sterna sandvicensis* and redshank *Tringa totanus*. The SPA also regularly supports at least 20,000 waterfowl.
Dee West	Shellfish Protected Area	14,300	0.5 km	The Dee West shellfish protected area includes both cockle and mussel beds. The WFD requires specification of shellfish areas for those areas designated for the protection of economically significant species.
NVZ ID: 135 (Groundwater)	NVZ	5721	1.6 km southwest	NVZ ID:135 is an existing NVZ, relating to groundwater. Natural Resources Wales (2017) define Nitrate Vulnerable Zones (NVZs) as "areas within Wales that contain surface water or groundwater that is susceptible to nitrate pollution from agricultural activities" In April 2021 designated NVZs in Wales were revoked by the introduction of the Water Resources (Control of Agricultural Pollution (CoAP)) (Wales), with some measures transitioning to law over a period of time. The transition does not apply to previous NVZs, where all measures within CoAP apply immediately. Therefore, this NVZ will be subject to CoAP measures.

WFD AND OTHER PROTECTED AREA FEATURES

3.6.2. Protected Areas reported in the Water Watch Wales within the River Dee (North Wales) Transitional Water Body are Shellfish Water Protected Area 2013: Dee (West).

3.6.3. Several bathing water protected area are located within the North Wales coastal Water Body. The closest of these to the Proposed Development is that of Prestatyn and Rhyl, which have an excellent and sufficient classification respectively. No additional Protected Areas are reported in the Water Watch Wales within the North Wales coastal Water Body.

3.6.4. Groundwater Protected Areas reported within the Dee Carboniferous Coal Measures (GB41102G204800) Water Body are limited to Nitrate Vulnerable Zones (NVZ).

INVASIVE NON-NATIVE SPECIES

3.6.5. There are records of three invasive non-native species from within the Study Area, two macrophyte species and one aquatic macroinvertebrate species (Ref. 3.9).

- Japanese knotweed (*Fallopia japonica*);
- Indian balsam (Impatiens glandulifera); and
- New Zealand mudsnail (*Potamopyrgus antipodarum*).

4. WFD SCREENING

4.1. PURPOSE

4.1.1. The purpose of the WFD screening stage is to identify the extent to which the Proposed Development may affect WFD water bodies.

4.2. SCREENING OF WFD WATER BODIES

4.2.1. The North Wales Coastal WFD Water Body (GB641011650000) is located within the RLB of the Proposed Development. Due to potential impacts of the Proposed Development, such as laying of the foreshore cable installation, this Water Body is screened in for further assessment.

4.2.2. The Dee (North Wales) Transitional Water Body (GB531106708200), although not within the 500 m buffer of the Proposed Development, has been screened in due to potential effects to migratory fish species of the proposed cable installation. In addition, sediment, chemical and hydromorphological impacts could be mobilised from the North Wales Coastal WFD Water Body and/or the unclassified (non-reportable) surface watercourses to the Dee (North Wales) Transitional Water Body.

4.2.3. The Dee Carboniferous Coal Measures Groundwater (GB41102G204800) is located within the RLB of the Proposed Development and has shallow groundwater levels; therefore, this Water Body is screened in for further assessment.

4.3. SCREENING OF UNCLASSIFIED SURFACE WATER BODIES

4.3.1. Unclassified (non-reportable) surface water bodies that drain the onshore area of the Point of Ayr and the Talacre Beach. These water bodies flow directly to the shore and are not within a surface water WFD Water Body. This specifically relates to PoA Ditch 1 and PoA Ditch 2 which are located within the 500 m buffer of the Proposed Development. These ordinary watercourses flow into the Dee (North Wales) Transitional Water Body (GB531106708200) and have therefore been screened into the assessment, under 'Ordinary Watercourses'.

4.4. SCREENING OF ACTIVITIES

4.4.1. This section outlines the activities associated with the Proposed Development. These activities are screened in/out of further WFD assessment in Table 4-1. Table 4-2 assesses the proposed questions in relation to whether the proposed activities screened in are taken forward to the Stage 2 Scoping stage.

Table 4-1 – Screening of activities for WFD assessment

Activity	Screen In/Out	Justification
Temporary Construction Compounds	Out	Temporary compounds will be required in the Construction Stage to assist with the installation of the pipeline. The compounds will be used for storing construction equipment and materials. The potential impacts associated with Temporary Construction Compounds will be controlled via the measures adopted in the CEMP for the Consented Development FUL/000246/23. The measures will be implemented to control runoff, pollutants and material stored within the Construction Compounds so that there is no adverse impact to nearby WFD Water Bodies.
Temporary Access Tracks	Out	Temporary access tracks will be necessary to facilitate the movement of machinery required for cable installation. Any potential impacts associated with these tracks will be managed through the mitigation measures outlined in the CEMP for the Consented Development FUL/000246/23.
Dewatering	Out	No dewatering is anticipated to occur in the HDD tunnel bore. Ingress of water is not anticipated at the Entry Pit therefore dewatering is not expected to be required at that location. There is a possibility that the Exit Pit will require some dewatering due to its location on the beach (near to the sea) and being at a much lower ground level than the Entry Pit. The Exit Pit will extend approximately 2 – 3m below ground level into the tidal flat deposits superficial aquifer. Excavation into the underlying bedrock aquifer is not anticipated (local BGS borehole records indicate the bedrock is >20 mbgl). No

Activity	Screen In/Out	Justification
		lasting impacts on the WFD status of the groundwater body are anticipated because; • any excavation will be temporary and highly localised, and a consideration of the GWMMP is to limit scale depth and time of the temporary dewatering to ensure this; • groundwater in the superficial deposits aquifer is expected to be in hydraulic connectivity with the sea, therefore levels would be expected to return to baseline soon after dewatering is ceased; • the superficial deposits would be being dewatered not the bedrock, and it is the bedrock which comprises the WFD groundwater body; • the GWMMP will consider water recycling or the provision of (compensatory) discharges to support water levels and flows in nearby GWDTEs where groundwater supplies to these receptors is reduced; • monitoring of the water levels in nearby wells and surface waters will be considered within the GWMMP to identify any further mitigation that may be required. Therefore, dewatering has been scoped out from a groundwater perspective. From a surface water point of view, impacts will be negligible. This is due to water bodies within proximity to the Proposed Development are largely hydraulically unconnected to the ground water, and therefore, any lowering of the groundwater would have negligible impacts. In addition, the discharge of pumped water from the dewatering will be carried out at a discharge rate approved

Activity	Screen In/Out	Justification
		by NRW while silt busters will be used to treat sediment laden discharge. Additional details can be found within Annex C (Construction Mitigation) and the CEMP that will accompany the planning application. Therefore, dewatering has been screened out from further assessment.
Ploughing / Trenching (Foreshore Cable Installation)	In	The cables will be buried on the beach using a combination of plough, and trenching machine. This work will be carried out during both low, and high tide with the cable being simultaneously laid and buried to a depth of around 2.5m by either machine. This has the potential to lead to: • Increased turbidity and/or sedimentation; • Smothering of aquatic habitats
HDD (Foreshore Cable Installation)	In	The installation of the cable in the foreshore will also use HDD techniques to minimise disturbance, access and transportation to the ecologically sensitive dune system. As part of the HDD, the drilling fluid will contain bentonite clay, which acts to stabilise the borehole, along with lubricating and cooling the drill bits. This element of the Foreshore Cable Installation is screened in for the following potential impacts: • Chemical pollution altering of pH and/or oxygen levels; and, • Chemical pollution leading to toxicological effects to macroinvertebrates, fish and angiosperms. From a groundwater perspective HDD activities have been scoped out. HDD is designed to be a closed pressurised

Activity	Screen In/Out	Justification
		system where the cuttings and drill fluid are carried out the bore back to the Entry pit. Additionally, a 10 m^3 containment sump will be present at the Exit Pit to contain any spillages of drilling fluid should they occur. If a spillage was to occur it would be contained within the saturated tidal flat deposits, no migration to the bedrock which comprises the WFD Groundwater Body is anticipated.
Decommissioning of the Cable	Out	The existing cable and new cables will be safely decommissioned and likely remain in situ, so no intrusive works are likely to be expected in their decommissioning at the time of writing.

Table 4-2 – NRW Risk Screening Assessment Questions

Question	Response	Justification
Q1. Is the proposal in, or could it impact on, a Water Body at high overall status or high status for morphology (or hydromorphology for Transitional and Coastal water bodies)? Yes – Go to Stage 2 Scoping. No – go to Q2	No	The proposal is not situated within a Water Body that has a high status for morphology or hydromorphology.
Q2. Are the proposed activities listed below as low risk? Yes – go to Q3	No	The proposed activities are not low risk and therefore, a scoping assessment is required.

Question	Response	Justification
No – Go to Stage 2 and complete scoping assessment for each relevant/screened in Water Body .		

5. WFD SCOPING

5.1. PURPOSE

5.1.1. The WFD scoping stage defines the need and level of detail required for further WFD assessment. This includes identifying risks to the WFD receptors from the Proposed Development activities screened in Section 4, specifically the Foreshore Cable installation.

5.1.2. The scoping assessment of potential impacts arising due to the Foreshore Cable installation on the Dee (N. Wales) Transitional Water Body and North Wales coastal water bodies is presented in Table 5-1 to Table 5-6 below. The scoping against WFD quality elements is provided in Table 5-7. A summary of potential impacts is presented in Table 5-8.

5.1.3. The scoping stage assessment for the PoA Ditch 1 and PoA Ditch 2 ordinary watercourses is presented in Table 5-9. These ditches are unclassified (non-reportable) in the WFD database. Given they are the only freshwater channels within the 500 m buffer to the Proposed Development, PoA Ditch 1 and PoA Ditch 2 will be analysed separately.

5.1.4. Table 5-10 assesses the potential impact of the Proposed Development against each of the WFD quality elements for groundwater bodies.

5.2. River Dee (N Wales) Transitional (GB531106708200) and North Wales Coastal (GB641011650000) WFD Water Bodies Scoping

HYDROMORPHOLOGY

5.2.1. Table 5-1 assesses the potential impact of the Foreshore Cable Installation against the WFD hydromorphology receptors for the screened in coastal and transitional water bodies.

BIOLOGY

5.2.2. Table 5-2 and Table 5-3 assess the potential impact of the Foreshore Cable installation against the WFD biological receptors for the screened in coastal and transitional water bodies.

5.2.3. The assessment against biological receptors requires consideration against the presence of higher and lower sensitivity habitats. The Proposed Development could potentially impact upon Intertidal soft sediment (Lower sensitivity habitat) within North Wales Coastal Water Body. However, the area affected will be small and restricted to up to 5m either side of the proposed cable route.

5.2.4. The subtidal soft sediments lower sensitivity habitat is scoped out of further assessment given that the Proposed Development is down to the MLWS mark and therefore does not include and subtidal soft sediments.

WATER QUALITY

5.2.5. Table 5-4 assesses the potential impact of the Foreshore Cable Installation against the WFD water quality receptors for the screened in coastal and transitional water bodies.

PROTECTED AREAS AND INNS

5.2.6. Table 5-5 and Table 5-6 assesses the potential impact of the Foreshore Cable Installation against the WFD Protected Areas and INNS receptors for the screened in coastal and transitional water bodies.

Table 5-1 – Scoping of transitional and coastal water bodies for hydromorphological risks for Foreshore Cable Installation

Consider if your activity:	Water Body	Yes	No	Hydromorphology risk issue(s)
Could impact on the hydromorphology (for example morphology or tidal patterns) of a Water Body at high status	North Wales		✓	The Water Body is designated as heavily modified, and, therefore, proposed activities would not impact a high-status hydromorphology Water Body .
Could significantly impact the hydromorphology of any Water Body			✓	Cable installation and burial are short term activities confined to excavated section and are transient by their nature. The cable will be buried, leaving minimal permanent addition of features to interact with hydromorphology receptors. The use of bentonite for HDD, could alter the natural sediment balance such to change the bathymetry of the nearby area. This could lead to obstruction of tidal or estuarine flow paths, potentially leading to localised erosion or deposition hotspots. Although bentonite could have these impacts upon hydromorphology, these would be minimal in terms of severity and would not be significant on a water body scale.
Is in a Water Body that is heavily modified for the same use as your activity			✓	The Water Body is heavily modified for coast protection use, and the proposed activity relates to a combined electrical and fibre optic cable.

Consider if your activity:	Water Body	Yes	No	Hydromorphology risk issue(s)
Could impact on the hydromorphology (for example morphology or tidal patterns) of a Water Body at high status	Dee (N. Wales)		✓	Water Body is designated as heavily modified, and, therefore, proposed actives would not impact a high-status hydromorphology Water Body.
Could significantly impact the hydromorphology of any Water Body			✓	Cable installation and burial are short term activities confined to excavated section and are transient by their nature. The cable will be buried, leaving minimal permanent addition of features to interact with hydromorphology receptors. The use of bentonite for HDD will have significantly diminished to a not significant level before reaching the Dee (North Wales) Transitional WFD Water Body.
Is in a Water Body that is heavily modified for the same use as your activity			✓	The Water Body is heavily modified for navigation, ports, and harbours, and the activity relates to a combined electrical and fibre optic cable.

Table 5-2 – Scoping of transitional and coastal water bodies for biological habitats risks for Foreshore Cable Installation

Consider if the footprint of your activity is:	Water Body	Yes	No	Biology habitats risk issue(s)
0.5km² or larger	North Wales		✓	The footprint of the Cable Installation is approximately 0.03km².
1% or more of the Water Body 's area			✓	The footprint of the Proposed Development is not more than 1% of the Water Body 's area. North Wales area is >130 km² and the entire area within the TCPA Application Boundary is 0.18km². The Proposed Development is 0.14% of the total area of the North Wales Coastal Water Body. It should be noted that Proposed Development does not involve works within the entire application boundary. The works are also located on land which drains towards the North Wales Coastal Water Body.
Within 500 m of any higher sensitivity habitat			✓	The footprint of the Proposed Development is not within 500 m of a higher sensitivity habitat, see **Figure 3-2** for higher sensitivity habitats within the vicinity of the Proposed Development.
1% or more of any lower sensitivity habitat			✓	The footprint of the Proposed Development does not cover more than 1% of any lower sensitivity habitat. Note the calculation above regarding the Water Body 's area.
0.5km² or larger	Dee (N. Wales)		✓	The footprint of the Cable Installation does not extend into the Dee (N. Wales) Transitional Water Body.
1% or more of the Water Body 's area			✓	The footprint of the Cable Installation does not extend into the Dee (N. Wales) Transitional Water Body .

Consider if the footprint of your activity is:	Water Body	Yes	No	Biology habitats risk issue(s)
Within 500 m of any higher sensitivity habitat			✓	The footprint of the Proposed Development is greater than 500 m from higher sensitivity habitat.
1% or more of any lower sensitivity habitat			✓	The footprint of the Cable Installation does not extend into lower sensitivity habitats in the Dee (N. Wales) Transitional Water Body .

Table 5-3 – Scoping of transitional and coastal water bodies for biological fish risks for Foreshore Cable Installation

Consider if the footprint of your activity is:	Water Body	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	North Wales	✓		The Proposed Development is within 800m of the Dee transitional water body, and therefore has the potential to temporarily impact fish migrating into the Dee estuary from the North Wales coastal water body during the cable installation process.
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)		✓		The Proposed Development has the potential to temporarily impact normal fish behaviour and movement during the cable installation process. For example, the use of bentonite for HDD could lead to increased sediment suspension in the water column.
Could cause entrainment or impingement of fish			✓	There are no activities that will abstract water for the Proposed Development, therefore there will be no risk of entrainment or impingement of fish.
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	Dee (N. Wales)	✓		The Proposed Development is outside of the Dee estuary in the North Wales coastal Water Body; however, it has the potential to temporarily impact

Consider if the footprint of your activity is:	Water Body	Yes	No	Biology fish risk issue(s)
				fish migrating into the Dee estuary during the cable installation process.
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)		✓		The Proposed Development is outside of the Dee estuary in the North Wales coastal Water Body; however, it has the potential to temporarily impact fish behaviour such as migration into the Dee estuary during the cable installation process.
Could cause entrainment or impingement of fish			✓	There are no activities that will abstract water for the Proposed Development, therefore there will be no risk of entrainment or impingement of fish.

Table 5-4 – Scoping of transitional and coastal water bodies for water quality risks for Foreshore Cable Installation

Consider if the footprint of your activity is:	Water Body	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)	North Wales		✓	Cable ploughing will take place in the intertidal zone during low tide. Excavated material will be backfilled following the laying of the cable before the return of high tide. Bentonite's use as a drilling fluid could cause increased turbidity and sedimentation, a reduction in the natural tidal oxygen flushing / circulation and disruption of nutrient cycling. However, these impacts would be temporary at a local-scale and would not be continuous for longer than a spring neap tidal cycle, as the HDD crossing works is estimated to take two weeks. In addition, the turbidity and sediment within the North Wales Coastal Body is naturally high in terms of FTU so therefore, a small temporary increase would have a negligible impact. In addition, at the exit pit, a 10 m^3 containment sump will be present to contain any spillage of any drilling fluid, such to reduce the impact

Consider if the footprint of your activity is:	Water Body	Yes	No	Water quality risk issue(s)
				bentonite will have on the WFD Water Body.
Is in a Water Body with a phytoplankton status of moderate, poor or bad		✓		The phytoplankton status is currently 'moderate', thus changes in water quality could impact upon the phytoplankton status within the water body.
Is in a Water Body with a history of harmful algae			✓	Harmful algal blooms are not monitored for this Water Body; therefore, this is unknown. The Water Body contains several high-quality bathing areas however, which are all classified as 'excellent' status according to the NRW It is assumed for the purpose of this assessment that harmful algal blooms are not a common occurrence.
If your activity uses or releases chemicals (for example through sediment disturbance or building works) consider if the chemicals are on the Environmental Quality Standards Directive (EQSD) list.			✓	The latest chemical status of the Water Body is 'moderate', indicating moderate levels of contaminants within sediments. Some of them are listed in the EQSD. However, the majority of the cable installation works are onshore. Cable installation in the intertidal zone will be carried out at low tide and the trench will be backfilled before the return of high

Consider if the footprint of your activity is:	Water Body	Yes	No	Water quality risk issue(s)
				tide. Bentonite is not present on the EQSD. The CEMP will contain measures which prevent the impact of pollutant spillage during the construction phase.
If your activity uses or releases chemicals (for example through sediment disturbance or building works) consider if it disturbs sediment with contaminants above Cefas Action Level 1.			✓	The quantity of contaminants above Cefas Action Level 1 in the local soils and sediments is currently unknown. However, the majority of the cable installation works are onshore. Cable installation in the intertidal zone will be carried out at low tide and the trench will be backfilled before the return of high tide. The CEMP will contain measures which prevent the impact of pollutant spillage during the construction phase.
If your activity has a mixing zone (like a discharge cable or outfall) consider if the chemicals released are on the Environmental Quality Standards Directive (EQSD) list.			✓	The cable installation does not include a discharge cable or outfall.
Could affect water clarity, temperature, salinity, oxygen levels, nutrients or microbial patterns continuously for	Dee (N. Wales)		✓	Cable installation does not extend to the Dee (N. Wales) Transitional WFD Water Body.

Consider if the footprint of your activity is:	Water Body	Yes	No	Water quality risk issue(s)
longer than a spring neap tidal cycle (about 14 days)				Bentonite's use as a drilling fluid could cause increased turbidity and sedimentation, however the impact will have significantly diminished to a manageable level before reaching the Dee (N. Wales) Transitional WFD Water Body. In addition, this impact would not be continuous for longer than a spring neap tidal cycle.
Is in a Water Body with a phytoplankton status of moderate, poor or bad		✓		The phytoplankton status is currently 'moderate'.
Is in a Water Body with a history of harmful algae			✓	The Water Body has a history of harmful algae. However, as no works are expected to occur in this Water Body, no influence, to and from this condition, is expected to occur.
If your activity uses or releases chemicals (for example through sediment disturbance or building works) consider if the chemicals are on the Environmental Quality Standards Directive (EQSD) list.			✓	The latest chemical status of the Water Body is 'fail', indicating high levels of contaminants within sediments. Some of them are listed in the EQSD. However, given that the cable installation does not extend to the Dee (N. Wales) Transitional Water Body, no influence, to and from this condition, is expected to occur.

Consider if the footprint of your activity is:	Water Body	Yes	No	Water quality risk issue(s)
If your activity uses or releases chemicals (for example through sediment disturbance or building works) consider if it disturbs sediment with contaminants above Cefas Action Level 1.			✓	The quantity of contaminants above Cefas Action Level 1 in the local soils and sediments is currently unknown. However, given that the cable installation does not extend to the Dee (N. Wales) Transitional Water Body, no influence, to and from this condition, is expected to occur.
If your activity has a mixing zone (like a discharge cable or outfall) consider if the chemicals released are on the Environmental Quality Standards Directive (EQSD) list.			✓	The cable installation does not include a discharge cable or outfall.

Table 5-5 – Scoping of transitional and coastal water bodies for protected area risks for Foreshore Cable Installation

Consider if the footprint of your activity is:	Yes	No	Protected areas risk issue(s)
Within 2km of any WFD protected area	✓		The protected areas located within a 2 km radius from the proposed activity are listed below: • Liverpool Bay SPA. • Dee Estuary SAC. • Dee Estuary SPA. • Dee (West) Shellfish Protected Area.

Table 5-6 – Scoping of transitional and coastal water bodies for INNS risks for Foreshore Cable Installation

Consider if the footprint of your activity is:	Yes	No	INNS risk issue(s)
Introduce or spread INNS		✓	The proposed activity could introduce or spread INNS without effective management, however, there will be an intertidal INNS management plan, detailed within the CEMP, in place which will ensure no significant impacts at a water body scale.

Table 5-7 – Summary of scoping exercise for transitional and coastal water bodies for Foreshore Cable Installation

Receptor	Water Body	Potential risk to receptor?	Risk issues for impact assessment
Hydromorphology	North Wales	No	Cable installation and burial are short term activities confined to excavated section and are transient by their nature. The cable will be buried, leaving minimal permanent addition of features to interact with hydromorphology receptors. Although the use of bentonite clay for HDD, could alter the natural hydromorphology, these would be minimal in terms of severity and would not be significant on a Water Body scale.
Biology: habitats		No	Cable installation and burial are short term activities confined to excavated section and are transient by their nature. No adverse effects on benthic habitats are anticipated as a result of the works.
Biology: fish		Yes	The Proposed Development has the potential to temporarily impact fish migrating into the Dee estuary from the North Wales Coastal Water Body during the cable installation process.
Water quality		No	The Water Body where the foreshore works will take place (North Wales, GB641011650000) is marked by moderate phytoplankton status and the latest chemical status of the Water Body is 'moderate', indicating moderate levels of contaminants within sediments, and some of them are listed in the EQSD. Bentonite's use as a drilling fluid could cause increased turbidity and sedimentation, a reduction in the natural tidal oxygen flushing/circulation and disruption of nutrient cycling. However, the foreshore works have a minimal size (0.09 km^2) compared to the Water Body area (146.3 km^2). Hence, it is assumed that no significant impact would occur in physico-chemical status of the Water Body. Therefore, no further assessment is required.

Receptor	Water Body	Potential risk to receptor?	Risk issues for impact assessment
Protected areas		Yes	The protected areas located within a 2 km radius from the proposed activity are listed: • Liverpool Bay; • Dee Estuary SAC; • Dee Estuary SPA; and • Dee (West) Shellfish Protected Area.
Invasive non-native species		Yes	The proposed activity has the potential to introduce or spread INNS without effective management.
Hydromorphology	Dee (N. Wales)	No	Cable installation and burial are short term activities confined to excavated section and are transient by their nature. The cable will be buried, leaving minimal permanent addition of features to interact with hydromorphology receptors. The presence of bentonite for HDD will have significantly diminished before reaching the Dee WFD Water Body and therefore, there is no potential risk to the hydromorphology.
Biology: habitats		No	Cable installation and burial are short term activities confined to excavated section and are outside of the Dee estuary, therefore will not interact with biological habitat receptors within the Dee estuary.
Biology: fish		Yes	The Proposed Development is outside of the Dee estuary in the North Wales coastal Water Body; however, it has the potential to temporarily impact fish migrating into the Dee estuary during the cable installation process.
Water quality		No	The Water Body where the foreshore works will take place (North Wales, GB641011650000) is marked by moderate phytoplankton

Receptor	Water Body	Potential risk to receptor?	Risk issues for impact assessment
			status and the latest chemical status of the Water Body is 'moderate', indicating moderate levels of contaminants within sediments, and some of them are listed in the EQSD. However, the foreshore works have a minimal size (0.09 km^2) compared to the Water Body area (146.3 km^2). Hence, it is assumed that no significant impact can occur in physico-chemical status of the Water Body. Therefore, no further assessment is required.
Protected areas		Yes	The protected areas located within a 2 km radius from the proposed activity are listed: • Liverpool Bay SPA; • Dee Estuary SPA; • Dee Estuary SAC; and • Dee (West) Shellfish Protected Area.
Invasive non-native species		Yes	The proposed activity could introduce of spread INNS without effective management.

Table 5-8 Potential impacts Summary of the Foreshore Cable Installation activities against WFD quality elements for transitional and coastal water bodies

WFD Quality Elements	Scope in or out?		Potential Impacts Summary
	North Wales	Dee (N. Wales)	
Biological Quality Elements			
Fish	In	In	The Foreshore Cable installation may impact the fish quality element as there is the potential for the activity to temporarily impact normal fish migration behaviour within the Dee estuary.
Benthic Invertebrates	Out	Out	The Foreshore Cable installation is unlikely to impact the benthic invertebrate quality element due to the localised and temporary nature of the works.
Angiosperms	Out	Out	The Foreshore Cable Installation is unlikely to impact the angiosperm quality element due to the localised and temporary nature of the works.
Phytoplankton	Out	Out	The Foreshore Cable Installation is unlikely to impact the phytoplankton quality element due to the localised and temporary nature of the works.
Macroalgae	Out	Out	The Foreshore Cable installation is unlikely to impact the macroalgae quality element due to the localised and temporary nature of the works. The existing conditions on site (expansive sand flats) are sub-optimal for macroalgal communities.
Chemical/Physico-Chemical Quality Elements			
Transparency	Out	Out	Physico-Chemical quality elements are very unlikely to change because of the Foreshore Cable installation. However, the latest chemical status of the WFD Water Body is 'moderate', indicating moderate levels of contaminants within
Thermal Conditions	Out	Out	
Saline Conditions	Out	Out	

WFD Quality Elements	Scope in or out?		Potential Impacts Summary
	North Wales	Dee (N. Wales)	
Oxygenation Conditions	Out	Out	sediments, and some of them are listed in the EQSD. In addition, the quantity of contaminants above Cefas Action Level 1 in the local soils and sediments is currently unknown.
Nutrient Conditions	Out	Out	
Hydromorphological Quality Elements			
Depth Variation	Out	Out	The depth of the water bodies would not change if the construction works were to be contained by standard sediment control measures and if activities follow the CEMP. The installation activities will be undertaken during the low tide cycle. Adherence to the CEMP would result in insignificant impacts to the depth of the North Wales and Dee (North Wales) WFD Water Bodies. In addition, the potential impacts to the WFD Water Body 's depth are minor and are restricted to the construction stage. Similarly, the foreshore works have a minimal size (0.09 km^2) compared to the WFD Water Body area (146.3 km^2), which supports an insignificant impact to the WFD Water Body quality elements.
Structure and substrate of the coastal bed	Out	Out	The quality, structure and substrate of the bed of the water bodies would not change if Foreshore Cable Installation works were contained by standard sediment control measures and if activities follow the CEMP. Adherence to the CEMP would result in insignificant impacts to the quality, structure and substrate of the North Wales and Dee (North Wales) Transitional Water Bodies. In addition, the potential impacts to the quality, structure and substrate of the bed are minor and are restricted to the construction stage. Similarly, the foreshore works have a minimal size (0.09 km^2) compared to the WFD Water Body area (146.3 km^2), which supports an insignificant impact to the WFD Water Body quality elements.

WFD Quality Elements	Scope in or out?		Potential Impacts Summary
	North Wales	Dee (N. Wales)	
Structure of the intertidal zone	Out	Out	The structure of the intertidal zone of the water bodies would not if Foreshore Cable Installation are contained by standard sediment control measures and if activities follow the CEMP. Adherence to the CEMP would result in insignificant impacts to the structure of the intertidal zone of the North Wales and Dee (North Wales) Transitional Water Bodies. In addition, the potential impacts to the structure of the intertidal zone are minor and are restricted to the construction stage. The installation activities will be undertaken during the low tide cycle. Similarly, the foreshore works have a minimal size (0.09 km^2) compared to the Water Body area (146.3 km^2), which supports an insignificant impact to the WFD Water Body quality elements.
Freshwater Flow	N/A	Out	The freshwater zone of the water bodies would not change if Foreshore Cable Installation were contained by standard sediment control measures and if activities follow the CEMP. The installation activities will be undertaken during the low tide cycle. Adherence to the CEMP would result in insignificant impacts to the freshwater zone of the North Wales and Dee (North Wales) Transitional Water Bodies. In addition, the potential impacts to the freshwater zone are minor and are restricted to the construction stage. Similarly, the foreshore works have a minimal size (0.09 km^2) compared to the WFD Water Body area (146.3 km^2), which supports an insignificant impact to the WFD Water Body quality elements.
Direction of the dominant currents	Out	N/A	The direction of the dominant currents is not anticipated to be impacted due to the cable installation being carried out on land, or in the intertidal zone during low tide.

WFD Quality Elements	Scope in or out?		Potential Impacts Summary
	North Wales	Dee (N. Wales)	
Wave Exposure	Out	Out	The wave exposure of the coastal and estuarine water bodies would not change if Foreshore Cable Installation were contained by standard sediment control measures and if activities follow the CEMP. The installation activities will be undertaken during the low tide cycle. Adherence to the CEMP would result in insignificant impacts to the wave exposure of the North Wales and Dee (North Wales) Transitional Water Bodies. In addition, the potential impacts to the wave exposure are minor and are restricted to the construction stage. Similarly, the foreshore works have a minimal size (0.09 km^2) compared to the WFD Water Body area (146.3 km^2), which supports an insignificant impact to the WFD Water Body quality elements.

5.3. ORDINARY WATERCOURSES SCOPING

5.3.1. The scoping stage assessment for the PoA Ditch 1 and PoA Ditch 2 ordinary watercourses are presented in Table 5-9. The PoA Ditch 1 and PoA ditches are currently unclassified (non-reportable) in the WFD database, but do flow into the Dee (North Wales) Transitional Water Body (GB531106708200).

Table 5-9 – Scoping of the Foreshore Cable Installation activities against WFD quality elements for the PoA Ditch 1 and PoA Ditch 2 (unclassified) Watercourses

WFD Quality Element	Scope in or out?	Scoping Outcome Reasoning
Biological Quality Elements		
Fish	Out	While these ditches are within 500 m of the Proposed Development and eDNA results have shown that European eel are present in the ditch network, they are not directly hydrologically connected to where the Foreshore Cable Installation is proposed and therefore there won't be any pathway of effect between the works and these ordinary watercourses.
Invertebrates	Out	No protected aquatic macroinvertebrate species were identified in PoA Ditch 1. The Proposed Development would not impact aquatic macroinvertebrates, as it is located 500m from the PoA Ditch 1, and Ditch 2, with no direct hydrological connection to the waterbody.
Macrophytes and phytobenthos combined	Out	No macrophyte species of conservation interest were noted. The Proposed Development would not impact macrophytes and phytobenthos, as it is located 500m from the PoA Ditch 1, and Ditch 2 with no direct hydrological connection to the waterbody.
Physico-chemical Quality Elements		
Thermal Conditions	Out	The Proposed Development is located 500m from the PoA Ditch 1, and Ditch 2 with no direct hydrological connection to the waterbody and is therefore unlikely to change thermal conditions substantially during and/or after construction.

WFD Quality Element	Scope in or out?	Scoping Outcome Reasoning
Oxygenation Conditions	Out	The ditch has no perceptible flow that could increase dissolved oxygen in the water. Therefore, open cutting is unlikely to alter the local oxygenation condition.
Salinity	Out	The ditches have no perceptible flow that could transport salts. The Proposed Development is located 500m from the PoA Ditch 1, and Ditch 2 with no direct hydrological connection to the waterbody and is therefore unlikely to alter salinity.
Acidification Status	Out	The ditches have no perceptible flow that could the vary the acidification status of the water. The Proposed Development is located 500m from the PoA Ditch 1, and Ditch 2 with no direct hydrological connection to the waterbody and is therefore unlikely to alter the local acidification.
Nutrient Conditions	Out	The ditches have not perceptible flow, and the most likely source of nutrients come from the local area. The Proposed Development is located 500m from the PoA Ditch 1, and Ditch 2 with no direct hydrological connection to the waterbody and is therefore unlikely to interrupt the local nutrient supply.
Hydromorphological Quality Elements		
Quantity and Dynamics of Water Flow	Out	No perceptible flow was observed in the ditches. The Proposed Development is located 500m from the PoA Ditch 1, and Ditch 2 with no direct hydrological connection to the waterbody and is therefore unlikely to alter the quantity and dynamics of water flow.
Connection to Groundwater Bodies	Out	The Proposed Development is located 500m from the PoA Ditch 1, and Ditch 2 with no direct hydrological connection to the waterbody. It is unlikely to impact the connection to groundwater bodies, especially in a context of a ditch with no perceptible flow.
River Continuity	Out	No perceptible flow was observed in the ditches. in the ditches. The Proposed Development is located 500m from the PoA Ditch 1, and Ditch 2 with no direct hydrological connection to the waterbody and is therefore unlikely to alter the river continuity.

WFD Quality Element	Scope in or out?	Scoping Outcome Reasoning
River Depth and Width Variation	Out	The ditches have a largely modified geometry and an absence of flow. in the ditches. The Proposed Development is located 500m from the PoA Ditch 1, and Ditch 2 with no direct works on the waterbody and is therefore unlikely to cause any further impact to the geometry of any section up- and downstream.
Structure and Substrate of the Riverbed	Out	As there is no perceptible flow, the bed of the ditches is like the surrounding soil with no addition of alluvium. The Proposed Development is located 500m from the PoA Ditch 1, and Ditch 2 with no direct works on the waterbody and is therefore unlikely to cause any further impact to the structure and substrate of the riverbed.
Structure of the Riparian Zone	Out	The Proposed Development would not impact the structure of the riparian zone of ordinary watercourses, as they are located 500m from the PoA Ditch 1, and Ditch 2.

5.4. DEE CARBONIFEROUS COAL MEASURES GROUNDWATER BODY (GB41102G204800) WFD GROUNDWATER BODY SCOPING

5.4.1. The scoping stage assessment for the Dee Carboniferous Coal Measures Groundwater body (GB41102G204800) WFD groundwater body are presented in Table 5-10. All WFD quality elements have been scoped out of any further assessments.

Table 5-10 WFD scoping of the modification of the PoA Terminal activities against WFD quality elements for the Dee Carboniferous Coal Measures Groundwater body (GB41102G204800)

WFD Quality Element	Scope in or out?	Scoping Outcome Reasoning
Quantitative Elements		
Saline intrusion	Out	The Foreshore Cable installation activities are temporary and would not be expected to have a radius of influence which would impact saline intrusion.
Water balance	Out	The Foreshore Cable installation activities are temporary and would not be expected to have a radius of influence which would impact water balance.
GWDTEs	Out	The Foreshore Cable installation activities are temporary, any HDD and ploughing/trenching activities will follow the CEMP. Adherence to the CEMP would result in insignificant impacts to the quantitative elements of the Dee Carboniferous Coal Measures groundwater body.
Dependent surface water body	Out	The Foreshore Cable installation activities are temporary and would not be expected to alter the long-term surface water interaction.
Qualitative Elements		
Drinking water protected area	Out	Chemical quality elements are very unlikely to change because of the Proposed Development construction works. Therefore, no impacts are foreseen that could alter the current classification

WFD Quality Element	Scope in or out?	Scoping Outcome Reasoning
General chemical test	Out	Chemical quality elements are very unlikely to change because of the Proposed Development construction works at the PoA Terminal. Therefore, no impacts are foreseen that could alter the current classification
Chemical GWDTEs	Out	Chemical quality elements are very unlikely to change because of the Proposed Development construction works. Adherence to the CEMP would result in insignificant impacts.
Chemical dependent surface water body status	Out	Chemical quality elements are very unlikely to change because of the Proposed Development construction works. However, the element has a current poor classification. Adherence to the CEMP would result in insignificant impacts.
Saline intrusion	Out	Chemical quality elements are very unlikely to change because of the Proposed Development construction works. Therefore, no impacts are foreseen that could alter the current classification

6. DETAILED IMPACT ASSESSMENT

6.1. SITE-SPECIFIC ASSESSMENT OF THE PROPOSED DEVELOPMENT AGAINST WFD QUALITY ELEMENTS

6.1.1. Site-specific assessment of the Proposed Development against WFD Quality Elements is summarised for Foreshore Cable Installation on the Dee (N. Wales) Transitional WFD Water Body and the North Wales coastal WFD Water Body (Table 6-1).

Table 6-1 – Impact on the WFD Quality elements from Foreshore Cable Installation on relevant water bodies

Quality Element	Potential Impact	Mitigation
Relevant Water Body: Dee Transitional WFD Water Body and North Wales Coastal WFD Water Body		
Biological		
Fish	The Foreshore Cable installation may temporarily impact normal fish migration behaviour within the Dee estuary.	This potential impact is likely to be localised and temporary in nature. The cable installation will be undertaken at both high, and low tide and the plough and trencher will simultaneously lay and bury the cable to reduce potential impacts from construction activity and sediment plumes. Fish will still be able to enter the Dee estuary from the Liverpool Bay WFD Water Body without disturbance. The Proposed Development will not impact all migration pathways into the Dee estuary.
Relevant Water Body : North Wales Coastal WFD Water Body		
Phytoplankton	The Foreshore Cable installation occurs within the North Wales Coastal WFD Water Body which has 'Moderate' status for Phytoplankton.	The Foreshore Cable Installation is unlikely to impact the phytoplankton quality element due to the localised and temporary nature of the works. The cable installation will be undertaken at both high, and low tide and the plough and trencher will simultaneously lay and bury the cable, thus reducing the potential for sediment plumes and reducing the risk of releasing sediment bound contaminants.

Quality Element	Potential Impact	Mitigation
Relevant Water Body: Dee Transitional WFD Water Body and North Wales Coastal WFD Water Body		
Protected Areas	The Proposed Development is within 2km of four protected areas. The foreshore cable installation works could have an adverse impact on the protected areas.	The cable installation will be undertaken at both high, and low tide and the plough and trencher will simultaneously lay and bury the cable to reduce potential sediment dispersal. The localised nature and short duration of the foreshore cable installation works reduces the potential risk to protected areas through deterioration in water quality. With adherence to best practice construction mitigation the foreshore cable installation works are not anticipated to have any adverse impacts on the protected areas.

6.2. REVIEW OF WFD MITIGATION MEASURES TO DELIVER WFD OBJECTIVES

6.2.1. WFD mitigation measures set for the Dee (N. Wales) Transitional and North Wales coastal WFD Water Bodies are reviewed in Table 6-2.

Table 6-2 WFD Mitigation measures in place in the Dee (N. Wales) transitional and North Wales Coastal WFD Water Bodies

Category	Measure	WFD Water Body that the mitigation is relevant to	Justification
Navigation	Modify vessel design	Dee (N Wales) Transitional	There are no proposed works in the Dee. Therefore, there is no impact to navigation.
	Vessel management	Dee (N Wales) Transitional	
Operations and Maintenance	Avoid the need to dredge	Dee (N Wales) Transitional and North Wales Coastal	There is no dredging proposed in the Proposed Development.
	Dredging disposal strategy	Dee (N Wales) Transitional and North Wales Coastal	
	Reduce impact of dredging	Dee (N Wales) Transitional and North Wales Coastal	
	Reduce sediment resuspension	Dee (N Wales) Transitional and North Wales Coastal	The Proposed Development is not expected to mobilise additional sediment which flows to the Dee.
	Retime dredging or disposal	Dee (N Wales) Transitional and North Wales Coastal	There is no dredging proposed in the Proposed Development.
	Sediment management	Dee (N Wales) Transitional and	

Category	Measure	WFD Water Body that the mitigation is relevant to	Justification
		North Wales Coastal	
	Dredge disposal site selection	Dee (N Wales) Transitional and North Wales Coastal	
	Manage disturbance	Dee (N Wales) Transitional and North Wales Coastal	
	Retain Habitats	North Wales Coastal	Although stated in the NRW Mitigation Measures (July 2022), in the measures status column it states that this Mitigation Measure is 'Not Applicable – Not Required in This Water Body' (Ref. 2.2).
Structural Modification	Modify structure	Dee (N Wales) Transitional	There are no new structures or modifications to existing structures proposed as part of the Proposed Development.
	Flow manipulation	Dee (N Wales) Transitional	
	Fish passes	North Wales Coastal	Although stated in the NRW Mitigation Measures (July 2022), in the measures status column it states that these Mitigation
	Enhance ecology	North Wales Coastal	
	Changes to locks etc	North Wales Coastal	

Category	Measure	WFD Water Body that the mitigation is relevant to	Justification
			Measures are 'Not Applicable – Not Required in This Water Body' (Ref. 2.2).
Working with Physical Form and Function	Modify channel	Dee (N Wales) Transitional	There will be no permanent or temporary modifications to the channel as a result of the Proposed Development.
	Removal obsolete structures	Dee (N Wales) Transitional and North Wales Coastal	There are no existing structures to be removed or obsolete structures to be used within the Proposed Development
	Realign Flood Defence	North Wales Coastal	Although stated in the NRW Mitigation Measures (July 2022), in the measures status column it states that these Mitigation Measures are 'Not Applicable – Not Required in This Water Body' (Ref. 2.2).
	Remove or soften hard bank	North Wales Coastal	
	Preserve or restore habitats	North Wales Coastal	
	In-channel morph diversity	North Wales Coastal	
	Bank rehabilitation	North Wales Coastal	
Habitat Creation	Indirect mitigation	North Wales Coastal	

Category	Measure	WFD Water Body that the mitigation is relevant to	Justification
Water Management	Access to feeder-streams	North Wales Coastal	

6.3. ASSESSMENT OF THE PROPOSED DEVELOPMENT AGAINST WFD OBJECTIVES

6.3.1. The WFD compliance assessment for the Proposed Development is summarised in Table 6-3. Assuming the proposed mitigation and enhancements outlined below is adopted, the Proposed Development is assessed as being WFD compliant.

Table 6-3 Compliance assessment of the Proposed Development against WFD status

WFD Water Body name	North Wales (GB641011650000) coastal WFD Water Body	Dee (N. Wales) (GB531106708200) Transitional WFD Water Body
Deterioration in the status/potential of the WFD Water Body	Biological: No deterioration of the current and potential biological status for this WFD Water Body is expected when the mitigation outlined in the CEMP is implemented, and due to the size, location, duration and nature of the works. Physico-chemical: The size, location, duration and nature of the works are not expected to cause deterioration of the current and potential physico-chemical status for this WFD Water Body . Hydromorphology: No deterioration is expected in the current and potential status of the hydromorphology elements when the mitigation outlined in the CEMP is implemented.	Biological: No deterioration of the current and potential biological status for this WFD Water Body is expected when the mitigation outlined in the CEMP is implemented, and due to the size, location, duration and nature of the works. Physico-chemical: The size, location, and nature of the works are not expected to cause deterioration of the current and potential physico-chemical status for this WFD Water Body . Hydromorphology: No deterioration is expected in the current and potential status of the hydromorphology elements when the mitigation outlined in the CEMP is implemented.
Ability of the WFD Water Body to achieve Good Ecological Potential/Status	Given that no long-lasting disturbance is expected because of the works, the ability of the WFD Water Body to achieve Good Ecological Potential/Status remains unchanged.	Given that no long-lasting disturbance is expected because of the works, the ability of the WFD Water Body to achieve Good Ecological Potential/Status remains unchanged.
Impact on the WFD objectives of other	The potentially affected water bodies are the most downstream receptors within the RBDs. Therefore, the Proposed Development	The potentially affected water bodies are the most downstream receptors within the RBDs. Therefore, the Proposed Development

WFD Water Body name	North Wales (GB641011650000) coastal WFD Water Body	Dee (N. Wales) (GB531106708200) Transitional WFD Water Body
water bodies within the same RBD	is not anticipated to impact the WFD objectives of other water bodies within the same RBD as they are hydrologically upstream and not directly linked to the site.	is not anticipated to impact the WFD objectives of other water bodies within the same RBD as they are hydrologically upstream and not directly linked to the site.
Ability to contribute to the delivery of the WFD objectives	The Proposed Development does not contribute directly to the WFD objectives, but it is environmentally significant to reduce carbon emission in the UK.	The Proposed Development does not contribute directly to the WFD objectives, but it is environmentally significant to reduce carbon emission in the UK.

7. SUMMARY

7.1.1. This WFD assessment has evaluated the potential impacts of the Proposed Development upon the following WFD water bodies:

- The River Dee (North Wales) Transitional WFD Water Body (GB531106708200), which is currently achieving Moderate Status;
- The North Wales Coastal WFD Water Body (GB641011650000), which is currently achieving Moderate Status; and
- The Dee Carboniferous Coal Measures Groundwater (GB41102G204800).

7.1.2. Both the River Dee (North Wales) Transitional WFD Water Body and the North Wales Coastal WFD Water Body are heavily modified due to navigation, ports, harbours, and coast protections uses.

7.1.3. The Proposed Development is unlikely to impact the studied water bodies as it has been designed to mitigate the impacts related to the installation of the new cables, for example, by adopting standard practices of sediment control during the construction stage. Construction methods have been adopted, where practicable, to eliminate impacts, such as HDD crossings.

7.1.4. The Proposed Development will not prevent the achievement of WFD mitigation measures set for the Dee (North Wales) Transitional WFD Water Body (GB531106708200) or the North Wales Coastal WFD Water Body (GB641011650000).

7.1.5. The Proposed Development has been assessed to have no impact upon the Dee Carboniferous Coal Measures Groundwater WFD Water Body.

7.1.6. Construction impacts will be mitigated through best-practice measures set out in the CEMP that accompanies the TCPA application.

7.1.7. Therefore, it is concluded that with the proposed mitigation in place, the Proposed Development is WFD compliant.

8. REFERENCES

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- Ref. 1.2 The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. (No. 407). [Online]. London: The Stationery Office. Retrieved from https://www.legislation.gov.uk/uksi/2017/407/contents/made [Accessed May 2025]
- Ref. 1.3 The Groundwater (Water Framework Directive) (England) Direction 2016. [Online]. London: The Stationery Office. Available at https://www.gov.uk/government/publications/the-groundwater-water-framework-directive-england-direction-2016#:~:text=the%20European%20Commission-,The%20Groundwater%20(Water%20Framework%20Directive)%20(England)%20Direction%202016,Ministers%20to%20Natural%20Resources%20Wales. [Accessed May 2025]
- Ref. 2.1 British Geological Survey. (2025). Geoindex Onshore. Available at: https://mapapps2.bgs.ac.uk/geoindex/home.html?_ga=2.109921925.1466703546.1744791332-1459736425.1744791332 [Accessed May 2025]
- Ref. 2.2 Natural Resources Wales (2025a). Water Watch Wales Map Gallery. Available at: https://waterwatchwales-nrw.hub.arcgis.com/ [Accessed May 2025]
- Ref. 2.3 Environment Agency (2025a). National Fisheries Populations Database. Available online: https://data.gov.uk/dataset/74978f12-4b0d-4e05-8c67-631c5e33e51b/nfpd-trac-transitional-coastal -waters-fish-survey-relational-datasets [Accessed May 2025]
- Ref. 2.4 Ellis, J.R., Milligan, S.P., Readdy, L., Taylor, N. and Brown, M.J. (2012). Spawning and nursery grounds of selected fish species in UK waters. Sci. Ser. Tech. Rep., Cefas Lowestoft, 147 (56).
- Ref. 2.5 Cefas, (2013). Sanitary survey of the Dee estuary. Cefas report on behalf of the Food Standards Agency, to demonstrate compliance with the requirements for classification of bivalve mollusc production areas in England and Wales under of EC Regulation No. 854/2004.
- Ref. 2.6 NBN Atlas Wales occurrence download (2025). Available online: https://wales.nbnatlas.org [Accessed May 2025]

- Ref. 2.7 Environment Agency (2025b). Water Quality Archive - Coastal Survey 168 Welsh Channel: Wla 10. Available at: https://environment.data.gov.uk/water-quality/view/sampling-point/NW-88007177 [Accessed May 2025]
- Ref. 2.8 UK Centre for Ecology & Hydrology (UKCEH) (2025). Natural Environment Research Council's (NERC) Environmental Data Service. Available at: https://www.ceh.ac.uk/data/data-portals [Accessed May 2025]
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Annexures

Annex A

HYDROMORPHOLOGY WALKOVER

Site Visit Notes

14 February 2022

Site Reference	PoA Ditch 2	SJ 11919 83934
		
View looking across the channel	View looking upstream	View looking downstream from the right bank. Flow direction estimated from OS mapping
This watercourse is a trapezoidal ditch with a straight planform, over-deepened with resection channel and banks. The channel has a low gradient and no perceptible flow. Water quality was poor, and the channel bed was not visible. The channel dimensions are approximately 1m wetted width and approximately 0.5m deep water at the time of survey; bankfull is approximately 5m wide with a bankfull water depth estimated at 2.5m, although the bed was not visible, and it was not safe to estimate the depth. The bank face has a simple vegetation structure on both banks and is managed. The left bank land use is a car park, the right bank top land use is a road with low volume traffic for access to the business park and industrial areas.		

Site Reference	PoA Ditch 2	SJ 12316 83749
		
View of channel – flow direction is unknown	View of channel – flow direction is unknown	View of channel – flow direction is unknown
This watercourse is a trapezoidal ditch with a straight planform, over-deepened with resectioned channel and banks. The channel has a low gradient and no perceptible flow. Flow direction could not be determined on the day of survey. The channel bed was not visible. Vegetation is dominated by tall herbs with some scrub vegetation. The drain flows around the perimeter of the gas terminal with wasteland dominating the 50 m land use on the other bank top.		

Site Reference	Talacre Brook	SJ 12021 84232
		
Looking upstream at the upstream extent of the survey reach. The pond feature is a short distance upstream	View across the channel taken from the right bank looking to the left bank	View looking downstream taken on the right bank

Site Reference	Talacre Brook	SJ 12021 84232
		
View across the channel looking upstream	View looking downstream showing managed bank top used for recreational purposes (dog walking)	View of downstream culvert which impounds the water.
This watercourse is a modified channel with a straight planform, over-deepened with resection channel and banks. The channel has a low gradient and no perceptible flow. Water quality was poor, and the channel bed was not visible. The channel dimensions are approximately 4m wetted width and approximately 1m deep water; bankfull is approximately 5m wide with a water depth at bank full estimated at around 2m, although the bed was not visible, and it was not safe to estimate the depth. There is a continuous line of trees on the left bank with a complex vegetation structure, and no trees along the right bank top. The right bank is mown grassland with uniform vegetation structure. The 5m land use is broadleaf woodland and grassland on the right bank. Urban/commercial development is present in the 50 m land use.		

View of the beach zone at Talacre Beach

Annex B

WFD BASELINE CONDITIONS

Table B.1 - WFD Cycle 3 status of the North Wales Coastal WFD Water Body (GB641011650000) (Ref. 2.2)

WFD Water Body ID	GB641011650000
WFD Water Body Name	North Wales
WFD Water Body type	Coastal
River Basin District	Western Wales
WFD Water Body area	146.3km^2
Hydromorphological designation	Heavily Modified
For what use is the WFD Water Body designated heavily modified?	Coast protections use.
Current overall status/potential	Moderate
Status objective (overall)	Good by 2033
Reason for not achieving good status	Atmospheric deposition and contaminated bed sediments failing Mercury and Its Compounds
Protected Area Designation	The Dee Estuary (Wales) SPA Liverpool Bay SPA The Dee Estuary SAC Dee (West) Shellfish Waters Protected Area
Higher sensitivity habitats present	Intertidal mudflats Saltmarsh Blue mussel & cockle beds
Lower sensitivity habitats present	Sublittoral mixed muddy sediments (subtidal soft sediments)
Overall Ecological Status/Potential	Moderate
Overall Ecological Status Objective	Good (By 2027)
Overall Biological Status	Moderate
Angiosperms	No data
Fish	No data
Invertebrates	Good
Macro-algae	No data
Phytoplankton	Moderate
Physico-chemical Quality Elements	Good

WFD Water Body ID	GB641011650000
Overall physico-chemical quality element status objective	Good (By 2027)
Dissolved inorganic nitrogen	Good
Dissolved oxygen	High
Specific pollutants	Good
Arsenic	High
Copper	High
Zinc	High
Priority substances	Lead (High)
Other pollutants	None
Priority hazardous substances	Cadmium (High), Hexachlorobutadiene (High), Hexachlorobenzene (High), Mercury (Moderate), Polyaromatic hydrocarbons (High)
Overall chemical status	Moderate
Overall chemical quality element status objective	Good (By 2033)
Hydromorphological Quality Elements	
Supporting elements (Surface Water)	No data
Mitigation measures assessment	The following mitigation measures have been set out within the River Basin Management Plan: Tier 1: Habitat creation, Operations and maintenance, Structural modification, Working with physical form and function. Tier 2: Indirect mitigation, Avoid the need to dredge, Dredging disposal strategy, Reduce impact of dredging, Reduce sediment resuspension, Retime dredging or disposal, Sediment management, Dredge disposal site selection, Manage disturbance, Retain habitats, Fish passes, Enhance ecology, Changes to locks etc, Realign flood defence, Remove obsolete structure, Remove or soften hard bank, Preserve or restore habitats, In-channel morph diversity, Bank rehabilitation.

Table B.2 - WFD Cycle 3 status of the Dee (North Wales) Transitional Water Body (GB531106708200) (Ref. 2.2)

Water Body ID	GB531106708200
WFD Water Body Name	Dee (N. Wales)
WFD Water Body type	Transitional
River Basin District	Dee
WFD Water Body area	30.58km^2
Hydromorphological designation	Heavily Modified
For what use is the WFD Water Body designated heavily modified?	Navigation, ports and harbours
Current overall status/potential	Moderate
Status objective (overall)	Good (By 2027)
Reason for not achieving good status	Diffuse and point source pollution of Brominated diphenyleter (BDPE) from the Waste Water Treatment Sector.
Protected Area Designation	Dee (West) Shellfish Water Protected Areas 2022 Dee (West) UWWTR Sensitive Areas Shellfish Waters The Dee Estuary (Wales) SPA The Dee Estuary (Wales) SAC
Higher sensitivity habitats present	Saltmarsh Mussel beds
Lower sensitivity habitats present	Gravel and Cobbles (Intertidal and subtidal coarse sediment) Intertidal Soft Sediment (Sand, mud and mixed) Subtidal Soft Sediment (Sand, mud and mixed)
Overall Ecological Status/Potential	Moderate
Overall Ecological Status Objective	Good (By 2027)
Overall Biological Status	Moderate
Angiosperms	Good
Fish	Good
Invertebrates	Good
Macro-algae	High
Phytoplankton	Good
Physico-chemical Quality Elements	Good

Water Body ID	GB531106708200
Overall physico-chemical quality element status objective	Good (By 2027)
Dissolved inorganic nitrogen	Good
Dissolved oxygen	High
Specific pollutants	High
Arsenic	High
Copper	High
Iron	High
Manganese	High
Toluene	High
Zinc	High
Priority substances	Moderate
Other pollutants	None
Priority hazardous substances	Moderate
Overall chemical status	Moderate
Overall chemical quality element status objective	Good (By 2027)
Hydromorphological Quality Elements	
Supporting Elements	Good
Mitigation measures assessment	Good

Table B.3 - WFD Cycle 3 groundwater status of the Dee Carboniferous Coal Measures (GB41102G204800) (Ref. 2.2)

WFD Water Body ID	GB41102G204800
WFD Water Body Name	Dee Carboniferous Coal Measures
WFD Water Body type	Groundwater
WFD Water Body area	426.9 km^2
Current Overall Status/Potential	Poor
Reason for not Achieving Good status	Diffuse source pollution from abandoned coal mine failing chemical dependent surface WFD Water Body status.
Current Quantitative Status	Good
Current Chemical Status (GW)	Poor
Status Objective (overall)	Good (By 2027)
Protected Area Designation	NVZ
Quantitative Elements	
Saline intrusion	Good
Water balance	Good
GWDTEs abstractions	Good
Dependent surface Water Body	Good
Chemical (GW) Elements	
Drinking water protected area	Good
General chemical test	Good
Chemical GWDTEs	Good
Chemical dependent surface Water Body status	Poor

Annex C

CONSTRUCTION MITIGATION

Construction mitigation is outlined below and will be included within the CEMP. The following measures have been included within the CEMP:

SEDIMENT AND POLLUTION CONTROL

1. Avoid the positioning of stockpiles near to watercourses;
2. Stockpiles will be located a minimum of 10 m from the top of bank of any watercourse;
3. Cover stockpiles when not in use;
4. Contain stockpiles with bunds or sediment fences;
5. Use a sediment trap to treat surface runoff;
6. Control of runoff during construction. This may include creating temporary drainage systems to both alleviate flood risk and help to prevent sediment laden runoff entering the watercourse;
7. All drains within the Study Area will be identified and labelled and measures implemented to prevent polluting substances from entering them;
8. Areas with a great risk of spillage (e.g. vehicle maintenance and storage areas for hazardous materials) will be carefully sited (e.g. away from drains or areas where surface waters may pond);
9. Emergency response plans will be developed, and spill kits made available on site;
10. Measures to be put in place to prevent pollution from construction plant, vehicles and machinery including refuelling and lubricating in designated areas, on an impermeable surface, with appropriate cut-off drainage located away from watercourses; plant to be maintained in a good condition with wheel washing in place (avoiding vehicle cleaning near to existing watercourses), all refuelling will be supervised and carried out in a designated area. In the event of plant breakdown, drip trays will be used during any emergency maintenance and spill kits will be available on site;
11. Fuels and potentially hazardous construction materials will be stored in bunds that have areas with external cut-off drainage; fuel will be stored in double skinned tanks with 110% capacity;
12. Construction plant will be checked regularly for oil and fuel leaks, particularly when construction works are undertaken in or near the existing site water bodies;
13. Waste fuels and other fluid contaminants will be collected in leak-proof containers prior to removal from construction site to an approved recycling processing facility;
14. Oil absorbent booms will be made available on site and deployed in the event of a significant spillage;
15. Procedures to control dust and contain debris associated with demolition works;

16. Control and treatment measures will be regularly inspected to ensure they are working effectively;
17. Concrete wash out will only take place at designated concrete washout areas;
18. Avoid pumping or similar processes of concrete over or adjacent to open water where possible and close observation to swiftly shut off any pumps if a spillage occurs;
19. Surface water run-off and excavation dewatering will be captured and settled out prior to disposal to sewer as appropriate. Any contaminants to be removed prior to disposal;
20. Provide sediment barriers between earth works and the construction zone and watercourses to prevent sediment from washing into watercourses. An exclusion zone of 8 m from watercourses and top of the banks or valley sides should be maintained as far as practicable;
21. The use of silt fences, silt traps, filter bunds, settlement basins and/or proprietary units such as a 'silt buster' to treat sediment laden water generated on site before discharge;
22. Sewage generate from site welfare facilities will be disposed of appropriately. This may be by discharge to the foul sewer network or by collection in septic tank for disposal off site; and
23. At the exit pit, a 10 m^3 containment sump will be present to contain any spillage of any drilling fluid.

VEGETATION CLEARANCE

1. Where works are required on the watercourse banks, or in-channel, vegetation clearance and disturbance to the bed and banks of the watercourse should be restricted to the minimum working area required and should be undertaken only immediately prior to the commencement of those works, except for other circumstances where earlier clearance may be required due to the presence of protected species. Vegetation will be re-established as soon as practicable. If necessary, additional measures such as geotextiles (biodegradable and non-biodegradable), should be used to protect soils before vegetation has re-established, particularly on the watercourse banks.

TIMING OF WORKS

1. Avoid works during high flow events to reduce the risk of fine sediment release. Target the construction activities for the drier summer months to reduce this risk, considering the window for construction activities in relation to aquatic ecology and the fish migratory season.

2. Avoid construction activities during high flow events and heavy rainfall. Monitoring of flows and rainfall within the upstream catchment should be undertaken and action taken to holt works should high flows be anticipated due to prevailing weather conditions.

GROUNDWATER

1. A Groundwater Management and Monitoring Plan (GWMMP) will be produced alongside the CEMP. The GWMMP will detail the groundwater monitoring strategy of the shallow groundwater where any dewatering activities are proposed and ensure all groundwater abstracted through construction is appropriately managed. The GWMMP will consider mitigation guidance for GWDTE from 'LA 113 Road drainage and the water environment' (Ref. 9.1) to ensure minimal loss of groundwater quantity from the water environment. The GWMMP will consider:
    - limits to the scale, depth and time of temporary dewatering by change of method or by division of works to reduce the zone of influence of dewatering;
    - reduction in the use of damaging construction methods to aquifer physical properties such as consolidating;
    - provision of (compensatory) discharges to GWDTEs or use of water recycling during dewatering to support water level and flows where these may be reduced; and
    - provision of monitoring of water levels in nearby wells or surface water to enable/ identify further mitigation measures when needed.
2. It is assumed that the temporary dewatering activities required during the construction stage will not require an abstraction licence. This will be confirmed following the ground investigation across the Proposed Development. If extensive dewatering is required, an abstraction licence will be required.

FISH SPECIFIC MITIGATION

1. The Foreshore Cable installation works should, where possible, be carried out at low tide. This will minimise disturbance from noise and vibration, as well as reducing impacts from sediment mobilisation.
2. Where possible, timings of the Foreshore Cable installation works should avoid the peak migration periods for the protected fish species (i.e. Atlantic salmon and sea trout October – December, European eel February – March, sea lamprey April – May, twaite shad April – May) known to use the Dee Estuary.

3. If it is not possible to avoid peak migration periods, undertaking the Foreshore Cable installation works at low tide will minimise disturbance and potential risk of injury to fish species.

INVASIVE NON-NATIVE SPECIES (INNS)

1. Biosecurity measures will be implemented during the construction stage to prevent the spread of Invasive Non-native Species.
2. Biosecurity is defined as a set of precautions that aim to minimise the risk of moving non-native species, parasites and diseases. Measures are likely to include:
    - The briefing and training of workers on good biosecurity practices appropriate to their role;
    - Equipping workers with the necessary equipment, Personal Protective Equipment (PPE) and substances to implement biosecurity control measures, including effective hygiene and sanitation practices. This will most frequently comprise disinfectant tablets, sprayers and brushes to clean and disinfect equipment and PPE prior to leaving site;
    - Ensure that Defra's "Check, Clean, Dry" principles are followed and ensure that all PPE and survey equipment is clean and dry (and if necessary, disinfected) prior to going to and from site;
    - Where possible, workers will park vehicles on hard standing areas and check/clean tyres prior to leaving site;
    - Vessels travelling into the area should follow a Ballast Water Management Plan (BWMP) to reduce the spread of INNS. The River Dee (North Wales) Transitional WFD Water Body (GB531106708200) is known to contain a number of marine INNS and this should be taken into account during vessel movements and operations to prevent the transfer of INNS to other locations.

HABITATS

1. Mitigation should include the protection of habitats as follows:
    - Avoidance of any direct impacts to the SAC and SPA located within the Study Area;
    - All habitats to be reinstated to baseline condition prior to the commencement of works. This to involve reinstating a similar vegetation structure acknowledging that vegetation would not be mature before works are complete;
    - Undertaking the Foreshore Cable installation works, where possible, at low tide, will minimise sediment mobilisation and dispersals, and

therefore the potential smothering of protected habitats identified in the desk study; and

- Consideration of the lighting design during construction and post-construction, avoiding use at night and directing away from water bodies.

Annex D

NRW MEETING MINUTES

MEETING NOTES

PROJECT NUMBER	70070865	**MEETING DATE**	07 February 2022
PROJECT NAME	HyNet North West CO2 Pipeline	**VENUE**	MS Teams
CLIENT	Eni / PEL	**RECORDED BY**	HP
MEETING SUBJECT	HyNet CO2 Pipeline Water Framework Directive (WFD) Consultation		

PRESENT	[redacted]
APOLOGIES	[redacted]
DISTRIBUTION	[redacted]
CONFIDENTIALITY	**Restricted**

ITEM	SUBJECT	ACTION	DUE
1	**Introductions** HP introduced the meeting and attendees introduced themselves and their role.	N/A	N/A
1.1	**Overview of the Project** GK gave an overview of the HyNet North West CO_2 project: - DCO – building of CO2 pipeline, above ground infrastructure including block valves and conversion of existing gas pipeline for CO2 - TCPA – changes to the Point of Ayr Gas Terminal terminal and new cables to MLWS point FM gave overview of DCO and TCPA and watercourses & WFD water bodies and groundwater WFD water bodies	FM to send NRW the presentation and a plot of the watercourse crossing points.	11 Feb 22
2	**WFD screening & scoping** FM described screening and scoping of WFD water bodies and justification.		

ITEM	SUBJECT	ACTION	DUE
	HM stated that consideration should be given to smaller watercourses within the WFD assessment and they should be included. These are referred to as small non-reportable water bodies in OGN72. This also applies to small tributaries drainage directly to the Dee transitional water body. HP confirmed consideration is given to these small watercourses as they form part of the WFD water body catchment.		25 Feb 22 (2 weeks of receipt of the WFD consultation presentation pack)
	CJ asked to see the WFD screening and scoping slides after the meeting so that NRW could have time to review them and provide any further feedback. FM confirmed the slides would be shared. NRW to review screening and scoping and provide feedback within 2 weeks of receipt of the presentation	NRW	
	FM described the proposed activities and watercourse crossing methods. FM to check depth below bed for trenched crossings. OL asked about the diameter of the pipe likely to be used and are any depths below watercourses known yet?	FM	11 Feb 22
	FM explained pipe diameters (one 20” diameter pipeline between Ince and Stanlow, and the main CO_2 pipeline from Stanlow to Flint is 36” diameter) and they would be installed ~2m below the bed for trenchless crossings. [note since meeting: pipeline is at least 1.2m below all watercourse crossings. A minimum of 2m below bed of watercourses crossed by trenchless methods]		
	HP asked NRW about any potential river restoration projects or aspirations on the potentially impacted watercourses. NRW will check to see if there are any restoration plans on these watercourses. NRW stated that the scheme cannot hinder future restoration and the installation of the pipeline needs to allow capacity for watercourse restoration or for watercourses to naturally recover from modification. These principles should be used in the design of the scheme.	NRW	25 Feb 22
	CJ suggested we speak with LLFA to discuss ordinary watercourses and potential restoration. FM confirmed speaking with LLFA.		
	FM will also send info on location of proposed crossing locations and crossing types (i.e. trenchless crossings or trenched crossings)		
	FM explained no new outfalls proposed. Block valves are not to be located near watercourses and drainage will be to ground – therefore no new outfalls are required.		
	FM ran through screening of activities. Works below mean high water spring levels- CJ stated that NRW’s marine team would		

ITEM	SUBJECT	ACTION	DUE
	need to be included. MH confirmed WSP is consulting on marine aspects including WFD related matters. OL stated NRW's Coastal Physical Scientists are likely to need to be involved. FM outlined scoping of quality elements for those water bodies and activities screened in.		
3	**Methodology** FM outlined WFD method approach. MH confirmed aquatic surveys being undertaken. FM stated no sediment sampling is proposed. FM stated a CEMP would be in place for construction impacts. **Mitigation** Operational phase – no net loss is the target and assuming no mitigation for the trenchless crossings. FM asked NRW to send us the WFD mitigation measures for water bodies. HM stated that WFD Cycle 3 2021 classification data is now available in spreadsheet form on Water Watch Wales. The data is in Excel format but the maps have not yet been updated. FM to request the classification data that NRW use to inform the 2021 classifications e.g. water quality data. HM stated that the River Basin Management Plans (RBMP) Cycle 3 documents are due to be published in summer 2022. The Dee & Western Wales RBMPs are relevant to this scheme. HM stated that we will need to use Cycle 2 RBMPs but 2021 classification data should be used including a comparison to Cycle 2 data. HM also stated that the water quality data that sits behind the classification data is available upon request from NRW. FM stated WSP Biodiversity Net Gain (BNG) lead will prepare a Technical Note on our BNG approach. WSP to provide NRW with BNG Technical Note once completed and signed off internally (BNG Team) CJ mentioned NRW's internal OGN72 guidance document on WFD which NRW has approved to release externally for large schemes. CJ stated that he will send FM a copy of this document.	FM WSP CJ	11 Feb 22 18 Feb 22 8 Feb 22 (now completed)