Tionscadal Soláthair Uisce
Water Supply Project

Water Status Impact Assessment Report

Document no: 32105801/WFD
Version: Final
December 2025

Uisce Éireann
Irish Water

Jacobs

TOBIN

Contents

Acronyms and Abbreviations

Acronym	Meaning
AWB	Artificial Water Body
bgl	Below ground level
BPS	Booster Pumping Station
BPT	Break Pressure Tank
CEMP	Construction Environmental Management Plan
CWT	Clear Water Tank
DWPA	Drinking water protected area
DWTS	Drinking Water Treatment Systems
EIAR	Environmental Impact Assessment Report
EPA	Environmental Protection Agency
ESB	Electricity Supply Board
FCV	Flow Control Valve
GDA WRZ	Greater Dublin Area Water Resource Zone
GWDTE	Groundwater Dependent Terrestrial Ecosystem
HLPS	High Lift Pumping Station
HMWB	Heavily Modified Water Body
IFI	Inland Fisheries Ireland
INNS	Invasive Non-Native Species
NIS	Natura Impact Statement
NWRP	National Water Resources Plan
RBMP	River Basin Management Plan
RWBT	Raw Water Balancing Tank
RWI&PS	Raw Water Intake & Pumping Station
RWRM	Raw Water Rising Main
SAC	Special Area of Conservation
SLoI	Water Framework Directive Salmonid Waters (Lines of Interest)
SPA	Special Protection Area
SWMP	Surface Water Management Plan
TPR	Termination Point Reservoir
UKTAG	UK Technical Advisory Group
UWWTD	Urban Waste Water Treatment Directive
WFD	Water Framework Directive
WTP	Water Treatment Plant

1 Introduction

1.1 The Water Framework Directive

1. Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy[1] as amended is known as the Water Framework Directive (WFD).

2. The WFD must be taken into account in the planning of all new activities in the water environment; the environmental objectives are outlined in below. These objectives are required to be met through the undertaking of a compliance assessment in order to confirm whether any activity could jeopardise these objectives.

3. The WFD requires all water bodies to maintain or achieve good ecological status (or potential where water bodies are heavily modified or artificial). This is managed by the implementation of a River Basin Management Plan (RBMP), which outlines the actions required to enable natural WFD designated water bodies to achieve this. Water bodies that are designated in the RBMP as Heavily Modified Water Bodies (HMWBs) or Artificial Water Bodies (AWBs) may be prevented from reaching good ecological status by the physical modifications for which they are designated or purpose for which they were constructed (e.g., navigation, flood defence, urbanisation). Instead, they are required to achieve good ecological potential, through implementation of a series of mitigation measures outlined in the applicable RBMP (and in some cases updated since the publication of the RBMP).

4. In the absence of WFD compliance assessment guidance specific to Ireland, the assessment has been carried out in accordance with the UK Environment Agency's 'Clearing the Waters for All' 2016 (updated 2023) (Environment Agency 2023)[2] and the UK Planning Inspectorate's Advice Note Eighteen: Water Framework Directive (Planning Inspectorate 2015)[3] for England and Wales as a basis for supporting appropriate assessment layout and methodology. The first one provides comprehensive guidance on scoping, protected areas and the fundamental parameters to assess, whereas the latter provides guidance on how to assess for a major infrastructure scheme. Other guidance for lakes is provided by UK Technical Advisory Group (UKTAG)[4] - this provides a steer on the metrics to assess. On this basis it is considered appropriate to use all as a basis for assessing the Proposed Project. This is supported by previous experience on similar schemes.

5. For surface water need to state that the project will not cause:
    - a deterioration in status of all the named bodies of surface water that could be affected; or
    - jeopardise objectives to achieve good surface water status; or
    - good ecological potential (if HMWB concerned), as appropriate;
    - does not jeopardise the attainment of good surface water chemical or ecological status;
    - does not permanently exclude or compromise the achievement of the objectives of the WFD in other bodies of water within the same river basin district; and
    - is consistent with other Community Environmental legislation (e.g. Habitats).

[1] European Union (2000). Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (Water Framework Directive [2000].

[2] UK Environment Agency's 'Clearing the Waters for All' 2016 (updated 2023) Available at: https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters

[3] UK Planning Inspectorate's Advice Note Eighteen: Water Framework Directive [online]. Available at https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-the-water-framework-directive

[4] UKTAG (2007). Recommendations on surface water classification schemes for the purposes of the Water Framework Directive. [online]. Available at: https://www.daera-ni.gov.uk/sites/default/files/publications/doe/UKTAG-recommendations-on-surface-water-classification-schemes-for-the-purpose-of-the-WFD.PDF (Accessed July 2024).

6. For groundwater need to state that the project will not cause:
    - a deterioration in status of all the named bodies of groundwater that could be affected; or
    - does not jeopardise the attainment of good groundwater quantitative and /or chemical status;
    - does not permanently exclude or compromise the achievement of the objectives of the WFD in other bodies of water within the same river basin district and is consistent with other Community Environmental legislation (e.g. Habitats).

1.2 Peatland Conservation and Linkages to WFD and Other Legislation

7. The Proposed Project crosses areas of peatland and therefore it is considered necessary to outline the linkages between peatland conservation and the linkages with WFD legislation and other linked protections under the provision of WFD compliance.

8. The National Peatland Strategy (NPS 2015) provides a framework for peatland conservation and management. The strategy sets out the following actions for peatland activities in relation to the water environment:
    - It should be demonstrated that activities do not, either individually or in-combination with other activities, adversely impact on the environmental objectives of the WFD, the Habitats Directive (EU Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora) and national regulations such as the Wildlife Acts
    - Peatland related activities should not significantly alter the environmental supporting conditions for designated habitats such that these cause a failure of the conservation objective for that designated habitat and by inference cause a risk to the WFD environmental objectives relating to protected areas not being met.

1.3 The Water Status Impact Assessment Report

9. In support of the requirements of the WFD, any activity which has the potential to have an impact on WFD designated water bodies must be assessed to determine whether it will compromise WFD objectives or cause deterioration in the ecological status or potential of a water body and/or jeopardise/compromise the attainment of good surface water or groundwater status. It is, therefore, necessary to consider the possible changes to the WFD designated water bodies associated with the proposed development and whether the objectives of the WFD will be met or not.

10. This Water Status Impact Assessment Report provides the findings of an assessment against WFD objectives which has been carried out for the Water Supply Project Eastern and Midlands Region (hereafter referred to as the Proposed Project). The Water Status Impact Assessment Report draws on, and is consistent with, the impact assessments in the Environmental Impact Assessment Report (EIAR) chapters, specifically: Chapter 8 (Biodiversity), Chapter 9 (Water) and associated appendices, Chapter 10 (Soils, Geology & Hydrogeology), Chapter 21 (Cumulative Effects & Interactions) and the Natura Impact Statement (NIS).

2 Overview of the Proposed Project

11. The Proposed Project is a water supply pipeline involving the abstraction and pumping of raw water from the Lower River Shannon at Parteen Basin; treatment of the water nearby at Birdhill, County Tipperary; and pumping of the treated water to a high point near Cloughjordan, County Tipperary. From this high point near Cloughjordan, the treated water would flow generally by gravity through the Midlands to a termination point at Peamount, in County Dublin, where it would connect into the existing Greater Dublin Area Water Resource Zone (GDA WRZ) network (see Figure 1 in EIAR Appendix A9.1).

12. In total, the pipeline would be 172km in length and would be supported by six permanent Infrastructure Sites - see Outline Description of Principal Proposed Project Elements in Table 2.1 below. The Proposed Project would be constructed and operated within predominantly open countryside and has been designed to, generally, avoid towns and villages. The Proposed Project would cross over 400 agricultural landholdings.

13. The Proposed Project has been developed to deliver a long-term, sustainable and resilient water supply for the Eastern and Midlands Region, to meet the water demand from residential, commercial and industrial development to the year 2050 and beyond. Ultimately, it is anticipated that the Proposed Project infrastructure would deliver water to meet the projected peak deficit of 300Mld of treated water in 2050. A raw water abstraction consent of 300Mld is being sought to cover the operational requirements of providing up to 280Mld of treated water in 2050, with a provision of a further 20Mld to allow for potential future sustainability reductions from existing supply volumes.

14. The Proposed Project includes the main elements of infrastructure outlined in Table 2.1.

Table 2.1: Summary of Principle Project Infrastructure

Proposed Project Infrastructure	Outline Description of Proposed Project Infrastructure*
Permanent Infrastructure	
Raw Water Intake and Pumping Station (RWI&PS) (Infrastructure Site) County Tipperary	• The RWI&PS would be located on a permanent site of approximately 4ha on the eastern shore of Parteen Basin in the townland of Garrynatineel, County Tipperary. In addition, approximately 1ha of land would be required on a temporary basis during construction. • The RWI&PS has been designed to abstract enough raw water from the River Shannon at Parteen Basin to provide up to 300Mld of treated water by 2050. • The RWI&PS site would include a bankside Inlet Chamber, the Raw Water Pumping Station Building, two Microfiltration Buildings, an Electricity Substation and Power Distribution Building, and Dewatering Settlement Basins. The tallest building on the RWI&PS site would be the Microfiltration Buildings which would be 10.9m above finished ground level. Additionally, there would be a telemetry mast, the top of which would be 14m above finished ground level. • Power for the RWI&PS would be supplied via an underground connection to the existing Birdhill 38 kV electricity substation. • A new permanent access road from the R494 would be constructed to access the proposed RWI&PS site. This access road would be 5m in width and 670m in length. • The RWI&PS site boundary would be fenced with a stock proof fence and a 2.4m high paladin security fence 5m inside the boundary. The site would be landscaped in line with the surrounding environment to reduce its visual impact.
Raw Water Rising Mains (RWRMs) (Pipeline) County Tipperary	• The RWRMs would consist of two 1,500mm underground pipelines made from steel that would carry the raw water approximately 2km from the RWI&PS to the Water Treatment Plant (WTP) at Incha Beg, County Tipperary. The water would be pumped from the pumping station at the RWI&PS to the WTP. • Twin RWRMs have been proposed so that one RWRM can be taken out of service for cleaning and maintenance while still providing an uninterrupted flow of raw water through the other RWRM. • The RWRMs would include Line Valves, a Lay-By, Air Valves and Cathodic Protection. • A 20m wide Permanent Wayleave would provide Uisce Éireann with operational access to the RWRMs.

Proposed Project Infrastructure	Outline Description of Proposed Project Infrastructure*
Water Treatment Plant (WTP) (Infrastructure Site) County Tipperary	• The WTP would be located on a permanent site of approximately 31ha at Incha Beg, County Tipperary, 2.6km north-east of the village of Birdhill, and 2km east of the proposed RWI&PS. In addition, approximately 2.5ha of land would be required on a temporary basis during construction. • The WTP would treat the raw water received from the RWI&PS via the RWRMs. Once treated, the High Lift Pumping Station (HLPS) would deliver the treated water onwards from the WTP to the Break Pressure Tank (BPT) at Knockanacree, County Tipperary, via the Treated Water Pipeline. • The WTP would comprise of a series of tanks and buildings including the Raw Water Balancing Tanks, Water Treatment Module Buildings, Sludge Dewatering Buildings, Sludge Storage Buildings, Clear Water Storage Tanks and HLPS, an Electricity Substation and Power Distribution Building, and the Control Building. The tallest building on the WTP site would be the Water Treatment Module Buildings which would be up to 15.6m above finished ground level. Additionally, there would be a telemetry mast, the top of which would be 14m above finished ground level. • There would also be a potential future water supply connection point at the junction between the permanent access road and the R445. • Power for the WTP would be supplied via an underground connection to the existing Birdhill 38 kV electricity substation. Solar panels would be placed on the roofs of the Chemical Dosing Manifold Building, the Water Treatment Module Buildings, Clear Water Storage Tanks and Sludge Storage Buildings, and at a number of locations on the ground to supplement the mains power supply. • A new permanent access road from the R445 would be constructed and would be 6m in width and 640m in length. • The WTP site boundary would be fenced with a stock proof fence and a 2.4m high palisade security fence 5m inside the boundary. The site would be landscaped in line with the surrounding environment to reduce its visual impact.
Treated Water Pipeline from the WTP to the BPT (Pipeline) County Tipperary	• The Treated Water Pipeline from the WTP to the BPT would consist of a single 1,600mm underground steel pipeline which would be approximately 37km long. The water would be pumped through this section of the Treated Water Pipeline by the HLPS. • The Treated Water Pipeline would include Line Valves, Washout Valves, Air Valves, Manways, Cathodic Protection and Lay-Bys. • A 20m wide Permanent Wayleave would provide Uisce Éireann with operational access to the pipeline (this Wayleave has been extended to approximately 30m at some Line Valves to provide access between the Lay-Bys and Line Valves). There would be an additional 10m wide Permanent Wayleave at certain locations for operational access to smaller pipes connecting Washout Valves with permanent discharge locations.
Break Pressure Tank (BPT) (Infrastructure Site) County Tipperary	• The BPT would be located on a permanent site of approximately 7ha in the townland of Knockanacree, County Tipperary. In addition, approximately 0.8ha of land would be required on a temporary basis during construction. • The BPT would be located at the highest point of the pipeline. It marks the end of the Treated Water Pipeline from the WTP to the BPT and the start of the Treated Water Pipeline from the BPT to the Termination Point Reservoir (TPR) in the townland of Loughtown Upper, at Peamount, County Dublin. It would act as a balancing tank and would be required to manage the water pressures in the entire Treated Water Pipeline during flow changes, particularly during start-up and shut-down. • The BPT site would include the BPT and a Control Building. The BPT would be a concrete tank divided into three cells covered with an earth embankment. The BPT tanks would be 5m in height and partially buried below finished ground levels. The Control Building would be 7.5m over finished ground level. Additionally, there would be a telemetry mast, the top of which would be 14m above finished ground level. • Access to the BPT site would be via a new permanent access road from the L1064 which would be 5m wide and 794m in length. • Power for the BPT would be supplied via an underground connection from the existing overhead power line. Solar panels would be placed on the south facing side of the control building roof, on the BPT and at ground level to the south of the site to supplement the mains power supply. • The BPT site boundary would be bounded by the existing hedgerow / tree line with a 2.4m high palisade security fence around the permanent infrastructure. The site would be landscaped in line with the surrounding environment to reduce its visual impact.

Proposed Project Infrastructure	Outline Description of Proposed Project Infrastructure*
Treated Water Pipeline from the BPT to the TPR (Pipeline) Counties Tipperary, Offaly, Kildare and Dublin (within the administrative area of South Dublin County Council)	• The Treated Water Pipeline from the BPT to the TPR would consist of a single 1,600mm underground steel pipeline, approximately 133km long. • The water would normally travel through the Treated Water Pipeline by gravity; however, flows greater than approximately 165Mld would require additional pumping from the Booster Pumping Station (BPS) in the townland of Coagh Upper, County Offaly. • The Treated Water Pipeline would include Line Valves, Washout Valves, Air Valves, Manways, Cathodic Protection, Lay-Bys and potential future connection points. • A 20m wide Permanent Wayleave would provide Uisce Éireann with operational access to the pipeline (this Wayleave has been extended to approximately 30m at some Line Valves to provide access between the Lay-Bys and Line Valves). There would be an additional 10m wide Permanent Wayleave at certain locations for operational access to smaller pipes connecting Washout Valves with permanent discharge locations.
Booster Pumping Station (BPS) (Infrastructure Site) County Offaly	• The BPS would be located on a permanent site of approximately 2.6ha in the townland of Coagh Upper, County Offaly. It would be located approximately 30km downstream from the BPT. In addition, approximately 3ha of land would be required on a temporary basis during construction. • The BPS would be required when the demand for water causes the flow through the pipeline to exceed approximately 165Mld. • The BPS site would consist of a single-storey Control Building with a basement below. It would have a finished height of 7.6m above finished ground level. There would also be a separate Electricity Substation and Power Distribution Building. Additionally, there would be a telemetry mast, the top of which would be 14m above finished ground level. • Power to the BPS would be supplied from an existing 38 kV electricity substation at Birr, through cable ducting laid within the public road network. There would be ground mounted solar panels on the southern side of the BPS site to supplement the mains power supply. • The site would be accessed directly from the L3003. • The BPS site boundary would be fenced with a stock proof fence and a 2.4m high palisade security fence between 5m -12m inside the boundary. The site itself would be landscaped in line with the surrounding environment to reduce its visual impact.
Flow Control Valve (FCV) (Infrastructure Site) County Kildare	• The FCV controls the flows in the Treated Water Pipeline from the BPT to the TPR. It would be a small permanent site of approximately 0.5ha in the townland of Commons Upper in County Kildare. In addition, approximately 0.6ha of land would be required on a temporary basis during construction. • It would consist of three 700mm diameter FCVs and three flow meters installed in parallel with the Line Valve and housed within an underground chamber. • Access to the FCV site would be directly off the L1016 Commons Road Upper. • Power supply to the FCV site would be provided from the existing low voltage network via a combination of overhead lines and buried cables. There would be ground mounted solar panels on the north-eastern side of the site to supplement the mains power supply. • Kiosks at the FCV site would house the Programmable Logic Controller, telemetry and power supply for the Line Valve. There would also be a telemetry mast, the top of which would be 14m above finished ground level. • The site boundary would be fenced with a stock proof fence and a 2.4m high palisade security fence 5m inside the boundary.

Proposed Project Infrastructure	Outline Description of Proposed Project Infrastructure*
Termination Point Reservoir (TPR) (Infrastructure Site) County Dublin (within the administrative area of South Dublin County Council)	• The TPR would be located on a permanent site of approximately 8.3ha adjacent to an existing treated water reservoir in the townland of Loughtown Upper, at Peamount, County Dublin (within the administrative area of South Dublin County Council) and would have capacity for 75Ml of treated water supply. In addition, approximately 1.1ha of land would be required on a temporary basis during construction. • It would be located at the downstream end of the Treated Water Pipeline from the BPT to the TPR and would be the termination point for the Proposed Project. It would be at this location that the Proposed Project would connect to the existing water supply network of the Greater Dublin Area Water Resource Zone (GDA WRZ). • The TPR would consist of an above-ground storage structure, associated underground Scour Water and Overflow Water tanks and a Chlorine Dosing Control Building. The TPR would be a concrete tank divided into three cells and covered with an earth embankment. The top of the TPR would be 11.2m above finished ground level. The Chlorine Dosing Control Building would be 8.4m over finished ground level. Additionally, there would be a telemetry mast, the top of which would be 14m above finished ground level. • Power for the TPR would be supplied via an underground connection to the existing electricity substation at Peamount Reservoir. There would be solar panels on top of a portion of the northern cell of the TPR to supplement the mains power supply. • A new permanent access road from the R120 would be constructed and would be 5m wide and 342m in length. • The TPR site would be bounded by the existing hedgerow to the west and existing fence to the east with a 2.4m high palisade security fence around the permanent infrastructure. The site itself would be landscaped in line with the surrounding environment to reduce its visual impact.
Proposed 38 kV Uprate Works – Power Supply to RWI&PS and WTP	
Proposed 38 kV Uprate Works Ardnacrusha – Birdhill (Power Supply) Counties Clare, Limerick and Tipperary	• The proposed 38 kV Uprate Works would be necessary to deliver adequate electrical power to the RWI&PS and WTP. • The proposed works would include the uprating of the existing Ardnacrusha – Birdhill Line and the replacement of polesets/structures with an underground cable along a section of the Ardnacrusha – Birdhill – Nenagh Line. • There would also be works at the existing Birdhill 38 kV electricity substation including the provision of a new 38 kV modular Gas Insulated Switchgear Modular Building, new electrical equipment and lighting, together with new fencing and associated works.
Temporary Infrastructure – Required for Construction Phase Only	
Construction Working Width Counties Tipperary, Offaly, Kildare and Dublin (within the administrative area of South Dublin County Council)	• A Construction Working Width would be temporarily required for the construction of the RWRMs and the Treated Water Pipeline, and the subsequent reinstatement of the land. • The Construction Working Width would generally be 50m in width but would be locally wider near features such as crossings, access and egress points from the public road network, Construction Compounds and Pipe Storage Depots.
Construction Compounds Counties Tipperary, Offaly, Kildare and Dublin (within the administrative area of South Dublin County Council)	• Eight Construction Compounds would be temporarily required to facilitate the works to construct the Proposed Project. Five Construction Compounds would be located along the route of the Treated Water Pipeline at the following Infrastructure Sites: RWI&PS, WTP, BPT, BPS and TPR, with an additional three Construction Compounds located at Lisgarriff (County Tipperary), Killananny (County Offaly) and Drummond (County Kildare). Construction Compounds would act as a hub for managing the works including plant/material/worker movement, general storage, administration and logistical support. • The Principal Construction Compound at the WTP would require 30ha of land during construction. • The other three Principal Construction Compounds would require land temporarily during construction ranging between approximately 12ha and 16ha. • The four Satellite Construction Compounds at the other permanent Infrastructure Sites (excluding the FCV) would require land during construction ranging between approximately 3ha and 12ha.
Pipe Storage Depots Counties Tipperary, Offaly and Kildare	• Nine Pipe Storage Depots would be temporarily required to supplement the Construction Compounds and would serve the installation of pipe between the WTP and the TPR. • Pipe Storage Depots would take direct delivery of the pipe for storage before onward journey to the required location along the Construction Working Width. • The Pipe Storage Depots would vary in size and require land temporarily during construction generally ranging between approximately 2ha and 7ha but with one site being larger at 11ha.

* Note all land take numbers in this table are affected by rounding to one decimal place.

15. Temporary infrastructure would be required for the Construction Phase only.

16. The activities and infrastructure associated with the construction and operation of the Proposed Project are considered further in Section 5 to determine whether there is potential for impacts on a water body.

17. Further details of the Proposed Project are provided in Chapter 4 (Proposed Project Description).

3 Methodology

3.1 Assessment Method

18. The following steps provide a framework for assessing compliance against the water environment baseline (the current condition of relevant water bodies as detailed in Environmental Protection Agency (EPA) WFD baseline (catchments.ie)). The sequence of the steps is summarised as:

    - **Screening**. Screening should identify the extent to which the proposed development is likely to affect water bodies. Where impacts are 'screened out' from further assessment, this should be clearly justified. The screening stage (Section 4) should:

        - show all relevant WFD water bodies on a map or plan
        - identify the zone or zones of influence based on specific activities and/or characteristics of the proposed development that could affect the identified water bodies
        - identify any specific activities and/or characteristics of the proposed development that have been screened out and why

    - **Scoping.** This identifies the risks from the Proposed Project activities to receptors within the study area, based on the relevant water bodies and their water quality elements. For WFD designated surface water bodies, quality/supporting elements are biological, hydromorphological, physico-chemical and chemical. For WFD designated groundwater water bodies, quality elements are quantitative and chemical. The initial assessment identifies those water bodies where an impact assessment is needed

    - **Impact Assessment**: provides an impact assessment of the screened in activities for each relevant water body and identifies ways to avoid or minimise impacts. Likely impacts associated with the operation of the Proposed Project are detailed in Section 5 of this document

    - Assessment of the Proposed Project against the RBMP Cycle 3 Programme of Measures outlined in the Water Action Plan 2024 (Section 5.2)

    - Cumulative assessment within the Proposed Project (across different principal elements) against other proposed schemes (Section 5.3)

    - Combined Assessment of the Proposed Project Against WFD Objectives (Section 5.4)

    - Conclusions.

3.2 Study Area

19. The study area for the Proposed Project should encompass the surface water or groundwater WFD designated water body in which the activity is occurring and any upstream or downstream WFD designated water bodies which would be impacted by upstream and/or downstream effects. Relevant groundwater WFD designated water bodies have only been included in the scoping assessment where a hydraulic connection is likely to exist between the location of the works (activity) and the water body. Each activity has a different study area. The study area for each is based on best practice and expert judgement.

20. The study area for the WFD water bodies affected by the RWRMs and the Treated Water Pipelines considers the following:

    - Any WFD designated water body crossed by, or hydrologically connected to, the proposed RWRMs and Treated Water Pipelines (see Figure 1 to Figure 59 in EIAR Appendix A9.2). Any WFD designated water body beyond the study area from the Proposed Project activities has been screened out

    - Any water body within 50m of the Construction Working Width, Construction Compounds and Pipe Storage Depots, unless already identified

    - Any water body within 50m of a road crossed by the Treated Water Pipelines, Construction Compounds, Pipe Storage Depots or associated access tracks

- The generation of impacts and pathways depends on the size and length of water body. Generation of silt/sediment-laden runoff would be local and the pathway would be localised and temporary
- Professional judgement to assess whether the impact, as a result of the location and possible pathways, would be propagated for a further distance downstream to a connecting water body.

21. The study area for the Non-Linear Principal Infrastructure Sites, which are geographically separate, and the proposed 38 kV Uprate Works, use the same criteria employed for the pipelines above.

22. The non-linear infrastructure sites and the crossings for the Proposed 38 kV Uprate Works are shown on Figures 5 to 10 in EIAR Appendix A9.3.

3.3 Data Collection and Collation

23. The assessment is based on desk-based sources including:

- Data from EPA for Cycle 3 - 2021[5]
- The WFD application on the EPA Environmental Data Exchange Network, including WFD designated water bodies present within the Proposed Project's study area, and includes their WFD ID numbers, water body designation, classification details and at-risk status
- Biodiversity mapping data from the National Biodiversity Data Centre[6]
- NIS
- Inland fisheries Ireland (IFI) data[7]
- National Biodiversity Data Centre maps[8]
- National Planning Application Database[9]
- MyProjectIreland map viewer[10].

3.4 Best Practice

24. The assessment methodology is based on best practice and guidance published by the Environment Agency[11], and the Planning Inspectorate[12]. The UKTAG guidance and EPA Water quality monitoring guidance[11] also sets out the monitoring programme for waters in Ireland and the frequency for which these will be monitored as part of the baseline data for implementing WFD Regulations. This includes identification of surface water and groundwater quality/supporting elements and methods for assessment by public authorities. The UKTAG guidance and EPA Water quality monitoring guidance[13] also sets out environmental standards and conditions for the implementation of the WFD legislation for public bodies and regulators.

[5] Environmental Protection Agency. (2024). Interactive maps. Available at: https://gis.epa.ie/EPAMaps/ (Accessed October 2025).

[6] National Biodiversity Data Centre (2024). Biodiversity maps. [online]. Available at: https://maps.biodiversityireland.ie/ (Accessed October 2025).

[7] IFI (2024). Open Data Portal. [online]. Available at: https://opendata-ifigeo.hub.arcgis.com/ (Accessed October 2025).

[8] National Biodiversity Data Centre (2024). Biodiversity Maps Ireland. [online]. Available at: https://maps.biodiversityireland.ie (Accessed October 2025).

[9] Department of Housing, Planning and Local Government (DoHPLG). National Planning Application Map Database (NPAD) and Map Viewer. Available at: www.myplan.ie (Accessed October 2025).

[10] Government of Ireland. myProjectIreland Map Viewer. Available at: https://geohive.maps.arcgis.com/apps/webappviewer/index.html?id=7e0279ca60d64ae7a05aa6066405434d&mobileBreakPoint=539&center=602,904,727,527,2157 (Accessed October 2025).

[11] Environment Agency (2016). Protecting and improving the water environment: Water Framework Directive compliance of physical work in rivers. Document No. 488-10. Version 2. 11pp.

[12] Planning Inspectorate (2017). Advice Note Eighteen: The Water Framework Directive. Version 1. Available from: https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/advice-note-18/.

[13] Environment Protection Agency (2023). Ireland's National Water Quality Monitoring Programme: 2022 – 2027. [online]. Available at: https://www.epa.ie/publications/monitoring--assessment/freshwater--marine/EPA_WFD_MonitoringProgramme_2022_2027.pdf (Accessed October 2025).

25. As WFD lake standards for the management of abstraction impacts are yet to be finalised by the EPA for Ireland, two different kinds of lake standards tests have been applied for the purpose of assessing the Proposed Project:

    i) A screening test based upon the abstraction of a proportion of the inflow to a lake has been previously used by Uisce Éireann in consultation with the EPA in the development of the Uisce Éireann National Water Resources Plan (NWRP) (Uisce Éireann 2021)[14]

    ii) The WFD lake level standards UK approach, as documented in the UKTAG River Basin Management (2015-21) report[15], based on changes in the extent of the lake littoral zone due to the activity being assessed (in this case the Proposed Project abstraction).

[14] Irish Water, 2021. National Water Resources Plan – Appendix C.

[15] UKTAG (2013). Updated recommendations on Environmental Standards, River Basin Management (2015-21). http://www.wfduk.org/sites/default/files/Media/Environmental%20standards/UKTAG%20Environmental%20Standards%20Phase%203%20Final%20Report%2004112013.pdf

4 Screening

4.1 Activity Screening

26. The Proposed Project components screened in and the phase during which there may be impacts are included in Table 4.1. Reasons for inclusion include: a potential direct/indirect impact to WFD designated water bodies; that the relevant water body is within the study area, and there is a hydraulic connection. The water treatment plant, with the exception of the drainage attenuation pond and the access road, and the flow control valve are screened out because they do not interact with any WFD water bodies.

Table 4.1: Infrastructure Components

Proposed Project Infrastructure	Outline Description of Proposed Project Infrastructure	Phase During which Impacts Possible
Raw Water Intake and Pumping Station (RWI&PS) (Infrastructure Site) County Tipperary	• The RWI&PS is designed to abstract a maximum of 300Mld of raw water from the River Shannon at Parteen Basin by 2050. The Proposed Project is designed to abstract enough raw water to provide up to 300Mld of treated water. • The RWI&PS site includes the bankside Inlet Chamber, the Raw Water Pumping Station Building, two Microfiltration Buildings, an Electricity Substation and Power Distribution Building, and Dewatering Settlement Basins. • Power supply via an underground connection to the Birdhill 38kV Substation. • A new permanent access road from the R494 would be constructed to access the proposed RWI&PS site (dimensions: approximately 5m wide and 670m long).	Construction, Commissioning and Operation
Raw Water Rising Mains (RWRMs) (Pipeline) County Tipperary	• Twin 1,500mm nominal diameter underground transfer pipelines would carry the raw water pumped from the RWI&PS for approximately 2km to the WTP at Incha Beg, Birdhill, County Tipperary.	Construction and commissioning
Water Treatment Plant Attenuation Pond and Access Road at WTP (Infrastructure Site) County Tipperary	• A new permanent access road from the R445 would be constructed (approximately 6m wide and 640m long) and crosses the Kilmastulla_050 (Main reason for being screened in) • Surface water drainage from the WTP would discharge to an attenuation pond which would discharge to a new outfall on the Kilmastulla_050 at greenfield runoff rates.	Construction, Commissioning and Operation
Treated Water Pipeline from the WTP to the BPT County Tipperary	• The Pipeline (1,600mm nominal diameter pipeline, approximately 37km long) which would deliver the treated water from the WTP site to the BPT. • The Pipeline including Line Valves, Washout Valves and Air Valves. • Construction would be via open cut trenching and trenchless crossings (in a small number of locations).	Construction, Commissioning and Operation
Treated Water Pipeline from the BPT to the TPR Counties Tipperary, Offaly, Kildare and Dublin	• The Pipeline refers to the single 1,600mm nominal diameter pipeline, approximately 133km long, which would deliver treated water from the BPT to the TPR. • The water would travel through the pipeline with flows greater than approximately 165Mld requiring assistance from the BPS. • The Pipeline would include Line Valves, Washout Valves, Air Valves, the FCV and Take-Off Point locations. • Construction would be via open cut trenching and trenchless crossings (in a small number of locations). • The FCV is an in-line valve occupying a permanent site of 0.5ha, with an additional temporary land take of 0.6ha for construction. Surface water drained via soakaway. Nearest WFD designated water body over 600m away. This element of the pipeline has been screened out.	Construction, Commissioning and Operation
Break Pressure Tank (BPT) (Infrastructure Site) County Tipperary	• The BPT site includes the BPT and a Control Building. The BPT would be buried with an above ground Control Building.	Construction, Commissioning and Operation

Proposed Project Infrastructure	Outline Description of Proposed Project Infrastructure	Phase During which Impacts Possible
Booster Pumping Station (BPS) (Infrastructure Site) County Offaly	• The BPS site would consist of a single-storey building with a basement below. • Power for the BPS would be supplied via an overhead power line or underground cable along the L3003 road from an electricity substation at Birr. • Haul road routing between Birr substation and the BPS. • Site access from the L3003. • Surface water drainage from the BPS would discharge to an attenuation pond which would discharge to a new outfall at greenfield runoff rates.	Construction and Operation
Termination Point Reservoir (TPR) (Infrastructure Site) County Dublin	• The TPR is where the Proposed Project would connect to the existing water supply network of the GDA WRZ. • The TPR would consist of an above-ground storage structure, associated underground Scour Water and Overflow Water tanks and a Control Building. The site would be accessed from the R120. This access road would be approximately 5m wide and 342m long.	Construction, Commissioning and Operation
Proposed 38 kV Uprate Works Ardnacrusha – Birdhill Ardnacrusha – Birdhill – Nenagh (Power Supply) Counties Clare, Limerick and Tipperary	• The proposed works would include the uprating of the existing Ardnacrusha – Birdhill line and and the replacement of polesets/structures with an underground cable along a section of the Ardnacrusha – Birdhill – Nenagh Line. • Works would also include works at the Birdhill 38 kV Substation including the provision of a new 38 kV modular Gas Insulated Switchgear building, new electrical equipment and lighting, together with new fencing and associated works.	Construction
Construction Working Width Counties Tipperary, Offaly, Kildare and Dublin	• Temporarily required for the period of construction of the RWRMs and Treated Water Pipelines and their subsequent reinstatement. • Generally, 50m wide but would be locally wider near features such as crossings, access and egress points from the public road network and Pipe Storage Depots.	Construction
Construction Compounds Counties Tipperary, Offaly, Kildare and Dublin	• Temporarily required to facilitate the works to construct the Proposed Project.	Construction
Pipe Storage Depots Counties Tipperary, Offaly, Kildare and Dublin	• Temporarily required to augment those Construction Compounds which would serve the installation of pipe between the WTP and the TPR.	Construction

4.2 Surface Water Bodies Affected by the Proposed Project.

27. The screening assessment identified 77 surface WFD designated water bodies that the Proposed Project will potentially interact with (see Figure 1 in Section 7 of this report). Of those identified, only four have been screened out of further assessment. Justification for screening of water bodies is described in Table 4.2.

28. Details of those activities affecting WFD designated water bodies, including the WFD designated water body baseline information, are given in Table 4.2.

Table 4.2: Surface WFD Designated Water Body Baseline Parameters (2019-2024) (N* - states that designation is not known, therefore assumed as being undesignated) and Screening

WFD Designated Water Body ID	WFD Designated Water Body Name	Type	HMWB or AWB? (Y/N/N*)	Protected Areas	Current WFD Status /Potential	Environmental Objective (Target Date)	WFD Risk	Significant Issues	Significant Pressures*	Screen In or Out	Justification
Proposed 38kV Uprate Works											
IE_SH_25B060250	Blackwater (Clare)_020	River	N*	No	Good	Good (2022-2027)	At risk	Nutrient	Agriculture (Ag)	In	The upgrade works cross the WFD designated water bodies and could directly impact them during construction and/or operation.
IE_SH_25S012500	Shannon (Lower)_050	River	N*	Yes (SAC, NSA)	Poor	Good (2022-2027)	At risk	Morphological	Hydro-morphology (HYMO)		
IE_SH_25K041000	Kilmastulla_050	River	N*	Yes (SAC)	Moderate	Good (2022-2027)	At risk	Unknown Impact Type	Unknown		
RWI&PS and Associated Abstraction from Derg HMWB											
IE_SH_25_191a	Derg TN	Lake	N (not a reservoir)	Yes (BW, DWPA, SAC, SPA, NSA)	Moderate	Good (2022-2027)	At risk	Hydrological, Morphological, Nutrients, Unknown Impact Type	HYMO, Invasive species (IS), Ag	In	WFD designated water body is immediately downstream from abstraction site at Derg HMWB.
IE_SH_25_191b	Derg HMWB	Lake	Y (reservoir)	Yes (SAC, NSA)	Good	Good (2021 or earlier)	Not at risk	-	-		WFD designated water body will be abstracted from via the pumping station. Construction and operation impacts anticipated.
IE_SH_25S012500	Shannon (Lower)_050 (Downstream of Parteen Weir)	River	N*	Yes (SAC, NSA)	Poor	Good (2022-2027)	At risk	Morphological	HYMO		
IE_SH_25S012600	Shannon (Lower)_060	River	N*	Yes (DWPA, SAC)	Moderate	Good (2022-2027)	Review	-	-	Out	Head of this WFD designated water body is over 6km downstream of the Parteen Weir. Effects from RWI construction and operation activities will not reach this far due to dilution of impacts with distance downstream; ability of the water body to disperse fine sediments, and dilute concentrations of finer sediments.
IE_SH_25A050100	Shannon (Lower)_040	River	N*	Yes (SAC, SPA, NSA)	Good	Good (2021)	Review	-	-	In	WFD designated water body directly draining into Derg TN and/or Derg HMWB, where water will be abstracted from.
IE_SH_25N030200	Newtown_010	River	N*	Yes (SPA, NSA)	Good	Good (2021)	Not at risk	-	-	In	

WFD Designated Water Body ID	WFD Designated Water Body Name	Type	HMWB or AWB? (Y/N/N*)	Protected Areas	Current WFD Status /Potential	Environmental Objective (Target Date)	WFD Risk	Significant Issues	Significant Pressures*	Screen In or Out	Justification
IE_SH_25Y020200	Youghal (Tipperary)_010	River	N*	Yes (SPA)	Moderate	Good (2022-2027)	At risk	Morphological, Nutrients	Forestry (For), Ag	In	WFD designated water body directly draining into Derg TN and/or Derg HMWB, where water will be abstracted from.
IE_SH_25A040400	Ardgregane Stream_020	River	N*	Yes (SPA)	Moderate	Good (2022-2027)	At risk	Morphological, Nutrients, Organic	HYMO, Urban runoff (UR), Ag	In	
IE_SH_25N010800	Nenagh_070	River	N*	Yes (SPA, NSA)	Moderate	Good (2022-2027)	At risk	Morphological	HYMO	In	
IE_SH_25C970950	Clonmakilladuff_010	River	N*	Yes (SAC, SPA)	Moderate	Good (2022-2027)	Review	-	-	In	
IE_SH_25B020800	Ballyfinboy_070	River	N*	Yes, (SAC, SPA)	Poor	Good (2022-2027)	At risk	Morphological, Nutrients	Ag, HYMO	In	
IE_SH_25W010300	Woodford (Galway)_030	River	N*	Yes (SAC, SPA, NSA)	Moderate	Good (2022-2027)	At risk	Unknown Impact Type	Unknown	In	
IE_SH_25D100200	Derrainy_010	River	N*	Yes (SPA, NSA)	Good	Good (2021 or earlier)	Not at risk	-	-	In	
IE_SH_25B100200	Bow_010	River	N*	Yes (SPA, NSA)	Moderate	Good (2022-2027)	At risk	Morphological	HYMO	In	
IE_SH_25C080200	Coos_010	River	N*	Yes (SAC, SPA)	Moderate	Good (2022-2027)	At risk	-	-	In	
IE_SH_25M290660	Moannakeeba_East_010	River	N*	Yes (SAC, SPA, NSA)	Good	Good (2021 or earlier)	Review	-	-	In	
IE_SH_25L080081	Lower Village Trib_010	River	N*	Yes (SPA, NSA)	Good	Good (2021 or earlier)	Review	-	-	In	
IE_SH_25S690670	South Boleynagoagh_010	River	N*	Yes (SPA, NSA)	Moderate	Good (2022-2027)	Review	-	-	In	
IE_SH_25K720870	Kilrateera_Upper_010	River	N*	Yes (SPA, NSA)	Good	Good (2021 or earlier)	Review	-	-	In	
IE_SH_25G040400	Graney (Shannon)_050	River	N*	Yes (SPA, NSA)	Moderate	Good (2022-2027)	At risk	Sediment, Morphological, Nutrients	For, HYMO, UR	In	

WFD Designated Water Body ID	WFD Designated Water Body Name	Type	HMWB or AWB? (Y/N/N*)	Protected Areas	Current WFD Status /Potential	Environmental Objective (Target Date)	WFD Risk	Significant Issues	Significant Pressures*	Screen In or Out	Justification
IE_SH_25L050300	Lorrha Stream_020	River	N*	Yes (SAC, SPA, NSA)	Poor	Good (2022-2027)	At risk	Sediment, Morphological, Nutrients, Other Significant Impact	IS, Ag, Peat	In	WFD designated water body directly draining into Derg TN and/or Derg HMWB, where water will be abstracted from.
IE_SH_25C160500	Carrigahorig Stream_010	River	N*	Yes (SAC, SPA)	Poor	Good (2022-2027)	At risk	Nutrients	Ag	In	
IE_SH_25T650910	Terryglass_010	River	N*	Yes (NSA)	Moderate	Good (2022-2027)	Review	-	-	In	
IE_SH_25K010700	Kilcrow_070	River	N*	Yes (SAC, SPA, NSA)	Poor	Good (2022-2027)	At risk	Unknown Impact Type	Unknown	In	
IE_SH_25A030100	Ardcloony_010	River	N*	Yes (SAC, NSA)	Good	High (2022-2027)	At risk	Unknown Impact Type	Unknown	In	
Raw Water Rising Mains (RWRMs) (Pipeline)											
IE_SH_25_191b	Derg HMWB	Lake	Y (reservoir)	Yes (SAC, NSA)	Good	Good (2021 or earlier)	Not at risk	-	-	In	WFD designated water body within 50m of the activity and could be impacted by Construction Phase. No operation impacts due to subterranean nature of pipeline.
IE_SH_25K041000	Kilmastulla_050	River	N*	Yes (SAC)	Moderate	Good (2022-2027)	At risk	Unknown Impact Type	Unknown	Out	WFD designated water body outfalls to Derg HMWB 0.5km downstream of RWI. Closest distance to pipeline is approximately 0.5km so should not be affected for construction or operational phases due to ability for pollutants and fine sediments to be dispersed, and assimilative capacity of ecosystems within water body to break down and dilute solutes and fine sediments produced as a result of proposals.
IE_SH_25S012500	Shannon (Lower)_050	River	N*	Yes (SAC, NSA)	Poor	Good (2022-2027)	At risk	Morphological	HYMO	Out	WFD designated water body outfalls to Derg HMWB approximately 1.2km upstream of RWI. Closest distance to pipeline is approximately 0.75km as pipeline enters the WTP so should not be affected for Construction or Operational Phases of pipeline.

WFD Designated Water Body ID	WFD Designated Water Body Name	Type	HMWB or AWB? (Y/N/N*)	Protected Areas	Current WFD Status /Potential	Environmental Objective (Target Date)	WFD Risk	Significant Issues	Significant Pressures*	Screen In or Out	Justification
WTP Access and attenuation pond and valve											
IE_SH_25K041000	Kilmastulla_050	River	N*	Yes (SAC)	Moderate	Good (2022-2027)	At risk	Unknown Impact Type	Unknown	In	The two nearest WFD designated water bodies are approximately 600m to 800m away from the WTP site. Land parcels in between proposals and receptors would intercept any contaminants arising from construction or operation. However, the access road to the WTP, which will become permanent, crosses the Kilmastulla_050 and the surface water drainage from the site outfalls to the same water body so it has been screened in for further assessment for Construction and Operational Phases.
Treated Water Pipeline (WTP to BPT)											
IE_SH_25K040910	Kilmastulla_040	River		Yes (SAC)	Moderate	Moderate (no date)	Not at risk	-	-	In	Within 50m of the pipeline. Abstraction of the WFD designated water body to commission the pipeline will take place during Commissioning Phase.
IE_SH_25N010800	Nenagh_070	River	N*	Yes (SPA, NSA)	Moderate	Good (2022-2027)	At risk	Morphological	HYMO	In	WFD designated water bodies to be crossed by both open cut and trenchless crossings and impacted by Construction Phase. Commissioning of pipeline will also take place at these WFD designated water bodies, as well as operational washouts at outfalls.
IE_SH_25K040800	Kilmastulla_030	River	N*	Yes (SAC)	Poor	Moderate (2022-2027)	At risk	Sediment, Chemical	Mines and quarries (M&Q)	In	WFD designated water bodies will be crossed by open cut trenches during Construction Phase. Outfalls for washout valves also proposed, therefore causing Operation Phase impacts.
IE_SH_25K040300	Kilmastulla_020	River	N*	Yes (SAC)	Moderate	Moderate (no date)	Not at risk	-	-	In	
IE_SH_25A040100	Ardgregane Stream_010	River	N*	No	Poor	Good (2022-2027)	At risk	Sediment, Nutrients	Agriculture	In	
IE_SH_25A040400	Ardgregane Stream_020	River	N*	Yes (SPA)	Moderate	Good (2022-2027)	At risk	Morphological, Nutrients, Organic	HYMO, UR, Ag	In	
IE_SH_25A060500	Ardcrony Stream_010	River	N*	No	Moderate	Good (2022-2027)	At risk	Morphological, Nutrients	HYMO, Ag, M&Q	In	

WFD Designated Water Body ID	WFD Designated Water Body Name	Type	HMWB or AWB? (Y/N/N*)	Protected Areas	Current WFD Status /Potential	Environmental Objective (Target Date)	WFD Risk	Significant Issues	Significant Pressures*	Screen In or Out	Justification
IE_SH_25B020550	Ballyfinboy_040	River	N*	No	Moderate	Good (2022-2027)	At risk	Morphological, Nutrients, Organic	Ag, HYMO, UR	In	WFD designated water body to be crossed by open cut trench, therefore will give rise to construction impacts. No direct washout valve location on WFD designated water body but present in surface water receptor immediately upstream. Therefore, indirect impacts during Operation Phase will take place.
IE_SH_25N120710	Nenagh Tributary_010	River	N*	No	Moderate	Good (2022-2027)	Review	-	-	In	WFD designated water body to be crossed by open cut trench and construction. No washout valves proposed on this water body; therefore no commissioning or operation impacts will take place.
IE_SH_25_191b	Derg HMWB	Lake	Y (reservoir)	Yes (SAC, NSA)	Good	Good (2021 or earlier)	Not at risk	-	-	Out	WFD designated water bodies sit approximately 5km downstream from the proposed pipeline crossings and washout valves. Along the distance of WFD designated water bodies, the channel is fragmented by numerous crossings (culverts) which disrupt continuity in flow and sediment/solute transport. Any pollutants or sediment disturbed during the construction and/or operation of the Proposed Project would not reach these WFD designated water bodies in any discernible quantity as they would either be diluted/dispersed, or the assimilative capacity of the surrounding habitats would facilitate breakdown of materials transported into the receptors. Furthermore, the localised changes in flow and flow dynamics during the operation of the washout valves will not discernibly impact the hydrology or morphology of the WFD designated water body, given the large size of the lake in comparison to crossing footprint size and possible effects.
IE_SH_25_191a	Derg TN	Lake	N (not a reservoir)	Yes (BW, DWPA, SAC, SPA, NSA)	Moderate	Good (2022-2027)	At risk	Hydrological, Morphological, Nutrients, Unknown Impact Type	HYMO, IS, Ag	Out	

WFD Designated Water Body ID	WFD Designated Water Body Name	Type	HMWB or AWB? (Y/N/N*)	Protected Areas	Current WFD Status /Potential	Environmental Objective (Target Date)	WFD Risk	Significant Issues	Significant Pressures*	Screen In or Out	Justification
Treated Water Pipeline BPT to TPR											
IE_SE_14D060100	Daingean_010	River	N*	No	Poor	Good (2022-2027)	At risk	Morphological, Nutrients	Peat	In	Within 50m of the pipeline. Abstraction of the WFD designated water body to commission the pipeline will take place during Commissioning Phase.
IE_EA_09L011600	Liffey_130	River	N*	Yes (NSA)	Good	Good (2021 or earlier)	Not at risk	-	-	In	Within 50m of the pipeline, therefore construction impacts will occur. Washout valve would lead to surface waters to interact with WFD designated water body during Commissioning and Operation Phase.
IE_SH_25L020600	Little Brosna_030	River	N*	Yes (NSA)	Good	Good (2021 or earlier)	Not at risk	-	-	In	WFD designated water bodies to be crossed by trenchless crossings and impacted by Construction Phase. Commissioning of pipeline will also take place at these WFD designated water bodies, as well as operational washouts at outfalls.
IE_SH_25C060300	Clodiagh (Tullamore)_020	River	N*	No	Good	Good (2021)	Not at risk	-	-	In	
IE_SH_25C060340	Clodiagh (Tullamore)_030	River	N*	Yes (SAC)	Moderate	Good (2021 or earlier)	Not at risk	-	-	In	WFD designated water bodies to be crossed by trenchless crossings and impacted by Construction Phase. No washout valves proposed therefore no Commissioning or Operational Phase impacts.
IE_14_AWB_GCMLE	Grand Canal Main Line East (Barrow)	Canal	Y**	Yes (SAC)	Good	Good (2021 or earlier)	Not at risk	-	-	In	
IE_SE_14A010840	Abbeylough_010	River	N*	No	Moderate	Good (2022-2027)	At risk	Morphological	Peat	In	
IE_09_AWB_GCMLE	Grand Canal Main Line (Liffey and Dublin Bay)*	Canal	N*	Yes (NSA)	Good	Good (2021 or earlier)	Not at risk	-	-	In	
IE_SH_25K150085	Kilcomin Stream_030	River	N*	No	Moderate	Good (2022-2027)	At risk	Morphological, Nutrients	HMO, Ag	In	WFD designated water bodies to be crossed by open cut trench and impacted by Construction Phase. Commissioning of pipeline will also take place at these WFD designated water bodies, as well as operational washouts at outfalls.
IE_SH_25S110100	Shinrone Stream_010	River	N*	Yes (SAC)	Poor	Good (2022-2027)	At risk	Morphological, Nutrients	For, Unknown	In	
IE_SH_25R020050	Rock (Birr)_010	River	N*	Yes (SAC)	Poor	Good (2022-2027)	At risk	Sediment, Morphological, Nutrients, Organic	UWW, HYMO, Ag	In	

WFD Designated Water Body ID	WFD Designated Water Body Name	Type	HMWB or AWB? (Y/N/N*)	Protected Areas	Current WFD Status /Potential	Environmental Objective (Target Date)	WFD Risk	Significant Issues	Significant Pressures*	Screen In or Out	Justification
IE_SH_25C 130600	Clareen Stream/ Fuarawn_020	River	N*	Yes (SAC)	Moderate	Good (2022-2027)	At risk	Sediment, Nutrients	Unknown, Ag, For, M&Q	In	WFD designated water bodies to be crossed by open cut trench and impacted by Construction Phase. Commissioning of pipeline will also take place at these WFD designated water bodies, as well as operational washouts at outfalls.
IE_SH_25J2 70990	Kyleboher_010	River	N*	No	Moderate	Good (2022-2027)	Review	-	-	In	
IE_SH_25S0 20400	Silver (Kilcormac)_030	River	N*	No	Moderate	Good (2022-2027)	At risk	Nutrients, Organic	UWW	In	
IE_SH_25T0 30100	Tullamore_020	River	N*	No	Poor	Good (2022-2027)	At risk	Nutrients, Organic	Industry (Ind), Ag, Peat	In	
IE_SH_25T0 30030	Tullamore_010	River	N*	No	Poor	Good (2022-2027)	At risk	Morphological, Nutrients	Ag	In	
IE_SE_14D0 60400	Daingean_030	River	N* Heavily modified - unknown	No	Poor	Good (2022-2027)	At risk	Morphological, Nutrients	Peat	In	
IE_SE_14E0 10100	Esker Stream_010	River	N*	No	Moderate	Good (2022-2027)	Review	-	-	In	
IE_SE_14E0 10200	Esker Stream_020	River	N*	No	Moderate	Good (2022-2027)	At risk	Morphological, Nutrients	Peat	In	
IE_SE_14F0 10100	Figile_020*	River	N*	No	Moderate	Good (2022-2027)	At risk	Hydrological, Morphological	Peat	In	
IE_SE_14F0 10061	Figile_010	River	N*	No	Poor	Good (2022-2027)	At risk	Sediment, Hydrological, Morphological, Nutrients, Organic	HYMO, Ind, Urban Wastewater (UWW), Peat	In	
IE_EA_09C0 30300	Clonshanbo_010	River	N*	No	Poor	Good (2022-2027)	At risk	Sediment, Morphological, Nutrients, Organic	HYMO, DWTS, Ag	In	
IE_EA_09L0 20035	Lyreen_010	River	N*	No	Poor	Good (2022-2027)	At risk	Morphological, Nutrients, Organic	Ind, DWTS, HYMO, Ag	In	

WFD Designated Water Body ID	WFD Designated Water Body Name	Type	HMWB or AWB? (Y/N/N*)	Protected Areas	Current WFD Status /Potential	Environmental Objective (Target Date)	WFD Risk	Significant Issues	Significant Pressures*	Screen In or Out	Justification
IE_EA_09C030600	Clonshanbo_020	River	N*	No	Poor	Good (2022-2027)	At risk	Morphological, Nutrients, Organic, Unknown Impact Type	DWTS, Unknown, HYMO, Ag	In	WFD designated water bodies to be crossed by open cut trench and impacted by Construction Phase. Commissioning of pipeline will also take place at these WFD designated water bodies, as well as operational washouts at outfalls.
IE_EA_09R140550	Reeves_010	River	N*	No	Good	Good (2021 or earlier)	Review	-	-	In	
IE_EA_09L011700	Liffey_140*	River	N*	Yes (NSA)	Good	Good (2021 or earlier)	Not at risk	-	-	In	WFD designated water bodies to be crossed by both open cut and trenchless crossings and impacted by Construction Phase. Commissioning of pipeline will also take place at these WFD designated water bodies, as well as operational washouts at outfalls.
IE_EA_07B020060	Blackwater (Longwood)_010	River	N*	No	Poor	Good (2022-2027)	At risk	Morphological, Organic	Unknown	In	
IE_SE_14F010200	Figile_030	River	N*	Yes (SAC)	Moderate	Good (2022-2027)	At risk	Sediment, Hydrological, Organic	Peat	In	
IE_SH_25M520760	Meelaghans_010	River	N*	No	Moderate	Good (2022-2027)	Review	-	-	In	
IE_SH_25S020200	Silver (Kilcormac)_020	River	N*	Yes (SAC)	Good	Good (2021 or earlier)	At risk	Morphological, Nutrients, Organic	Ag, HYMO	In	
IE_SH_25C020500	Camcor_030*	River	N*	No	Good	Good (2021 or earlier)	Not at risk	-	-	In	
IE_SH_25C020600	Camcor_040	River	N*	No	Good	Good (2021 or earlier)	Not at risk	-	-	In	WFD designated water body is downstream of Clareen Stream/Fuarawn_020 and an undesignated watercourse directly draining into the WFD designated water body. In total, three washout valves and open cut trenches are proposed.
IE_SH_25R020200	Rock (Birr)_020	River	N*	No	Moderate	Good (2022-2027)	At risk	Sediment, Nutrients, Organic	Ag, UR, UWW	In	WFD designated water bodies to be crossed by open cut trench and impacted by Construction Phase. Commissioning of pipeline will also take place at an undesignated watercourse immediately upstream of WFD designated water body.

WFD Designated Water Body ID	WFD Designated Water Body Name	Type	HMWB or AWB? (Y/N/N*)	Protected Areas	Current WFD Status /Potential	Environmental Objective (Target Date)	WFD Risk	Significant Issues	Significant Pressures*	Screen In or Out	Justification
IE_SE_14F010300	Figile_040	River	N*	No	Poor	Good (2022-2027)	At risk	Morphological, Nutrients, Organic	Peat	In	WFD designated water body is directly downstream of both Esker Stream_020 and Daingean_030. Therefore, impacts associated with open cut crossings and washout outfalls could reach the WFD designated water body.
IE_SH_25L020100	Little Brosna_010	River	N*	No	Good	Good (2021 or earlier)	Not at risk	-	-	In	WFD designated water body is directly downstream of both Kilcomin Stream_030 and Shinrone Stream_010. Therefore, impacts associated with open cut crossings and washout outfalls could reach the WFD designated water body.
IE_EA_07B020100	Blackwater (Longwood)_020	River	N*	No	Moderate	Good (2022-2027)	At risk	Morphological, Organic	Unknown	Out	Head of one branch of WFD designated water body sits 200m from pipeline with no hydrological connectivity.
Break Pressure Tank											
IE_SH_25B020300	Ballyfinboy_030	River	N*	No	Moderate	Good (2022-2027)	At risk	Nutrients, Organic	Ag, DWTS, UR, UWW	Out	WFD designated water bodies considered due to proximity to the BPT site in terms of linear distance. However, the site is not hydrologically connected to the WFD designated water bodies and the land is well vegetated so any fine sediment of pollutants released during construction would become trapped by vegetation before reaching the WFD designated water body.
IE_SH_25B020550	Ballyfinboy_040	River	N*	No	Moderate	Good (2022-2027)	At risk	Morphological, Nutrients, Organic	Ag, HYMO, UR		
IE_SH_25B020600	Ballyfinboy_050	River	N*	Yes (SAC)	Moderate	Good (2022-2027)	At risk	Morphological, Nutrients, Organic	Ag, For, UWW		
Booster Pumping Station (BPS)											
IE_SH_25C020500	Camcor_030	River	N*	No	Good	Good (2021 or earlier)	Not at risk	-	-	In	Sits along the bank of the WFD designated water body. Construction and operation impacts anticipated.
Termination Point Reservoir (TPR)											
IE_EA_09L012100	Liffey_170	River	N*	Yes (NSA)	Poor	Good (2022 - 2027)	At risk	Nutrients, Organic	UR, UWW	In	WFD designated water body within 1km and hydrologically connected via surface water runoff facilitated by agricultural field drains.

WFD Designated Water Body ID	WFD Designated Water Body Name	Type	HMWB or AWB? (Y/N/N*)	Protected Areas	Current WFD Status /Potential	Environmental Objective (Target Date)	WFD Risk	Significant Issues	Significant Pressures*	Screen In or Out	Justification
BPS Power Supply											
IE_SH_25C020600	Camcor_040	River	N*	No	Good	Good (2021 or earlier)	Not at risk	-	-	In	Installation/upgrade of new power supply to BPS will use existing roads and during Construction Phase will impact WFD designated water body at crossing and indirectly via surface runoff.
IE_SH_25C020700	Camcor_050	River	N*	Yes (DWPA)	Good	Good (2021 or earlier)	Not at risk	-	-		
Temporary construction compounds											
IE_SH_25_191b	Derg HMWB	Lake	Y (reservoir)	Yes (SAC, NSA)	Good	Good (2021 or earlier)	Not at risk	-	-	In	Compound 0 (CC0) sits on bank of lake (WFD designated water body)
IE_SH_25C020500	Camcor_030	River	N*	No	Good	Good (2021 or earlier)	Not at risk	-	-	In	Compound 4 (CC4) sits along the bank of the WFD designated water body.
IE_SH_25C060300	Clodiagh (Tullamore)_020	River	N* Heavily modified - unknown	No	Good	Good (2021 or earlier)	Not at risk	-	-	In	Compound 5 (CC5) is potentially hydrologically connected via drainage ditch along hedgerow.
IE_SH_25K041000	Kilmastulla_050	River	N*	Yes (SAC)	Moderate	Good (2022-2027)	At risk	Unknown Impact Type	Unknown	In	Compound 1 (CC1) has no hydrological connectivity to WFD designated water bodies. Vegetation between the compound and WFD designated water body will act as a buffer and trap any released sediment or pollutants.
IE_EA_09L012100	Liffey_170	River	N*	Yes (NSA)	Poor	Good (2022 - 2027)	At risk	Nutrients, Organic	UR, UWW	In	Compound 7 (CC7) hydrologically connected via surface water runoff from agricultural fields.
IE_SH_25S012500	Shannon (Lower)_050	River	N*	Yes (SAC, NSA)	Poor	Good (2022-2027)	At risk	Morphological	HYMO	Out	Compounds 2, 3 and 6 (CC2, CC3 and CC6) have no hydrological connectivity to WFD designated water bodies. Vegetation between the compound and WFD designated water body will trap any released sediment or pollutants.
IE_SH_25A060500	Ardcrony Stream_010	River	N*	No	Moderate	Good (2022-2027)	At risk	Morphological, Nutrients	HYMO, Ag, M&Q	Out	
IE_SH_25B020300	Ballyfinboy_030	River	N*	No	Moderate	Good (2022-2027)	At risk	Nutrients, Organic	Ag, DWTS, UR, UWW	Out	
IE_SH_25B020550	Ballyfinboy_040	River	N*	No	Moderate	Good (2022-2027)	At risk	Morphological, Nutrients, Organic	Ag, HYMO, UR	Out	

WFD Designated Water Body ID	WFD Designated Water Body Name	Type	HMWB or AWB? (Y/N/N*)	Protected Areas	Current WFD Status /Potential	Environmental Objective (Target Date)	WFD Risk	Significant Issues	Significant Pressures*	Screen In or Out	Justification
IE_SH_25B020600	Ballyfinboy_050	River	N*	Yes (SAC)	Moderate	Good (2022-2027)	At risk	Morphological, Nutrients, Organic	Ag, For, UWW	Out	Compounds 2, 3 and 6 (CC2, CC3 and CC6) have no hydrological connectivity to WFD designated water bodies. Vegetation between the compound and WFD designated water body will trap any released sediment or pollutants.
IE_SE_14F010061	Figile_010	River	N*	No	Poor	Good (2022-2027)	At risk	Sediment, Hydrological, Morphological, Nutrients, Organic	HYMO, Ind, UWW, Peat	Out	
Pipe Storage Depots											
IE_SH_25K040300	Kilmastulla_020	River	N*	Yes (SAC)	Moderate	Moderate (no date)	Not at risk	-	-	In	Storage Depot 1 (PSD1) sits on bank of WFD designated water body.
IE_SH_25A040100	Ardgregane Stream_010	River	N*	No	Poor	Good (2022-2027)	At risk	Sediment, Nutrients	Agriculture	In	
IE_SH_25K150085	Kilcomin Stream_030	River	N*	No	Moderate	Good (2022-2027)	At risk	Morphological, Nutrients	HMO, Ag	In	Storage Depots 2, 5, 9 and 10 (PSD2, PSD5, PSD9 and PSD10) located close to bank of undesignated water bodies and hydrologically connected to the respective WFD designated water bodies.
IE_SH_25J270990	Kyleboher_010	River	N*	No	Moderate	Good (2022-2027)	Review	-	-	In	
IE_SH_25S020400	Silver (Kilcormac)_030	River	N*	No	Moderate	Good (2022-2027)	At risk	Nutrients, Organic	UWW	In	
IE_EA_09L020035	Lyreen_010	River	N*	No	Poor	Good (2022-2027)	At risk	Morphological, Nutrients, Organic	Ind, DWTS, HYMO, Ag	In	
IE_EA_09L011600	Liffey_130	River	N*	Yes (NSA)	Good	Good (2021 or earlier)	Not at risk	-	-	In	
IE_SH_25C130600	Clareen Stream/ Fuarawn_020	River	N*	Yes (SAC)	Moderate	Good (2022-2027)	At risk	Sediment, Nutrients	Unknown, Ag, For, M&Q	In	Storage depot 4 (PSD4) sits within 250m of the WFD designated water body, hydrologically connected via a drainage channel in a field.
IE_SH_25L020600	Little Brosna_030	River	N*	Yes (NSA)	Good	Good (2021 or earlier)	Not at risk	-	-	Out	Storage Depot 3, 6 and 8 (PSD3, PSD6 and PSD8) sit over 1km from WFD designated water body. Agricultural fields and other land uses would trap any released sediment or pollutants preventing dispersal into designated water bodies. No hydrological connectivity between the depots and WFD designated water body.
IE_SH_25T030100	Tullamore_020	River	N*	No	Poor	Good (2022-2027)	At risk	Nutrients, Organic	Ind, Ag, Peat		
IE_SH_25T030030	Tullamore_010	River	N*	No	Poor	Good (2022-2027)	At risk	Morphological, Nutrients	Ag		
IE_SE_14E010200	Esker Stream_020	River	N*	No	Moderate	Good (2022-2027)	At risk	Morphological, Nutrients	Peat		

WFD Designated Water Body ID	WFD Designated Water Body Name	Type	HMWB or AWB? (Y/N/N*)	Protected Areas	Current WFD Status /Potential	Environmental Objective (Target Date)	WFD Risk	Significant Issues	Significant Pressures*	Screen In or Out	Justification
Access Roads											
IE_SH_25K041000	Kilmastulla_050	River	N*	Yes (SAC)	Moderate	Good (2022-2027)	At risk	Unknown Impact Type	Unknown	In	WFD designated water body crossed by access track.
IE_SH_25S012500	Shannon (Lower)_050	River	N*	Yes (SAC, NSA)	Poor	Good (2022-2027)	At risk	Morphological	HYMO		WFD designated water body within 1km of crossing location where construction impacts could indirectly impact water body via road drainage. No operation impacts due to subterranean nature of pipeline.
IE_SH_25_191b	Derg HMWB	Lake	Y (reservoir)	Yes (SAC, NSA)	Good	Good (2021 or earlier)	Not at risk	-	-	Out	Between the access road and lake is a forest which would intercept any released sediment or pollutants from drainage or constructions.
IE_SH_25B020300	Ballyfinboy_030	River	N*	No	Moderate	Good (2022-2027)	At risk	Nutrients, Organic	Ag, DWTS, UR, UWW		WFD designated water bodies assessed in screening due to being one of the closest WFD designated water bodies in terms of linear distance to the activity. However, the activity is not hydrologically connected to the WFD designated water body. Surface water runoff modelling shows surface water pathways with intermittent connectivity. However, the land is well vegetated, any released fine sediment or pollutants would be intercepted and would not reach the WFD designated water body. The closest is 1.3km from the activity (linear distance).
IE_SH_25B020550	Ballyfinboy_040	River	N*	No	Moderate	Good (2022-2027)	At risk	Morphological, Nutrients, Organic	Ag, HYMO, UR		
IE_SH_25B020600	Ballyfinboy_050	River	N*	Yes (SAC)	Moderate	Good (2022-2027)	At risk	Morphological, Nutrients, Organic	Ag, For, UWW		

4.3 Groundwater Water Bodies Affected by the Proposed Project

29. The screening assessment identified 18 groundwater WFD designated water bodies that potentially interact with the Proposed Project - see Figure 2 in Section 7 of this report. No groundwater WFD designated water bodies were screened out - see Table 4.3.

30. Details of Proposed Project activities affecting which groundwater WFD designated water bodies, including the WFD designated water body baseline information, are given in Table 4.3.

Table 4.3: Groundwater WFD Designated Water Body Baseline Parameters (2019-2024) (N* states that designation is not known, therefore assumed as being undesignated) and Screening

WFD Designated Water Body ID	WFD Designated Water Body Name	Protected Areas	Current WFD Status/ Potential	Environmental Objective (Target Date)	WFD Risk	Significant Issues	Significant Pressures	Screen In or Out	Justification
38kV Uprate Works									
IE_SH_G_009	Ardnacrusha	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-	In	The activity crosses the WFD designated water bodies and could directly impact them during construction and/or operation.
IE_SH_G_157	Lough Graney	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-		
IE_SH_G_257	O'Briensbridge Gravels	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-		
IE_SH_G_213	Slieve Phelim	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-		
IE_SH_G_178	Nenagh	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-		
IE_SH_G_250	Silvermines Gravels	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-		
Raw Water Intake and Pumping Station (RWI&PS)									
IE_SH_G_178	Nenagh	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-	In	The activity crosses the WFD designated water bodies and could directly impact them during construction and/or operation.
IE_SH_G_250	Silvermines Gravels	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-	In	The activity occurs within an adjacent WFD designated water body and could indirectly impact the WFD designated water body during construction and/or operation.
IE_SH_G_157	Lough Graney	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-		

WFD Designated Water Body ID	WFD Designated Water Body Name	Protected Areas	Current WFD Status/ Potential	Environmental Objective (Target Date)	WFD Risk	Significant Issues	Significant Pressures	Screen In or Out	Justification
Water Treatment Plant (WTP)									
IE_SH_G_178	Nenagh	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-	In	The activity crosses the WFD designated water bodies and could directly impact them during construction and/or operation.
IE_SH_G_250	Silvermines Gravels	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-		The activity crosses the WFD designated water bodies and could directly impact them during construction and/or operation.
Break Pressure Tank (BPT)									
IE_SH_G_178	Nenagh	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-	In	The activity crosses the WFD designated water bodies and could directly impact them during construction and/or operation.
IE_SH_G_021	Ballinderry	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-		
Booster Pumping Station (BPS)									
IE_SH_G_205	Shinrone	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-	In	The activity crosses the WFD designated water bodies and could directly impact them during construction and/or operation.
Termination Point Reservoir (TPR)									
IE_EA_G_008	Dublin	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Review	-	-	In	The activity crosses the WFD designated water bodies and could directly impact them during construction and/or operation.
Pressure and Gravity Pipelines									
IE_SH_G_157	Lough Graney	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-	In	The activity crosses the WFD designated water bodies and could directly impact them during construction and/or commissioning, and/or operation.
IE_SH_G_213	Slieve Phelim	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-		
IE_SH_G_257	O'Briensbridge Gravels	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-		

WFD Designated Water Body ID	WFD Designated Water Body Name	Protected Areas	Current WFD Status/ Potential	Environmental Objective (Target Date)	WFD Risk	Significant Issues	Significant Pressures	Screen In or Out	Justification
IE_SH_G_178	Nenagh	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-	In	The activity crosses the WFD designated water bodies and could directly impact them during construction and/or commissioning, and/or operation.
IE_SH_G_250	Silvermines Gravels	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-		
IE_SH_G_248	Historic Mine (Silvermines)	Yes (DWPA; SAC)	Poor	Poor (no date)	Not at risk	-	-		
IE_SH_G_147	Lismaline	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-		
IE_SH_G_244	Birr Gravels	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-		
IE_SH_G_205	Shinrone	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-		
IE_SH_G_103	Geashill	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-		
IE_SE_G_107	Portlaoise	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-		
IE_SE_G_116	Rhode	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-		
IE_SE_G_048	Cushina	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-		
IE_SE_G_153	Bagenalstown Upper	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-		

WFD Designated Water Body ID	WFD Designated Water Body Name	Protected Areas	Current WFD Status/ Potential	Environmental Objective (Target Date)	WFD Risk	Significant Issues	Significant Pressures	Screen In or Out	Justification
IE_SE_G_077	Kildare	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-	In	The activity occurs within an adjacent WFD designated water body and could indirectly impact the WFD designated water body during construction, and/or commissioning, and/or operation.
IE_EA_G_002	Trim	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	At risk	Chemical Quality Diminution For SW, Nutrients	DWTS, Unknown, Ag		
IE_EA_G_008	Dublin	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Revie w	-	-		
IE_SE_G_049	Daingean	Yes (DWPA)	Good	Good (2021 or earlier)	Revie w	-	-		
Construction Compounds									
IE_SH_G_178	Nenagh	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-	In	The activity occurs within the designated groundwater WFD water bodies and could directly impact them during construction.
IE_SH_G_147	Lismaline	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-		
IE_SH_G_205	Shinrone	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-		
IE_SH_G_103	Geashill	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-		
IE_SE_G_077	Kildare	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-		
IE_EA_G_008	Dublin	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Revie w	-	-		
IE_SH_G_021	Ballinderry	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-	In	The activity occurs within an adjacent WFD designated water body and could in-directly impact the WFD designated water body during construction.

WFD Designated Water Body ID	WFD Designated Water Body Name	Protected Areas	Current WFD Status/ Potential	Environmental Objective (Target Date)	WFD Risk	Significant Issues	Significant Pressures	Screen In or Out	Justification
Pipe Storage Depots									
IE_SH_G_178	Nenagh	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-	In	The activity occurs within the designated groundwater WFD water bodies and could directly impact them during construction.
IE_SH_G_205	Shinrone	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-		
IE_SH_G_103	Geashill	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-		The activity occurs within the designated groundwater WFD water bodies and could directly impact them during construction.
IE_SE_G_116	Rhode	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-		
IE_EA_G_008	Dublin	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Review	-	-		
Access Roads									
IE_SH_G_178	Nenagh	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-	In	The activity occurs within the designated groundwater WFD water bodies and could directly impact them during construction.
IE_SH_G_250	Silvermines Gravels	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-		
IE_EA_G_008	Dublin	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Review	-	-		
IE_SH_G_178	Nenagh	Yes (DWPA; SAC)	Good	Good (2021 or earlier)	Not at risk	-	-		

4.4 Surface WFD Designated Water Body Elements Scoping

31. Scoping of each surface WFD designated water body quality and supporting elements is covered in Table 4.4. The quality elements (biological, hydromorphological, physico-chemical and chemical) are listed for each water body and a tick or cross for each is used to indicate whether that quality element has been scoped in or out. To further support the scoping, high-level justification has been provided for each activity.

Table 4.4: WFD Designated Surface Water Body Quality/Supporting Element Scoping (✓ scoped in; ✗ scoped out)

WFD Designated Water Body Name	Phase	Biological Quality Elements			Hydromorphological Supporting Elements		Physico-chemical and Chemical						Protected Areas	Invasive Non-Native Species	Justification
		Fish	Macroinvertebrates	Macrophytes and Phytobenthos	Hydrology	Morphology	Thermal Conditions	Oxygenation Conditions	Salinity	Acidification Status	Nutrient Contents	Specific Pollutants			
RWI&PS and Associated Abstraction during Commissioning and Operation															
Derg TN	Construction	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	**Construction**: No construction or commissioning activities are proposed at or adjacent to Derg TN or the 24 tributaries which drain into Derg TN. Construction of the Raw Water Infrastructure and Pumping Station at Derg HMWB and the temporary crossing could impact Derg HMWB and Shannon (Lower)_050. These works could potentially release fine sediment and contaminants into the watercourse and impact biological and chemical elements. Works could also potentially impact channel and lake morphology given the proximity of the works. Works would remain lake side at Derg HMWB and would not interact with lake levels therefore no hydrological impacts are anticipated. Work on the lake bank side is unlikely to impact flow and morphology of Shannon (Lower)_050 downstream of Parteen Weir because of the barrier effect of the weir. Sequential removal of any piling works in Derg HMWB has potential to disrupt aquatic habitats, whilst vibrations could impact fish and invertebrates. The release of fine sediment from their removal and the in-lake or lakeside works required for this would also
	Commissioning	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	
	Operation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	
Derg HMWB	Construction	✓	✓	✓	✗	✓	✗	✓	✗	✓	✓	✓	✓	✓	
	Commissioning	✓	✓	✓	✗	✓	✗	✓	✗	✗	✓	✓	✓	✗	
	Operation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	
Shannon (Lower)_050	Construction	✓	✓	✓	✓	✓	✗	✓	✗	✓	✓	✓	✓	✓	
	Commissioning	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	
	Operation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	
Shannon (Lower)_040 Newtown_010 Youghal (Tipperary)_010 Ardgregane Stream_020 Clonmakilladuff_010	Construction	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	

WFD Designated Water Body Name	Phase	Biological Quality Elements			Hydromorphological Supporting Elements		Physico-chemical and Chemical						Protected Areas	Invasive Non-Native Species	Justification
		Fish	Macroinvertebrates	Macrophytes and Phytobenthos	Hydrology	Morphology	Thermal Conditions	Oxygenation Conditions	Salinity	Acidification Status	Nutrient Contents	Specific Pollutants			
Ballyfinboy_070 Woodford (Galway)_030 Derrainy_010 Bow_010 Coos_010 Moannakeeba_East_010 South Boleynagoagh_010 Kilrateera_Upper_010 Graney (Shannon)_050 Lorrha Stream_020 Carrigahorig Stream_010 Terryglass_010 Kilcrow_070 Ardcloony_010	Commissioning	×	×	×	×	×	×	×	×	×	×	×	×	×	impact lake bed morphology and physico-chemical and chemical elements. **Commissioning:** There is no abstraction for the other WFD designated water bodies associated with the RWI&PS for commissioning. Abstraction for commissioning - please see operation below. **Operation**: Abstraction in the lake would have the potential to impact all quality/supporting elements and reliance on lake levels by supported habitats. Similarly, for hydrologically connected WFD designated water bodies, changes of levels at their confluence with the lake has the potential to cause effects upstream.
	Operation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	✓	✓	

WFD Designated Water Body Name	Phase	Biological Quality Elements			Hydromorphological Supporting Elements		Physico-chemical and Chemical						Protected Areas	Invasive Non-Native Species	Justification
		Fish	Macroinvertebrates	Macrophytes and Phytobenthos	Hydrology	Morphology	Thermal Conditions	Oxygenation Conditions	Salinity	Acidification Status	Nutrient Contents	Specific Pollutants			
WTP and Access															
Kilmastulla_050	Construction	✓	✓	✓	✓	✓	×	✓	×	✓	✓	✓	✓	✓	**Construction:** construction of the water treatment plant itself would not have an impact on surface waters. Models of surface water pathways suggest there is limited connectivity between surface runoff and the WFD designated water body. However, the construction of the clear span bridge, flood relief culverts, outfall and demolition of derelict buildings associated with a disused of petrol station for the access could all lead to potential impacts to quality elements. Exceptions would be temperature as the WFD designated water body would not be extensively shaded or exposed during construction; and salinity due to the WFD designated water body being freshwater. **Commissioning:** No commissioning is proposed. **Operation:** Operation of the outfall and clear span bridge would potentially impact all quality/supporting elements.
	Commissioning	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Operation	✓	✓	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	×	

WFD Designated Water Body Name	Phase	Biological Quality Elements			Hydromorphological Supporting Elements		Physico-chemical and Chemical						Protected Areas	Invasive Non-Native Species	Justification
		Fish	Macroinvertebrates	Macrophytes and Phytobenthos	Hydrology	Morphology	Thermal Conditions	Oxygenation Conditions	Salinity	Acidification Status	Nutrient Contents	Specific Pollutants			
Treated Water Pipeline WTP to BPT															
Kilmastulla_040	Construction	✓	✓	✓	×	✓	×	✓	×	✓	✓	✓	✓	✓	**Construction:** Accidental release of pollutants and/or fine sediment carried via runoff would enter the watercourse and potentially impact habitats and species, bed substrate and water quality. **Commissioning/Operation:** Wash out discharges into surface water receptors upstream of WFD water bodies. Flows will either drain to WFD designated water body via surface water receptors or via surface runoff. Majority of impacts would take place along the surface water receptors, rather than the WFD designated water body. Indirect impacts are to hydrodynamics, morphology, water quality and aquatic species.
	Commissioning	✓	✓	✓	×	✓	×	✓	×	✓	✓	✓	✓	✓	
	Operation	✓	✓	✓	✓	✓	×	✓	×	✓	✓	✓	✓	✓	
Nenagh_070	Construction	✓	✓	✓	✓	✓	×	✓	×	✓	✓	✓	✓	✓	**Construction:** Both trenchless and open cut crossings, and the permanent outfall proposed here would impact flora, fauna, hydrodynamics, channel morphology and processes, whilst also impacting water quality due to indirect and direct interaction with released fine sediment and/or pollutants. **Commissioning/Operation:** Pipelines would have no impact on the WFD designated water bodies. Localised changes would occur potentially to groundwater pathways connected to the WFD designated water body but this would be localised to the pipe and would not impact the overall connectivity between aquifers and the channel. Impacts would be associated with the intermittent discharges in operation which would impact local channel morphology, hydrodynamics and hydrology. This would also impact local flora and fauna distribution and water quality.
	Commissioning	✓	✓	✓	✓	✓	×	✓	×	×	✓	✓	✓	✓	
	Operation	✓	✓	✓	✓	✓	×	✓	×	×	✓	✓	✓	✓	

WFD Designated Water Body Name	Phase	Biological Quality Elements			Hydromorphological Supporting Elements		Physico-chemical and Chemical						Protected Areas	Invasive Non-Native Species	Justification
		Fish	Macroinvertebrates	Macrophytes and Phytobenthos	Hydrology	Morphology	Thermal Conditions	Oxygenation Conditions	Salinity	Acidification Status	Nutrient Contents	Specific Pollutants			
Clodiagh (Tullamore)_020 Liffey_140	Construction	✓	✓	✓	×	✓	×	✓	×	✓	✓	✓	✓	✓	**Construction:** Trenchless crossings, although not directly impacting the WFD designated water body would still lead to indirect impacts from vibrations, fine sediment release and spillages. This would impact flora, fauna, hydrodynamics, channel morphology and processes, and water quality. **Commissioning/Operation:** Pipelines would have no impact on the WFD designated water bodies. Localised changes would occur potentially to groundwater pathways connected to the WFD designated water body, but this would be localised to the pipe and would not impact the overall connectivity between aquifers and the channel. Impacts would be associated with the intermittent discharges during operation, which would impact local channel morphology, hydrodynamics and hydrology. This would also impact local flora and fauna distribution and water quality.
	Commissioning	✓	✓	✓	✓	✓	×	✓	×	×	✓	✓	✓	✓	
	Operation	✓	✓	✓	✓	✓	×	✓	×	×	✓	✓	✓	✓	
Kilmastulla_050 Kilmastulla_030 Kilmastulla_020 Ardgregane Stream_010 Ardgregane Stream_020 Ardcrony Stream_010	Construction	✓	✓	✓	✓	✓	×	✓	×	✓	✓	✓	✓	✓	**Construction:** Open cut crossings would require overpumping which will impact hydrology and hydrodynamics, morphology and in turn, impact aquatic flora, fauna and water quality. **Commissioning/Operation:** Pipelines would have no impact on the WFD designated water bodies. Localised changes would occur potentially to groundwater pathways connected to the WFD designated water body, but this would be localised to the pipe and would not impact the overall connectivity between aquifers and the channel. Impacts would be associated with the intermittent discharges during operation which would impact local channel morphology, hydrodynamics and hydrology. This would also impact local flora and fauna distribution and water quality.
	Commissioning	✓	✓	✓	✓	✓	×	✓	×	×	✓	✓	✓	✓	
	Operation	✓	✓	✓	✓	✓	×	✓	×	×	✓	✓	✓	✓	

WFD Designated Water Body Name	Phase	Biological Quality Elements			Hydromorphological Supporting Elements		Physico-chemical and Chemical						Protected Areas	Invasive Non-Native Species	Justification
		Fish	Macroinvertebrates	Macrophytes and Phytobenthos	Hydrology	Morphology	Thermal Conditions	Oxygenation Conditions	Salinity	Acidification Status	Nutrient Contents	Specific Pollutants			
Ballyfinboy_040	Construction	✓	✓	✓	✓	✓	×	✓	×	✓	✓	✓	✓	✓	**Construction:** Open cut crossings would require overpumping which will impact hydrology and hydrodynamics, morphology and in turn, impact aquatic flora, fauna and water quality. **Commissioning/Operation:** Pipelines would have no impact on the WFD designated water bodies. Localised changes would occur potentially to groundwater pathways connected to the WFD designated water body, but this would be localised to the pipe and would not impact the overall connectivity between aquifers and the channel. Outfall to discharge into upstream, surface water receptor. Majority of impacts would take place along the receptor, rather than the WFD designated water body. Indirect impacts are hydrodynamics, morphology, water quality and aquatic flora and fauna.
	Commissioning	✓	✓	✓	✓	✓	×	✓	×	×	✓	✓	✓	✓	
	Operation	✓	✓	✓	✓	✓	×	✓	×	×	✓	✓	✓	✓	
Nenagh Tributary_010	Construction	✓	✓	✓	✓	✓	×	✓	×	✓	✓	✓	✓	✓	**Construction:** Open cut crossings would require overpumping which will impact hydrology and hydrodynamics, morphology and in turn, impact aquatic flora, fauna and water quality. **Commissioning/Operation:** Pipelines would have no impact on the WFD designated water bodies. Localised changes would occur potentially to groundwater pathways connected to the WFD designated water body, but this would be localised to the pipe and would not impact the overall connectivity between aquifers and the channel. No washout valves proposed in location, therefore no impacts during commissioning and operation.
	Commissioning	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Operation	×	×	×	×	×	×	×	×	×	×	×	×	×	

WFD Designated Water Body Name	Phase	Biological Quality Elements			Hydromorphological Supporting Elements		Physico-chemical and Chemical						Protected Areas	Invasive Non-Native Species	Justification
		Fish	Macroinvertebrates	Macrophytes and Phytobenthos	Hydrology	Morphology	Thermal Conditions	Oxygenation Conditions	Salinity	Acidification Status	Nutrient Contents	Specific Pollutants			
Treated Water Pipeline BPT to TPR															
Daingean_010	Construction	✓	✓	✓	×	✓	×	✓	×	✓	✓	✓	✓	✓	**Construction:** Accidental release of pollutants and/or fine sediment would, if transported via runoff, enter the watercourse and potentially impact habitats, fauna, flora, bed substrate and water quality. **Commissioning/Operation:** Discharges could release fine sediment transporting it to the nearby WFD designated water body via runoff.
	Commissioning	✓	✓	✓	×	✓	×	✓	×	✓	✓	✓	✓	✓	
	Operation	✓	✓	✓	✓	✓	×	✓	×	✓	✓	✓	✓	✓	
Liffey_130 Clodiagh (Tullamore)_020	Construction	✓	✓	✓	×	✓	×	✓	×	✓	✓	✓	✓	✓	**Construction:** Accidental release of pollutants and/or fine sediment would, if transported via runoff, enter the watercourse and potential impact habitats, fauna, flora, bed substrate and water quality. **Commissioning/Operation:** Outfall to discharge into upstream, surface water receptors. Flows will either drain to WFD designated water body via surface water receptors or via surface runoff. Majority of impacts would take place along the surface water receptors, rather than the WFD designated water body. Indirect impacts are hydrodynamics, morphology, water quality and aquatic flora and fauna.
	Commissioning	✓	✓	✓	×	✓	×	✓	×	✓	✓	✓	✓	✓	
	Operation	✓	✓	✓	✓	✓	×	✓	×	✓	✓	✓	✓	✓	

WFD Designated Water Body Name	Phase	Biological Quality Elements			Hydromorphological Supporting Elements		Physico-chemical and Chemical						Protected Areas	Invasive Non-Native Species	Justification
		Fish	Macroinvertebrates	Macrophytes and Phytobenthos	Hydrology	Morphology	Thermal Conditions	Oxygenation Conditions	Salinity	Acidification Status	Nutrient Contents	Specific Pollutants			
Little Brosna_030	Construction	✓	✓	✓	×	✓	×	✓	×	✓	✓	✓	✓	✓	**Construction:** Trenchless crossings, although not directly impacting the WFD designated water body would still lead to indirect impacts from vibrations, fine sediment release and spillages. This would impact flora, fauna, hydrodynamics, channel morphology and processes, and water quality. **Commissioning/Operation:** Pipelines would have no impact on the WFD designated water body. Localised changes would occur potentially to groundwater pathways connected to the WFD designated surface water body, but this would be localised to the pipe and would not impact the overall connectivity between aquifers and the channel. Impacts would be associated with the intermittent discharges during operation and would impact local channel morphology, hydrodynamics and hydrology. This would also impact local flora and fauna distribution and water quality.
	Commissioning	✓	✓	✓	✓	✓	×	✓	×	×	✓	✓	✓	✓	
	Operation	✓	✓	✓	✓	✓	×	✓	×	×	✓	✓	✓	✓	
Clodiagh (Tullamore)_030 Grand Canal Main Line East (Barrow) Abbeylough_010 Grand Canal Main Line (Liffey and Dublin Bay)*	Construction	✓	✓	✓	✓	✓	×	✓	×	✓	✓	✓	✓	✓	**Construction:** Open cut crossings would require overpumping which will impact hydrology and hydrodynamics, morphology and in turn, impact aquatic flora, fauna and water quality. **Commissioning/Operation:** Pipelines would have no impact on the WFD designated water bodies. Localised changes would occur potentially to groundwater pathways connected to the WFD designated surface water body, but this would be localised to the pipe and would not impact the overall connectivity between aquifers and the channel. No washout valves proposed in location, therefore no impacts during commissioning and operation.
	Commissioning	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Operation	×	×	×	×	×	×	×	×	×	×	×	×	×	

WFD Designated Water Body Name	Phase	Biological Quality Elements			Hydromorphological Supporting Elements		Physico-chemical and Chemical						Protected Areas	Invasive Non-Native Species	Justification
		Fish	Macroinvertebrates	Macrophytes and Phytobenthos	Hydrology	Morphology	Thermal Conditions	Oxygenation Conditions	Salinity	Acidification Status	Nutrient Contents	Specific Pollutants			
Kilcomin Stream_030 Shinrone Stream_010 Rock (Birr)_010 Clareen Stream/ Fuarawn_020 Kyleboher_010 Silver (Kilcormac)_030 Tullamore_020 Tullamore_010 Daingean_030 Esker Stream_010 Esker Stream_020 Figile_020* Figile_010 Clonshanbo_010 Lyreen_010 Clonshanbo_020 Reeves_010	Construction	✓	✓	✓	✓	✓	×	✓	×	✓	✓	✓	✓	✓	**Construction:** Open cut crossings would require overpumping which will impact hydrology and hydrodynamics, morphology and in turn, impact aquatic flora, fauna and water quality. **Commissioning/Operation:** Pipelines would have no impact on the WFD designated water bodies. Localised changes would occur potentially to groundwater pathways connected to the WFD designated water body, but this would be localised to the pipe and would not impact the overall connectivity between aquifers and the channel. Impacts would be associated with the intermittent discharges during operation which would impact local channel morphology, hydrodynamics and hydrology. This would also impact local flora and fauna distribution and water quality.
	Commissioning	✓	✓	✓	✓	✓	×	✓	×	×	✓	✓	✓	✓	
	Operation	✓	✓	✓	✓	✓	×	✓	×	×	✓	✓	✓	✓	

WFD Designated Water Body Name	Phase	Biological Quality Elements			Hydromorphological Supporting Elements		Physico-chemical and Chemical						Protected Areas	Invasive Non-Native Species	Justification
		Fish	Macroinvertebrates	Macrophytes and Phytobenthos	Hydrology	Morphology	Thermal Conditions	Oxygenation Conditions	Salinity	Acidification Status	Nutrient Contents	Specific Pollutants			
Liffey_140* Blackwater (Longwood)_010 Figile_030 Meelaghans_010 Silver (Kilcormac)_020 Camcor_030*	Construction	✓	✓	✓	✓	✓	×	✓	×	✓	✓	✓	✓	✓	**Construction:** Both trenchless and open cut crossings, and the permanent outfall, proposed here would impact flora, fauna, hydrodynamics, channel morphology and processes, whilst also impacting water quality due to indirect and direct interaction with released fine sediment and/or pollutants. **Commissioning/Operation:** Pipelines would have no impact on the WFD designated water bodies. Localised changes would occur potentially to groundwater pathways connected to the WFD designated water body, but this would be localised to the pipe and would not impact the overall connectivity between aquifers and the channel. Impacts would be associated with the intermittent discharges during operation which would impact local channel morphology, hydrodynamics and hydrology. This would also impact local flora and fauna distribution and water quality.
	Commissioning	✓	✓	✓	✓	✓	×	✓	×	×	✓	✓	✓	✓	
	Operation	✓	✓	✓	✓	✓	×	✓	×	×	✓	✓	✓	✓	
Camcor_040 Figile_040 Little Brosna_010	Construction	✓	✓	✓	×	✓	×	✓	×	✓	✓	✓	✓	✓	**Construction:** This is a downstream WFD designated water body (i.e., activities taking place upstream). The majority of impacts would take place along the upstream WFD designated water body and surface water receptors. Any released fine sediment or spilt contaminants could still impact channel morphology, aquatic fauna and flora and water quality, given the quantity of works upstream (which is approximately 50-750m). **Commissioning/Operation:** Pipelines would be beneath the impacted upstream WFD designated water body. Therefore, there would be no impact to any connected WFD designated water body. Discharges to upstream waterbodies would be unlikely impact to impact aquatic fauna, flow or sediment to these downstream WFD designated water bodies. Impacts
	Commissioning	✓	✓	×	×	✓	×	✓	×	×	✓	✓	✓	✓	
	Operation	✓	✓	×	×	✓	×	✓	×	×	✓	✓	✓	✓	

WFD Designated Water Body Name	Phase	Biological Quality Elements			Hydromorphological Supporting Elements		Physico-chemical and Chemical						Protected Areas	Invasive Non-Native Species	Justification
		Fish	Macroinvertebrates	Macrophytes and Phytobenthos	Hydrology	Morphology	Thermal Conditions	Oxygenation Conditions	Salinity	Acidification Status	Nutrient Contents	Specific Pollutants			
															would largely be associated with water quality from any scour and sediment deposition.
Rock (Birr)_020	Construction	✓	✓	✓	✓	✓	×	✓	×	✓	✓	✓	✓	✓	**Construction:** Open cut crossings would require overpumping which will impact hydrology and hydrodynamics, morphology and in turn, impact aquatic flora, fauna and water quality. **Commissioning/Operation:** Pipelines would have no impact on the WFD designated water bodies. Localised changes would occur potentially to groundwater pathways connected to the WFD designated water body, but this would be localised to the pipe and would not impact the overall connectivity between aquifers and the channel. Outfall to discharge into upstream, surface water receptor. Majority of impacts would take place along the receptor, rather than the WFD designated water body. Indirect impacts are hydrodynamics, morphology, water quality and aquatic flora and fauna.
	Commissioning	✓	✓	✓	✓	✓	×	✓	×	×	✓	✓	✓	✓	
	Operation	✓	✓	✓	✓	✓	×	✓	×	×	✓	✓	✓	✓	

WFD Designated Water Body Name	Phase	Biological Quality Elements			Hydromorphological Supporting Elements		Physico-chemical and Chemical						Protected Areas	Invasive Non-Native Species	Justification
		Fish	Macroinvertebrates	Macrophytes and Phytobenthos	Hydrology	Morphology	Thermal Conditions	Oxygenation Conditions	Salinity	Acidification Status	Nutrient Contents	Specific Pollutants			
BPS															
Camcor_030	Construction	✓	✓	✓	✓	✓	×	✓	×	✓	✓	✓	✓	✓	**Construction:** Fine sediment, vibrations from plant material, spilt contaminants, storage and works to an existing crossing and new outfall are all likely to impact hydrodynamics, morphology and in turn, impact water quality and aquatic fauna and flora. **Commissioning:** No proposals for Commissioning Phase. **Operation:** Extension to the road crossing for access and the presence and operation of the outfall will all likely impact hydraulic, morphology and in turn, impact water quality and aquatic fauna and flora.
	Commissioning	✓	✓	✓	✓	✓	×	✓	×	✓	✓	✓	✓	✓	
	Operation	✓	✓	✓	✓	✓	×	✓	×	✓	✓	✓	✓	✓	
BPS Power Connection															
Camcor_040 Camcor_050	Construction	✓	✓	✓	✓	✓	×	✓	×	✓	✓	✓	✓	✓	**Construction:** Updates to the existing road and watercourse crossing could impact the hydrodynamics and morphology of each WFD designated water body and in turn, impact water quality and aquatic fauna and flora. **Commissioning:** No proposal for Commissioning Phase. **Operation:** Road drainage and the upgraded watercourse crossings at each WFD designated water body will impact hydrodynamics, morphology, water quality and both aquatic fauna and flora.
	Commissioning	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Operation	✓	✓	✓	✓	✓	×	✓	×	✓	✓	✓	✓	✓	

WFD Designated Water Body Name	Phase	Biological Quality Elements			Hydromorphological Supporting Elements		Physico-chemical and Chemical						Protected Areas	Invasive Non-Native Species	Justification
		Fish	Macroinvertebrates	Macrophytes and Phytobenthos	Hydrology	Morphology	Thermal Conditions	Oxygenation Conditions	Salinity	Acidification Status	Nutrient Contents	Specific Pollutants			
Temporary construction compounds															
Derg HMWB Camcor_030 Clodiagh (Tullamore)_020 Liffey_170	Construction	✓	✓	✓	✓	✓	×	✓	×	✓	✓	✓	✓	✓	**Construction:** Hardstanding areas, drainage, release of fine sediment and contaminants could all impact local channel hydrodynamics, morphology and in turn, water quality and aquatic fauna and flora. **Commissioning/Operation:** Temporary sites, no operation and/or commissioning impacts.
	Commissioning	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Operation	×	×	×	×	×	×	×	×	×	×	×	×	×	
Pipe Storage Depots															
Kilmastulla_020 Ardgregane Stream_010 Kilcomin Stream_030 Kyleboher_010 Silver (Kilcormac)_030 Lyreen_010 Liffey_130 Clareen Stream/ Fuarawn_020	Construction	✓	✓	✓	×	✓	×	✓	×	✓	✓	✓	✓	✓	**Construction:** Sediment and pollutants draining from the storage areas could enter watercourses and impact WFD designated water bodies. **Commissioning/Operation:** Temporary sites, no operation and/or commissioning impacts.
	Commissioning	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Operation	×	×	×	×	×	×	×	×	×	×	×	×	×	

WFD Designated Water Body Name	Phase	Biological Quality Elements			Hydromorphological Supporting Elements		Physico-chemical and Chemical						Protected Areas	Invasive Non-Native Species	Justification
		Fish	Macroinvertebrates	Macrophytes and Phytobenthos	Hydrology	Morphology	Thermal Conditions	Oxygenation Conditions	Salinity	Acidification Status	Nutrient Contents	Specific Pollutants			
Proposed 38 kV Uprate Works															
Blackwater (Clare)_020	Construction	✓	✓	✓	×	✓	×	✓	×	✓	✓	✓	✓	✓	**Construction:** Proposed non-linear infrastructure works could lead to the potential release of fine sediment and pollutants into the WFD designated water body impacting most quality elements. Temporary crossing would shade the channel but this would be highly localised to the bridge with no impacts at a WFD designated water body scale. No change to hydrological regime or channel dynamics as any change in surface water drainage would be negligible. **Commissioning/Operation:** Commissioning and operation of the pylons and electricity supply would not impact any quality/supporting elements.
	Commissioning	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Operation	×	×	×	×	×	×	×	×	×	×	×	×	×	
Shannon (Lower)_050	Construction	✓	✓	✓	×	✓	×	✓	✓	✓	✓	✓	✓	✓	
	Commissioning	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Operation	×	×	×	×	×	×	×	×	×	×	×	×	×	
Kilmastulla_050 (SLoI)	Construction	✓	✓	✓	×	✓	×	✓	×	✓	✓	✓	✓	✓	
	Commissioning	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Operation	×	×	×	×	×	×	×	×	×	×	×	×	×	

4.5 Groundwater WFD Designated Water Body Elements Scoping

32. Scoping of groundwater WFD designated water body elements is covered in Table 4.5. This goes through each element where a tick and cross exercise has been carried out. To support the scoping, a high-level justification has been provided for each activity.

33. Groundwater WFD designated water body quality elements include the following:

    - Quantitative status elements: saline intrusion, water balance, Groundwater Dependent Terrestrial Ecosystems (GWDTEs) test, dependent surface WFD designated water body status
    - Chemical status elements: drinking water protected area (DWPA), general chemical test, GWDTEs test, dependent surface WFD designated water body status and saline intrusion.

34. All groundwater elements are scoped out of further assessment and therefore are not included in the Impact Assessment stage.

Table 4.5: Groundwater WFD Designated Water Body Quality/Supporting Element Scoping (✓ scoped in; ✖ scoped out)

WFD Designated Water Body Name	Phase	Quantitative Status				Chemical Status					Justification
		Saline Intrusion	Water Balance	GWDTE Test	Dependent Surface WFD Designated	Drinking Water Protected Area	General Chemical Test	GWDTE Test	Dependent Surface WFD Designated	Saline Intrusion	
Raw Water Intake and Pumping Station (RWI&PS)											
Nenagh	Construction	✖	✖	✖	✖	✖	✖	✖	✖	✖	Dewatering is proposed as part of the construction works for the RWI&PS. However, the abstraction will be limited in duration and small in comparison to the scale of the WFD designated water body, and therefore the works do not have the potential to significantly increase/decrease rates of abstraction from the groundwater WFD designated water body. There is no likely source of saline groundwater within the vicinity of the groundwater WFD designated water body. Furthermore, the footprint of the works is small in relation to the scale of the WFD designated water body and therefore there is no significant change to recharge anticipated. As a result, there will be no change to the status of the quantitative elements of the WFD designated water body. The proposed works are unlikely to significantly increase pollution concentrations within the groundwater WFD designated water body. The works are also unlikely to mobilise significant contamination. The works are therefore unlikely to impact groundwater quality at the scale of the groundwater WFD designated water body. As a result, there will be no change to the status of the chemical elements of the WFD designated water body.
	Operation	✖	✖	✖	✖	✖	✖	✖	✖	✖	The proposed works do not include a new, or a significant change to, groundwater abstraction within the groundwater WFD designated water body. The footprint of the RWI&PS is small in relation to the scale of the WFD designated water body and therefore there is no significant change to recharge anticipated. As a result, there will be no change to the status of the quantitative elements of the WFD designated water body. The operation of the RWI&PS does not include activities which will significantly increase pollution concentrations within the groundwater WFD designated water body. The Commissioning/Operation Phase of the RWI&PS is unlikely to mobilise significant contamination. Therefore, the works are unlikely to impact groundwater quality at the scale of the groundwater WFD designated water body. As a result, there will be no change to the status of the chemical elements of the WFD designated water body.

WFD Designated Water Body Name	Phase	Quantitative Status				Chemical Status					Justification
		Saline Intrusion	Water Balance	GWDTE Test	Dependent Surface WFD Designated	Drinking Water Protected Area	General Chemical Test	GWDTE Test	Dependent Surface WFD Designated	Saline Intrusion	
Lough Graney	Construction	×	×	×	×	×	×	×	×	×	Dewatering is proposed as part of the construction works for the RWI&PS. However, the abstraction will be limited in duration and small in comparison to the scale of the WFD designated water body, and therefore the works do not have the potential to significantly increase/decrease rates of abstraction from the groundwater WFD designated water body. There is no likely source of saline groundwater within the vicinity of the groundwater WFD designated water body. Furthermore, the footprint of the works is small in relation to the scale of the WFD designated water body and therefore there is no significant change to recharge anticipated. As a result, there will be no change to the status of the quantitative elements of the WFD designated water body. The proposed works are unlikely to significantly increase pollution concentrations within the groundwater WFD designated water body. The works are also unlikely to mobilise significant contamination. The works are therefore unlikely to impact groundwater quality at the scale of the groundwater WFD designated water body. As a result, there will be no change to the status of the chemical elements of the WFD designated water body.
	Operation	×	×	×	×	×	×	×	×	×	The proposed works do not include a new, or a significant change to, groundwater abstraction within the groundwater WFD designated water body. The footprint of the RWI&PS is small in relation to the scale of the WFD designated water body and therefore there is no significant change to recharge anticipated. As a result, there will be no change to the status of the quantitative elements of the WFD designated water body. The operation of the RWI&PS does not include activities which will significantly increase pollution concentrations within the groundwater WFD designated water body. The Commissioning/Operation Phase of the RWI&PS is unlikely to mobilise significant contamination. Therefore, the works are unlikely to impact groundwater quality at the scale of the groundwater WFD designated water body. As a result, there will be no change to the status of the chemical elements of the WFD designated water body.

WFD Designated Water Body Name	Phase	Quantitative Status				Chemical Status					Justification
		Saline Intrusion	Water Balance	GWDTE Test	Dependent Surface WFD Designated	Drinking Water Protected Area	General Chemical Test	GWDTE Test	Dependent Surface WFD Designated	Saline Intrusion	
Silvermines Gravels	Construction	×	×	×	×	×	×	×	×	×	Dewatering is proposed as part of the construction works for the RWI&PS. However, the abstraction will be limited in duration and small in comparison to the scale of the WFD designated water body, and therefore the works do not have the potential to significantly increase/decrease rates of abstraction from the groundwater WFD designated water body. There is no likely source of saline groundwater within the vicinity of the groundwater WFD designated water body. Furthermore, the footprint of the works is small in relation to the scale of the WFD designated water body and therefore there is no significant change to recharge anticipated. As a result, there will be no change to the status of the quantitative elements of the WFD designated water body. The proposed works are unlikely to significantly increase pollution concentrations within the groundwater WFD designated water body. The works are also unlikely to mobilise significant contamination. The works are therefore unlikely to impact groundwater quality at the scale of the groundwater WFD designated water body. As a result, there will be no change to the status of the chemical elements of the WFD designated water body.
	Operation	×	×	×	×	×	×	×	×	×	The proposed works do not include a new, or a significant change to, groundwater abstraction within the groundwater WFD designated water body. The footprint of the RWI&PS is small in relation to the scale of the WFD designated water body and therefore there is no significant change to recharge anticipated. As a result, there will be no change to the status of the quantitative elements of the WFD designated water body. The operation of the RWI&PS does not include activities which will significantly increase pollution concentrations within the groundwater WFD designated water body. The Commissioning/Operation Phase of the RWI&PS is unlikely to mobilise significant contamination. Therefore, the works are unlikely to impact groundwater quality at the scale of the groundwater WFD designated water body. As a result, there will be no change to the status of the chemical elements of the WFD designated water body.

WFD Designated Water Body Name	Phase	Quantitative Status				Chemical Status					Justification
		Saline Intrusion	Water Balance	GWDTE Test	Dependent Surface WFD Designated	Drinking Water Protected Area	General Chemical Test	GWDTE Test	Dependent Surface WFD Designated	Saline Intrusion	
Water Treatment Plant (WTP)											
Nenagh	Construction	×	×	×	×	×	×	×	×	×	Dewatering may be required as part of the construction works for the WTP. However, the abstraction will be limited in duration and small in comparison to the scale of the WFD designated water body, and therefore the works do not have the potential to significantly increase/decrease rates of abstraction from the groundwater WFD designated water body. There is no likely source of saline groundwater within the vicinity of the groundwater WFD body. Furthermore, the footprint of the works are small in relation to the scale of the WFD designated water body and therefore there is no significant change to recharge anticipated. As a result, there will be no change to the status of the quantitative elements of the WFD designated water body. The proposed works are unlikely to significantly increase pollution concentrations within the groundwater WFD designated water body. The works are also unlikely to mobilise significant contamination. The works are therefore unlikely to impact groundwater quality at the scale of the groundwater WFD designated water body. As a result, there will be no change to the status of the chemical elements of the WFD designated water body.
	Operation	×	×	×	×	×	×	×	×	×	The proposed works do not include a new, or a significant change to, groundwater abstraction within the groundwater WFD designated water body. Furthermore, the footprint of the WTP is small in relation to the scale of the WFD designated water body and therefore there is no significant change to recharge anticipated. As a result, there will be no change to the status of the quantitative elements of the WFD designated water body. The operation of the WTP does not include activities which will significantly increase pollution concentrations within the groundwater WFD designated water body. The Commissioning/Operation Phase of the WTP is unlikely to mobilise significant contamination. Therefore, the works are unlikely to impact groundwater quality at the scale of the groundwater WFD designated water body. As a result, there will be no change to the status of the chemical elements of the WFD designated water body.

WFD Designated Water Body Name	Phase	Quantitative Status				Chemical Status					Justification
		Saline Intrusion	Water Balance	GWDTE Test	Dependent Surface WFD Designated	Drinking Water Protected Area	General Chemical Test	GWDTE Test	Dependent Surface WFD Designated	Saline Intrusion	
Silvermines Gravels	Construction	×	×	×	×	×	×	×	×	×	Dewatering may be required as part of the construction works for the WTP. However, the abstraction will be limited in duration and small in comparison to the scale of the WFD designated water body, and therefore the works do not have the potential to significantly increase/decrease rates of abstraction from the groundwater WFD designated water body. There is no likely source of saline groundwater within the vicinity of the groundwater WFD designated water body. Furthermore, the footprint of the works are small in relation to the scale of the WFD designated water body and therefore there is no significant change to recharge anticipated. As a result, there will be no change to the status of the quantitative elements of the WFD designated water body. The proposed works are unlikely to significantly increase pollution concentrations within the groundwater WFD designated water body. The works are also unlikely to mobilise significant contamination. The works are therefore unlikely to impact groundwater quality at the scale of the groundwater WFD designated water body. As a result, there will be no change to the status of the chemical elements of the WFD designated water body.
	Operation	×	×	×	×	×	×	×	×	×	The proposed works do not include a new, or a significant change to, groundwater abstraction within the groundwater WFD designated water body. Furthermore, the footprint of the WTP is small in relation to the scale of the WFD designated water body and therefore there is no significant change to recharge anticipated. As a result, there will be no change to the status of the quantitative elements of the WFD designated water body. The commissioning and operation of the WTP does not include activities which will significantly increase pollution concentrations within the groundwater WFD designated water body. The Commissioning/Operation Phase of the WTP is unlikely to mobilise significant contamination. Therefore, the works are unlikely to impact groundwater quality at the scale of the groundwater WFD designated water body. As a result, there will be no change to the status of the chemical elements of the WFD designated water body.

WFD Designated Water Body Name	Phase	Quantitative Status				Chemical Status					Justification
		Saline Intrusion	Water Balance	GWDTE Test	Dependent Surface WFD Designated	Drinking Water Protected Area	General Chemical Test	GWDTE Test	Dependent Surface WFD Designated	Saline Intrusion	
Break Pressure Tank (BPT)											
Nenagh	Construction	×	×	×	×	×	×	×	×	×	Dewatering may be required as part of the construction works for the BPT. However, the abstraction will be limited in duration and small in comparison to the scale of the WFD designated water body, and therefore the works do not have the potential to significantly increase/decrease rates of abstraction from the groundwater WFD designated water body. There is no likely source of saline groundwater within the vicinity of the groundwater WFD designated water body. Furthermore, the footprint of the works are small in relation to the scale of the WFD designated water body and therefore there is no significant change to recharge anticipated. As a result, there will be no change to the status of the quantitative elements of the WFD designated water body. The proposed works are unlikely to significantly increase pollution concentrations within the groundwater WFD designated water body. The works are also unlikely to mobilise significant contamination. The works are therefore unlikely to impact groundwater quality at the scale of the groundwater WFD designated water body. As a result, there will be no change to the status of the chemical elements of the WFD designated water body.
	Operation	×	×	×	×	×	×	×	×	×	The proposed works do not include a new, or a significant change to, groundwater abstraction within the groundwater WFD designated water body. Furthermore, the footprint of the BPT is small in relation to the scale of the WFD designated water body and therefore there is no significant change to recharge anticipated. As a result, there will be no change to the status of the quantitative elements of the WFD designated water body. The operation of the BPT does not include activities which will significantly increase pollution concentrations within the groundwater WFD designated water body. The Commissioning/Operation Phase of the BPT is unlikely to mobilise significant contamination. Therefore, the works are unlikely to impact groundwater quality at the scale of the groundwater WFD designated water body. As a result, there will be no change to the status of the chemical elements of the WFD designated water body.

WFD Designated Water Body Name	Phase	Quantitative Status				Chemical Status					Justification
		Saline Intrusion	Water Balance	GWDTE Test	Dependent Surface WFD Designated	Drinking Water Protected Area	General Chemical Test	GWDTE Test	Dependent Surface WFD Designated	Saline Intrusion	
Booster Pumping Station (BPS)											
Shinrone	Construction	×	×	×	×	×	×	×	×	×	Dewatering may be required as part of the construction works for the BPS. However, the abstraction will be limited in duration and small in comparison to the scale of the WFD designated water body, and therefore the works do not have the potential to significantly increase/decrease rates of abstraction from the groundwater WFD designated water body. There is no likely source of saline groundwater within the vicinity of the groundwater WFD designated water body. Furthermore, the footprint of the works are small in relation to the scale of the WFD designated water body and therefore there is no significant change to recharge anticipated. As a result, there will be no change to the status of the quantitative elements of the WFD designated water body. The proposed works are unlikely to significantly increase pollution concentrations within the groundwater WFD designated water body. The works are also unlikely to mobilise significant contamination. The works are therefore unlikely to impact groundwater quality at the scale of the groundwater WFD designated water body. As a result, there will be no change to the status of the chemical elements of the WFD designated water body.
	Operation	×	×	×	×	×	×	×	×	×	The proposed works do not include a new, or a significant change to, groundwater abstraction within the groundwater WFD designated water body. Furthermore, the footprint of the BPS is small in relation to the scale of the WFD designated water body and therefore there is no significant change to recharge anticipated. As a result, there will be no change to the status of the quantitative elements of the WFD designated water body. The commissioning and operation of the BPS does not include activities which will significantly increase pollution concentrations within the groundwater WFD designated water body. The Commissioning/Operation Phase of the BPS is unlikely to mobilise significant contamination. Therefore, the works are unlikely to impact groundwater quality at the scale of the groundwater WFD designated water body. As a result, there will be no change to the status of the chemical elements of the WFD designated water body.

WFD Designated Water Body Name	Phase	Quantitative Status				Chemical Status					Justification
		Saline Intrusion	Water Balance	GWDTE Test	Dependent Surface WFD Designated	Drinking Water Protected Area	General Chemical Test	GWDTE Test	Dependent Surface WFD Designated	Saline Intrusion	
Birr Gravels	Construction	×	×	×	×	×	×	×	×	×	Dewatering may be required as part of the construction works for the BPS. However, the abstraction will be limited in duration and small in comparison to the scale of the WFD designated water body, and therefore the works do not have the potential to significantly increase/decrease rates of abstraction from the groundwater WFD designated water body. There is no likely source of saline groundwater within the vicinity of the groundwater WFD designated water body. The footprint of the works are small in relation to the scale of the WFD designated water body and therefore there is no significant change to recharge anticipated. As a result, there will be no change to the status of the quantitative elements of the WFD designated water body. The proposed works are unlikely to significantly increase pollution concentrations within the groundwater WFD designated water body. The works are also unlikely to mobilise significant contamination. The works are therefore unlikely to impact groundwater quality at the scale of the groundwater WFD designated water body. As a result, there will be no change to the status of the chemical elements of the WFD designated water body.
	Operation	×	×	×	×	×	×	×	×	×	The proposed works do not include a new, or a significant change to, groundwater abstraction within the groundwater water body. Furthermore, the footprint of the BPS is small in relation to the scale of the WFD designated water body and therefore there is no significant change to recharge anticipated. As a result, there will be no change to the status of the quantitative elements of the WFD designated water body. The operation of the BPS does not include activities which will significantly increase pollution concentrations within the groundwater WFD designated water body. The Commissioning/Operation Phase of the BPS is unlikely to mobilise significant contamination. Therefore, the works are unlikely to impact groundwater quality at the scale of the groundwater WFD designated water body. As a result, there will be no change to the status of the chemical elements of the WFD designated water body.

WFD Designated Water Body Name	Phase	Quantitative Status				Chemical Status					Justification
		Saline Intrusion	Water Balance	GWDTE Test	Dependent Surface WFD Designated	Drinking Water Protected Area	General Chemical Test	GWDTE Test	Dependent Surface WFD Designated	Saline Intrusion	
Termination Point Reservoir (TPR)											
Dublin	Construction	×	×	×	×	×	×	×	×	×	Dewatering may be required as part of the construction works for the TPR. However, the abstraction will be limited in duration and small in comparison to the scale of the WFD designated water body, and therefore the works do not have the potential to significantly increase/decrease rates of abstraction from the groundwater WFD designated water body. There is no likely source of saline groundwater within the vicinity of the groundwater WFD designated water body. Furthermore, the footprint of the works are small in relation to the scale of the WFD designated water body and therefore there is no significant change to recharge anticipated. As a result, there will be no change to the status of the quantitative elements of the WFD designated water body. The proposed works are unlikely to significantly increase pollution concentrations within the groundwater WFD designated water body. The works are also unlikely to mobilise significant contamination. The works are therefore unlikely to impact groundwater quality at the scale of the groundwater WFD designated water body. As a result, there will be no change to the status of the chemical elements of the WFD designated water body.
	Operation	×	×	×	×	×	×	×	×	×	The proposed works do not include a new, or a significant change to, groundwater abstraction within the groundwater WFD designated water body. Furthermore, the footprint of the TPR is small in relation to the scale of the WFD designated water body and therefore there is no significant change to recharge anticipated. As a result, there will be no change to the status of the quantitative elements of the WFD designated water body. The operation of the TPR does not include activities which will significantly increase pollution concentrations within the groundwater WFD designated water body. The Commissioning/Operation Phase of the TPR is unlikely to mobilise significant contamination. Therefore, the works are unlikely to impact groundwater quality at the scale of the groundwater WFD designated water body. As a result, there will be no change to the status of the chemical elements of the WFD designated water body.

WFD Designated Water Body Name	Phase	Quantitative Status				Chemical Status					Justification
		Saline Intrusion	Water Balance	GWDTE Test	Dependent Surface WFD Designated	Drinking Water Protected Area	General Chemical Test	GWDTE Test	Dependent Surface WFD Designated	Saline Intrusion	
Treated Water Pipelines											
Lough Graney	Construction	×	×	×	×	×	×	×	×	×	**Construction/Commissioning/ Operation** The proposed Treated Water Pipeline construction, commissioning and operation works do not include a new, or a significant change to, groundwater abstraction within the groundwater WFD designated water body. Furthermore, the footprint of the works at any particular location is small in relation to the scale of the WFD designated water bodies and therefore no significant change to recharge is anticipated. As a result, there will be no change to the status of the quantitative elements of the WFD designated water bodies. The works are unlikely to significantly increase pollution concentrations within the groundwater WFD designated water bodies. The works are also unlikely to mobilise significant contamination. Therefore, the works are unlikely to impact groundwater quality at the scale of the groundwater WFD designated water bodies. As a result, there will be no change to the status of the chemical elements of the WFD designated water bodies.
	Commissioning	×	×	×	×	×	×	×	×	×	
	Operation	×	×	×	×	×	×	×	×	×	
Nenagh	Construction	×	×	×	×	×	×	×	×	×	
	Commissioning	×	×	×	×	×	×	×	×	×	
	Operation	×	×	×	×	×	×	×	×	×	
Silvermines Gravels	Construction	×	×	×	×	×	×	×	×	×	
	Commissioning	×	×	×	×	×	×	×	×	×	
	Operation	×	×	×	×	×	×	×	×	×	
Historic Mine (Silvermines)	Construction	×	×	×	×	×	×	×	×	×	
	Commissioning	×	×	×	×	×	×	×	×	×	
	Operation	×	×	×	×	×	×	×	×	×	

WFD Designated Water Body Name	Phase	Quantitative Status				Chemical Status					Justification
		Saline Intrusion	Water Balance	GWDTE Test	Dependent Surface WFD Designated	Drinking Water Protected Area	General Chemical Test	GWDTE Test	Dependent Surface WFD Designated	Saline Intrusion	
Lismaline	Construction	×	×	×	×	×	×	×	×	×	**Construction/Commissioning/ Operation** The proposed Treated Water Pipeline construction, commissioning and operation works do not include a new, or a significant change to, groundwater abstraction within the groundwater WFD designated water body. Furthermore, the footprint of the works at any particular location is small in relation to the scale of the WFD designated water bodies and therefore no significant change to recharge is anticipated. As a result, there will be no change to the status of the quantitative elements of the WFD designated water bodies. The works are unlikely to significantly increase pollution concentrations within the groundwater WFD designated water bodies. The works are also unlikely to mobilise significant contamination. Therefore, the works are unlikely to impact groundwater quality at the scale of the groundwater WFD designated water bodies. As a result, there will be no change to the status of the chemical elements of the WFD designated water bodies.
	Commissioning	×	×	×	×	×	×	×	×	×	
	Operation	×	×	×	×	×	×	×	×	×	
Ballinderry	Construction	×	×	×	×	×	×	×	×	×	
	Commissioning	×	×	×	×	×	×	×	×	×	
	Operation	×	×	×	×	×	×	×	×	×	
Shinrone	Construction	×	×	×	×	×	×	×	×	×	
	Commissioning	×	×	×	×	×	×	×	×	×	
	Operation	×	×	×	×	×	×	×	×	×	
Geashill	Construction	×	×	×	×	×	×	×	×	×	
	Commissioning	×	×	×	×	×	×	×	×	×	
	Operation	×	×	×	×	×	×	×	×	×	
Portlaoise	Construction	×	×	×	×	×	×	×	×	×	
	Commissioning	×	×	×	×	×	×	×	×	×	

WFD Designated Water Body Name	Phase	Quantitative Status				Chemical Status					Justification
		Saline Intrusion	Water Balance	GWDTE Test	Dependent Surface WFD Designated	Drinking Water Protected Area	General Chemical Test	GWDTE Test	Dependent Surface WFD Designated	Saline Intrusion	
	Operation	×	×	×	×	×	×	×	×	×	**Construction/Commissioning/ Operation** The proposed Treated Water Pipeline construction, commissioning and operation works do not include a new, or a significant change to, groundwater abstraction within the groundwater WFD designated water body. Furthermore, the footprint of the works at any particular location is small in relation to the scale of the WFD designated water bodies and therefore no significant change to recharge is anticipated. As a result, there will be no change to the status of the quantitative elements of the WFD designated water bodies. The works are unlikely to significantly increase pollution concentrations within the groundwater WFD designated water bodies. The works are also unlikely to mobilise significant contamination. Therefore, the works are unlikely to impact groundwater quality at the scale of the groundwater WFD designated water bodies. As a result, there will be no change to the status of the chemical elements of the WFD designated water bodies.
Rhode	Construction	×	×	×	×	×	×	×	×	×	
	Commissioning	×	×	×	×	×	×	×	×	×	
	Operation	×	×	×	×	×	×	×	×	×	
Cushina	Construction	×	×	×	×	×	×	×	×	×	
	Commissioning	×	×	×	×	×	×	×	×	×	
	Operation	×	×	×	×	×	×	×	×	×	
Bagenalstown Upper	Construction	×	×	×	×	×	×	×	×	×	
	Commissioning	×	×	×	×	×	×	×	×	×	
	Operation	×	×	×	×	×	×	×	×	×	
Kildare	Construction	×	×	×	×	×	×	×	×	×	
	Commissioning	×	×	×	×	×	×	×	×	×	
	Operation	×	×	×	×	×	×	×	×	×	
Trim	Construction	×	×	×	×	×	×	×	×	×	

WFD Designated Water Body Name	Phase	Quantitative Status				Chemical Status					Justification
		Saline Intrusion	Water Balance	GWDTE Test	Dependent Surface WFD Designated	Drinking Water Protected Area	General Chemical Test	GWDTE Test	Dependent Surface WFD Designated	Saline Intrusion	
	Commissioning	×	×	×	×	×	×	×	×	×	**Construction/Commissioning/ Operation** The proposed Treated Water Pipeline construction, commissioning and operation works do not include a new, or a significant change to, groundwater abstraction within the groundwater WFD designated water body. Furthermore, the footprint of the works at any particular location is small in relation to the scale of the WFD designated water bodies and therefore no significant change to recharge is anticipated. As a result, there will be no change to the status of the quantitative elements of the WFD designated water bodies. The works are unlikely to significantly increase pollution concentrations within the groundwater WFD designated water bodies. The works are also unlikely to mobilise significant contamination. Therefore, the works are unlikely to impact groundwater quality at the scale of the groundwater WFD designated water bodies. As a result, there will be no change to the status of the chemical elements of the WFD designated water bodies.
	Operation	×	×	×	×	×	×	×	×	×	
Dublin	Construction	×	×	×	×	×	×	×	×	×	
	Commissioning	×	×	×	×	×	×	×	×	×	
	Operation	×	×	×	×	×	×	×	×	×	
Daingean	Construction	×	×	×	×	×	×	×	×	×	
	Commissioning	×	×	×	×	×	×	×	×	×	
	Operation	×	×	×	×	×	×	×	×	×	
Construction Compounds											
Nenagh	Construction	×	×	×	×	×	×	×	×	×	The proposed construction compounds do not include a new, or a significant change to, groundwater abstraction within a groundwater WFD designated water body. Furthermore, the footprint of the works is small in relation to the scale of the WFD designated water bodies and therefore no significant change to recharge is anticipated. As a result, there will be no change to the status of the quantitative elements of the WFD designated water bodies. The works are unlikely to significantly increase pollution concentrations within a groundwater WFD designated water body. The works are also unlikely to mobilise significant contamination. Therefore, the works are unlikely to impact groundwater quality at the scale of the groundwater WFD designated water bodies. As a result, there will be no change to the status of the chemical elements of the WFD designated water bodies.
Lismaline	Construction	×	×	×	×	×	×	×	×	×	
Shinrone	Construction	×	×	×	×	×	×	×	×	×	
Geashill	Construction	×	×	×	×	×	×	×	×	×	
Kildare	Construction	×	×	×	×	×	×	×	×	×	

WFD Designated Water Body Name	Phase	Quantitative Status				Chemical Status					Justification
		Saline Intrusion	Water Balance	GWDTE Test	Dependent Surface WFD Designated	Drinking Water Protected Area	General Chemical Test	GWDTE Test	Dependent Surface WFD Designated	Saline Intrusion	
Dublin	Construction	×	×	×	×	×	×	×	×	×	
Ballinderry	Construction	×	×	×	×	×	×	×	×	×	
Pipe Storage Depots											
Nenagh	Construction	×	×	×	×	×	×	×	×	×	The proposed pipe storage depots do not include a new, or a significant change to, groundwater abstraction within a groundwater WFD designated water body. Furthermore, the footprint of the works is small in relation to the scale of the WFD designated water bodies and therefore no significant change to recharge is anticipated. As a result, there will be no change to the status of the quantitative elements of the WFD designated water bodies. The works are unlikely to significantly increase pollution concentrations within a groundwater WFD designated water body. The works are also unlikely to mobilise significant contamination. Therefore, the works are unlikely to impact groundwater quality at the scale of the groundwater WFD designated water bodies. As a result, there will be no change to the status of the chemical elements of the WFD designated water bodies.
Shinrone	Construction	×	×	×	×	×	×	×	×	×	
Geashill	Construction	×	×	×	×	×	×	×	×	×	
Rhode	Construction	×	×	×	×	×	×	×	×	×	
Dublin	Construction	×	×	×	×	×	×	×	×	×	
Access Roads											
Nenagh	Construction	×	×	×	×	×	×	×	×	×	The proposed access roads do not include a new, or a significant change to, groundwater abstraction within a groundwater WFD designated water body. Furthermore, the footprint of the works is small in relation to the scale of the WFD designated water bodies and therefore no significant change to recharge is anticipated. As a result, there will be no change to the status of the quantitative elements of the WFD designated water bodies. The works are unlikely to significantly increase pollution concentrations within a groundwater WFD designated water body. The works are also unlikely to mobilise significant contamination. Therefore, the works are unlikely to impact groundwater quality at the scale of the groundwater WFD designated water bodies. As a result, there will be no change to the status of the chemical elements of the WFD designated water bodies.
Silvermines Gravels	Construction	×	×	×	×	×	×	×	×	×	
Dublin	Construction	×	×	×	×	×	×	×	×	×	
Nenagh	Construction	×	×	×	×	×	×	×	×	×	

WFD Designated Water Body Name	Phase	Quantitative Status				Chemical Status					Justification
		Saline Intrusion	Water Balance	GWDTE Test	Dependent Surface WFD Designated	Drinking Water Protected Area	General Chemical Test	GWDTE Test	Dependent Surface WFD Designated	Saline Intrusion	
38kV Uprate Works											
Ardnacrusha	Construction	×	×	×	×	×	×	×	×	×	**Construction/Operation** The proposed 38kV uprate works do not include a new, or a significant change to, groundwater abstraction within the groundwater WFD designated water body. Furthermore, the footprint of the works is small in relation to the scale of the WFD designated water body and therefore no significant change to recharge is anticipated. As a result, there will be no change to the status of the quantitative elements of the WFD designated water body. The proposed 38kV uprate works are unlikely to significantly increase pollution concentrations within the groundwater WFD designated water body. The works are also unlikely to mobilise significant contamination. Therefore, the works are unlikely to impact groundwater quality at the scale of the groundwater WFD designated water body. As a result, there will be no change to the status of the chemical elements of the WFD designated water body.
	Operation	×	×	×	×	×	×	×	×	×	
Lough Graney	Construction	×	×	×	×	×	×	×	×	×	
	Operation	×	×	×	×	×	×	×	×	×	
O'Briensbridge Gravels	Construction	×	×	×	×	×	×	×	×	×	
	Operation	×	×	×	×	×	×	×	×	×	
Slieve Phelim	Construction	×	×	×	×	×	×	×	×	×	
	Operation	×	×	×	×	×	×	×	×	×	
Nenagh	Construction	×	×	×	×	×	×	×	×	×	
	Operation	×	×	×	×	×	×	×	×	×	
Silvermines Gravels	Construction	×	×	×	×	×	×	×	×	×	
	Operation	×	×	×	×	×	×	×	×	×	

4.6 Protected Areas Scoping

35. The WFD requires that protected areas are considered within the compliance assessment. This section describes the types of protected areas that would need consideration. The scoping in or out of the protected areas is then undertaken in Sections 4.6.1 to 4.6.5. Conservation designations and protected areas that are required to be considered as part of compliance include the following:

    - Nature conservation designations relevant to WFD include those designated under the Birds Directive (2009/147/EC)[16] and the Habitats Directive (92/43/EEC)[17] - Special Protection Areas (SPA) and Special Areas of Conservation (SAC)
    - Bathing waters are designated under the Bathing Water Directive (76/160/EEC) or the later revised Bathing Water Directive (2006/7/EC)[18]. The Bathing Water Quality Regulations (S.I. No. 322 of 2024 transpose the Bathing Water Directive into Irish law
    - Drinking waters: DWPAs are designated under the Drinking Water Directive (2020/2184)[19] to ensure water is safe for human consumption and can include rivers, lakes or groundwater. All designated DWPAs are expected to represent the full extent of the WFD designated water bodies where there is a known abstraction for human consumption as defined under Article 7 of the WFD. This is a requirement of the Member State and a delineation of the DWPA as per Article 7
    - Nutrient Sensitive Areas comprise Nitrate Vulnerable Zones and polluted waters designated under the Nitrates Directive (91/676/EEC)[20] and updated in 2024 (Directive (EU) 2024/3019)[21] as well as areas designated as sensitive areas under the Urban Wastewater (Nutrient - Sensitive Areas) (403/2025) Regulations 2025[22]. The Directive aims to protect the environment from the adverse effects of the collection, treatment and discharge of urban wastewater. Also Nutrient Sensitive Areas are WFD designated water bodies affected by eutrophication associated with elevated nitrogen concentrations and act as an indication that action is required to prevent further pollution caused by nutrients[22]
    - Shellfish Waters are protected under the Shellfish Water Directive (2006/113/EC) on the quality required of shellfish waters in order to protect or improve shellfish waters in order to support shellfish life and growth. It is designed to protect the aquatic habitat of bivalve and gastropod molluscs, which include oysters, mussels, cockles, scallops and clams. The Directive requires Member States to designate waters that need protection in order to support shellfish life and growth. The Directive sets physical, chemical and microbiological requirements that designated shellfish waters must either comply with or endeavour to improve. The Directive also provides for the establishment of pollution reduction programmes for the designated waters.

36. In accordance with WFD (Clearing the Water for All) guidance and best practice, only those within 2km of the Proposed Project element/activity are assessed. Based on information in Chapter 10 (Soils, Geology & Hydrogeology), Drinking water protected areas are only included if they are within a screened in groundwater water body.

[16] European Union (2009). Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the Conservation of Wild Birds (Birds Directive) [2009].

[17] European Union (1992). Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive) [1992].

[18] European Union (2006). Directive 2006/7/EC of the European Parliament and of the Council of 15 February 2006 concerning the management of bathing water quality and repealing Directive 76/160/EEC (Bathing Water Directive) [2006].

[19] European Union (2020). Directive (EU) 2020/2184 of the European Parliament and of the Council of 16 December 2020 on the quality of water intended for human consumption (Drinking Water Directive) [2020].

[20] European Union (1991). Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources (Nitrates Directive) [1991].

[21] European Union (2024). Council Directive (EU) 2024/3019 of the European Parliament and of the Council of 27 November 2024 concerning urban wastewater treatment (recast) [2024].

[22] European Union (1991). Council Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment (Urban Waste Water Treatment Directive) [1991].

4.6.1 Conservation Designations

37. A review of Chapter 8 (Biodiversity) and EPA data identified all European sites within 2km of the Proposed Project. Details on each site are provided in Table 4.6.

Table 4.6: European Sites within 2km of the Proposed Project

European Site (Site Code)	Qualifying Interest(s)/Special Conservation Interest Features	Scoped In/Out Distance from Proposed Project and Potential Impacts
Lower River Shannon SAC (002165)	• Sandbanks which are slightly covered by sea water all the time • Estuaries • Mudflats and sandflats not covered by seawater at low tide • Coastal lagoons • Large shallow inlets and bays • Reefs • Perennial vegetation of stony banks • Vegetated sea cliffs of the Atlantic and Baltic coasts • Various qualifying species (see Chapter 8: Biodiversity for full list).	**In** – The RWI&PS and Proposed 38 kV Uprate Works would be located within the boundaries of this SAC. Potential for direct, indirect, and cumulative impacts (habitat loss and fragmentation, habitat degradation, disturbance/displacement and mortality risks to species).
Lisduff Fen SAC (002147)	• Petrifying springs with tufa formation (*Cratoneurion*) • Alkaline fens • *Vertigo geyeri* (Geyer's whorl snail).	**In** – This SAC is located 490m downstream of the Proposed Project. Surface water and groundwater pathways exist. Construction Phase and Operational Phase activities could lead to habitat degradation.
Island Fen SAC (002236)	• Raised bogs (active) • Alkaline fen • Rhynchosporion depressions • Degraded raised bog • Sessile oakland • Juniper scrub • Vegetation of flowing waters	**Out** – The works are not going to significantly increase/ decrease the rates of abstraction from the associated groundwater WFD designated water body and/or increase or mobilise significant pollution concentrations within the groundwater WFD designated water body.
Clonaslee Eskers and Derry Bog SAC (000859)	• Petrifying springs with tufa formation (*Cratoneurion*) • Alkaline fens • *Vertigo geyeri* (Geyer's Whorl Snail)	**Out** – This SAC is approximately 1.2km south-east and upstream of the Proposed Project. The works are not going to significantly increase/ decrease the rates of abstraction from the associated groundwater WFD designated water body. The works are unlikely to significantly increase or mobilise significant pollution concentrations within the groundwater WFD designated water body.
The Long Derries, Edenderry SAC (000925)	• Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia)*	**Out** – This SAC is approximately 1.25km upstream from overhead power line upgrades. The works are not going to significantly increase/ decrease the rates of abstraction from the associated groundwater WFD designated water body. The works are unlikely to significantly increase or mobilise significant pollution concentrations within the groundwater WFD designated water body.
Slievefelim to Silvermines Mountains SPA (004165)	• Hen harrier (*Circus cyaneus*)	**Out** – This SPA is located 1.5km south-east of the Proposed Project. The site is designated for hen harrier. The NIS concludes that none of the potential direct or indirect impacts associated with the Proposed Project would affect the conservation objectives of the Slievefelim to Silvermines Mountains SPA's hen harrier population.

4.6.2 Bathing Waters

38. A review of EPA data indicates that the bathing waters located within 2km of the Proposed Project include:

- Ballycuggeran [IESHWL25_191a_0300]
- Mountshannon, Lough Derg [IESHBWL25_191a_0200]
- Bathing Place at Portumna [IESHBWL25_191a_0100].

39. The listed bathing waters occur upstream of any proposed construction works. Additionally, bathing water status is based on the presence of bacteria that indicate whether there is faecal matter in the water. These bacteria are known as faecal indicator organisms and the specific ones tested for are *Escherichia coli* and *Intestinal enterococci*.

40. The Dromineer Beach Bathing Water Area is acknowledged to be in proximity to the Proposed Project, however, it is not within the 2km boundary and therefore has not been considered.

41. The construction of the Proposed Project would not lead to the discharge of any water which could contain the above bacteria. All foul water would be collected and tankered off site for disposal at a licensed facility. There is no risk to bathing waters as a consequence. Therefore, bathing waters are scoped out of further assessment.

4.6.3 Drinking Waters

42. Table 4.7 provides the DWPAs within 2km of the Proposed Project.

Table 4.7: Designated DWPAs within 2km of the Proposed Project

DWPA ID	Site Code	WFD Designated Water Body Type	Scoped In/Out
Shannon (Lower)_060	IE_SH_25S012600	Riverine	In – Potential significant impacts on DWPA quality due to hydrological connection.
Nenagh_060	IE_SH_25N010700		
Camcor_050	IE_SH_25C020700		
Liffey_150	IE_EA_09I011900		
Derg TN	IE_SH_25_191a	Lake	
Limerick City North	IE_SH_G_139	Groundwater	Out – The proposed works are unlikely to significantly increase pollution concentrations in the groundwater WFD designated water body or mobilise significant existing pollution.
Ardnacrusha	IE_SH_G_009		
Lough Graney	IE_SH_G_157		
Slieve Phelim	IE_SH_G_213		
Nenagh	IE_SH_G_178		
Silvermines Gravels	IE_SH_G_250		
Ballinderry	IE_SH_G_021		
Lismaline	IE_SH_G_147		
Shinrone	IE_SH_G_205		
Geashill	IE_SH_G_103		
Tullamore	IE_SH_G_232		
Bagenalstown Upper	IE_SE_G_153		
Rhode	IE_SE_G_116		
Daingean	IE_SE_G_049		
Portlaoise	IE_SE_G_107		
Cushina	IE_SE_G_048		
Kildare	IE_SE_G_077		
Trim	IE_EA_G_002		
Dublin	IE_EA_G_008		

4.6.4 Nutrient Sensitive Areas

43. A review of EPA data indicates that the following Nutrient Sensitive Areas are found within 2km of the Proposed Project:
    - Liffey (River) [IERI_EA_1994_0004]: UWWTD Sensitive Area
    - Nenagh (River) [IERI_SH_1994_0005]: UWWTD Sensitive Area
    - Little Brosna (River) [IERI_SH_2001_0021]: UWWTD Sensitive Area
    - Lough Derg on the River Shannon [IELK_SH_1994_0007].

4.6.5 Shellfish Waters

44. Shellfish waters are scoped out of this assessment because there are none within the study area.

5 Impact Assessment

5.1 Site Specific Assessment of the Proposed Project Against Quality and Supporting Elements and Protected Areas

45. The Proposed Project has been assessed for its potential to impact each of the WFD quality elements, and the impact to the status of the WFD designated water body or its ability to achieve its objectives in relation to those elements or impacts to protected areas.

46. The assessment is undertaken in respect of the impacts arising from the construction, commissioning and operation of the Proposed Project. The objectives in Section 1.1 are the WFD Environmental objectives against which the different aspects are assessed. It is based on embedded mitigation being in place. Any additional mitigation specifically related to a WFD quality element, in order to further ameliorate an impact, will be recommended if it is considered necessary to further lower the impact, or to further support the measures already in place.

47. For some water bodies, not all quality elements are assessed where data are not available. Assessment still looks at generic impacts and pays specific attention to elements monitored as part of EPA data collection, and which are shown in the supporting tables in each section below.

48. The assessment on biological impacts is cognisant of the following:

- The 'Review of Ireland's Heavily Modified Water Body Designations for the Third Cycle River Basin Management Plan' identifies a number of mitigation measures that may support Good Ecological Potential for HMWB. These include fish migration aids (i.e. fish pass, screen, ladders) to allow the movement of fish along the river channel, and the establishment of ecological flow regimes which would facilitate a range of ecological functions from minimum flows, to spawning trigger flows, to sediment transport flows and larger channel forming flows
- IFI is currently conducting a nationwide survey to assess the nature of the barriers to fish and the extent to which they need to be mitigated but at the moment, there are limited fish data to assess WFD compliance for this project
- Where there are salmonid lines of interest (SLoI) then protection of habitats should be maintained and the assessment will be cognisant of the need to maintain fish passage.

5.1.1 Construction RWI&PS

49. Construction of the RWI&PS will be on Lough Derg (Derg HMWB). This will involve secant piling and other construction activities. The secant piling will be dewatered until it is water tight. In order to address water quality concerns (especially regarding silty water) and control the rate of discharge, two temporary settlement lagoons are proposed. Quality elements assessed for construction are outlined in Table 5.1.

Table 5.1: Quality Elements for Each Water Body Assessed During Construction of RWI&PS

Waterbody (ID) (2019-2024)	WFD Regulations Quality Element	Likely Change
Derg HMWB	**Biological quality**	-
	Phytoplankton	
	Macrophyte	
	Hydromorphological conditions	-
	Supporting chemistry	-
Shannon (Lower)_050 (Downstream of Parteen Weir)	**Biological quality**	-
	Invertebrate	
	Supporting chemistry	-

(✓ positive change; x negative change; - is no change)

5.1.1.1 Assessment Against Biological, Morphological, Supporting Chemistry and General Conditions Quality Elements

50. **Biological:** An accidental release of potentially polluting materials may result in a deterioration to water quality resulting in a negative impact on any aquatic species present. In-stream working may directly impact species particularly those passing through. Noise and vibration will deter fish from the area whilst construction activities are underway.

51. There is a risk that the piling platform located within the Parteen Basin would reduce the habitat footprint available for species colonisation. The platform will be in place until secant piling for the intake chamber is complete. Sheet piling will disturb habitat during installation as it may cut off/intercept footprint colonised by aquatic species. This will disconnect continuous habitat within the WFD designated water body. Sheet piling will disturb bed substrate leading to sediment plumes and localised/temporary increases in suspended sediment concentrations. This will impact biological quality elements, but mostly invertebrates.

52. **Salmonid lines of interest:** The salmonid lines of interest in the Kilmastulla_050 will not be impeded by the proposals. It is recognised as an important mixed fishery and an area for salmon lines of migration. The overall classification is Moderate. Should the works occur during periods of salmon passing through, there would be a potential impact from noise. Any other time outside of this, there will be no impact.

53. **Hydromorphological conditions:** The intake structure would require removal of a length of the shoreline/bank for the Intake Chamber, as well as the removal of the lough bed and further bed and shoreline/bank along the Derg HMWB. On the outside of the Intake Chamber, flexible concrete revetment mats would extend out from the intake to prevent bed scour during operation. The material along the shoreline of the Derg HMWB would be removed as a direct result of the Intake Chamber. The potential for fine sediment input arising from bare earth surfaces, working within the area of the intake, excavation of the RWI&PS site and storage of materials, could lead to changes in bed substrate. An outfall from the settlement lagoons would also be required on the bank of the Derg HMWB. The outfall structure would require permanent removal of a short length of the shoreline/bank to set the outfall back from the bank. A small length of riparian vegetation would also be permanently removed.

54. **General condition and supporting chemistry, including specific pollutants**: a direct and short pathway to the Derg HMWB would exist as plant and machinery would be operating directly above the Derg HMWB. Similarly, there could also be a pathway for pollutants from any construction carried out on moored pontoons and the piling platform within the Derg HMWB. No refuelling of plant and machinery would take place on barges or moored pontoons and no fuel tanks would be stored on them. Therefore, the only potential sources would be leaking plant or machinery or leaks directly from the barge itself, or machinery used on moored pontoons, so the amount of oil that could be accidentally released is limited. However, given the short and direct pathway to the receptor, any leakages would be difficult to contain.

55. On the landward side there are several potential sources for the accidental release of fuels and oils. There would be fuel storage and refuelling locations within the construction site compound areas and a large number of plant and machinery. There would be a continuous hydrological linkage through the ‘gaps’ in the secant piled walls for a period until it is watertight. Given the dewatering activities, it is likely that the direction of flow would be from the Derg HMWB to the construction site, rather than the other way around. Therefore, the most likely pathway for oil spills would be via discharges from the settlement lagoons (>50m from the Derg HMWB, towards the east of the site), directly to the Derg HMWB.

56. Given the varying factors in relation to the size and nature of any oil spill, a reasonable assessment is that, with appropriate controls, this will not affect the Derg HMWB.

57. The installation of the RWI&PS in proximity to the Derg HMWB has the potential to result in sediment entering the Derg HMWB via silt-laden runoff or direct discharges during construction, particularly from material stockpiles and excavations.

5.1.2 Construction WTP Access Road and Drainage Attenuation Pond

58. It is proposed to construct a new permanent access road in a south-north orientation from the existing R445 to the new WTP. The proposed access road would include the installation of a clear span bridge over the Roran watercourse (part of the Kilmastulla_050 water body) and box culverts within the floodplain beneath the road. The construction of the clear span bridge on the Roran watercourse would be within the vicinity of a disused petrol station. Where the R445 meets the access road is a disused petrol station; derelict buildings associated with this disused of petrol station will be demolished as part of the Proposed Project.

59. The WTP access road would be allowed to drain via filter drains running on either side of the road which would act as a filter medium for runoff containing increased suspended solids. Roads and hard-standing working areas within the site would be drained via a gully and pipe system. Two main arterial surface water pipelines are proposed. Both would terminate at an attenuation pond at the south-eastern corner of the site, adjacent to the access road. The principal water quality benefits of vegetated detention basins are associated with the removal of sediment and buoyant materials, but levels of nutrients, heavy metals, and oxygen-demanding material can also be removed if present.

60. Runoff entering the attenuation pond would be pre-treated in a Class 2 By-Pass Hydrocarbon Interceptor. The outfall from the attenuation pond would be fitted with a penstock which can be used to isolate the attenuation pond and so contain pollutants in the event of an accidental spillage.

61. Stormwater from the attenuation pond would be discharged into a manhole at the head of the WTP access road. This manhole would contain a flow control device which would control discharge from the system, limiting it to the maximum flow that would be expected from the greenfield site. Stormwater runoff would be conveyed by a stormwater drain running along the route of the WTP access road to discharge into the Kimastulla_050 immediately north of its junction with the R445 public road.

62. Quality elements assessed for potential impacts of WTP access construction are outlined in Table 5.2 for the relevant water bodies.

Table 5.2: Quality Elements for Each Water Body Assessed During Construction of WTP

Waterbody (ID) (2019-2024)	WFD Regulations Quality Element	Likely Change
Kilmastulla_050* SLol	**Biological quality**	-
	Invertebrate	
	Supporting chemistry	-

(✓ positive change; x negative change; - is no change)

5.1.2.1 Assessment Against Biological, Supporting Chemistry and General Conditions Quality Elements

63. **Biological:** Noise from the construction works adjacent to the watercourse banks may disturb fish in this reach of the river (on migration or the local community). The installation of the flood relief culverts would take place within the floodplain of the Kilamstulla_050. No in stream works are anticipated. Local removal of floodplain vegetation may result in temporary loss of riparian species of invertebrates. There may be reduced quality in species due to construction works particularly through plant tracking or generation of silts.

64. Pumping or incorporating river diversions through fluming has the potential to create significant levels of silty water which would need to be pumped from the 'dry' area. Following completion of the installation, there is potential for a build-up of sediment to be released following removal of the flume structures. This would be a temporary and localised impact.

65. **Salmonid lines of interest:** The salmonid lines of interest in the Kilmastulla_050 will not be impeded by the proposals. It is recognised as an important mixed fishery and an area for salmon lines of migration. The overall classification is Moderate. Should the works occur during periods of salmon passing through, there would be a potential impact from noise. Any other time outside of this, there will be no impact.

66. **General condition and supporting chemistry:** Construction adjacent to and on the banks of the Kilmastulla_050 could increase silty runoff as a result of excavations and plant and machinery working adjacent to and on the bank tops, which could cause local deterioration of invertebrate habitat. This has the potential to enter the water body and reduce baseline water quality temporarily. The Kimastulla_050 is a relatively large water body in this location and would likely have additional capacity to dilute runoff should it enter. However, although a negative impact, it would be temporary and local.

67. Indirect impacts to flow would occur from increased surface water discharges from the WTP site during construction. These would be localised to works areas and temporary during construction, and would be discharged indirectly to the Kilmastulla_050 via field drains close to the site. The water body is approximately 650m from the WTP site boundary at its closest point which would allow a degree of settlement of suspended solids and attenuation of accidental spills prior to discharge to the Kilmastulla_050.

68. Given the nature of the historic land associated with the petrol station, there is potential for contaminated land to be encountered, from which contaminants could enter surface water receptors via runoff. Ground Investigation surveys and soil and water samples obtained in 2021 from the Kimastulla_050 within the vicinity of the petrol station indicate no contamination in the water or the banks of the water body at this location.

69. Although no contaminants have been identified during the ground investigation, there is still potential for contaminants to be mobilised during removal of the petrol station and associated tanks due to ground disturbance. Pollutants in the soil could be mobilised and a pathway to the water body created through groundwater flow or via surface water runoff; this may lead to a reduction in surface water quality. This impact would likely be localised to the construction works but occur over the medium-term should contaminants leach slowly from the site. Without site controls in place, there is a slight risk of deterioration to the water body. However given that sampling has indicated there is no contamination, then this will not cause a deterioration to any water body element within the Kilmastulla_050.

5.1.3 Construction TPR

70. Locations for all infrastructure components have been selected with the aim of reducing proximity to sensitive surface water receptors. In relation to the TPR, the infrastructure site would not contain, nor be in close proximity (within 50m) to, any surface water receptors of a medium or higher sensitivity. Therefore, construction impacts would be unlikely. The water bodies affected and quality elements assessed for potential impacts are included in Table 5.3.

Table 5.3: Quality Elements for Each Water Body Assessed During Construction of TPR

Waterbody (ID) (2019-2024)	WFD Regulations Quality Element	Likely Change
Liffey_170	Ecological status or potential	-
	Supporting chemistry	-

(✓ positive change; x negative change; - is no change)

5.1.3.1 Assessment Against Biological, and Supporting Chemistry Quality Elements

71. **Biological:** There will be no impact due to the distance from the infrastructure site.

72. **Supporting chemistry:** There is the potential for unmapped field drains and ditches within the study area and adjacent to the site to provide a pathway for pollution into the River Liffey (Liffey_170) approximately 600m from the site boundary. It is unlikely the quality element of the Liffey_170 would be affected.

5.1.4 Drainage and Dewatering – Attenuation Ponds

73. Construction of numerous attenuation ponds along the pipeline route will potentially result in a number of generic impacts such as discharge of sediment, oils and chemicals from plant machinery, accidental spillages, and plant tracking. Such impacts will be mitigated by site-specific mitigation. Those ponds directly adjacent to a WFD designated water body will provide a more direct pathway and a higher risk of pollution. There will be a slight risk to the water body but no risk of deterioration overall due to mitigation.

74. Where ditches intercept the pollutants or silty water before the WFD water body, the material will be trapped in the ditch and diluted before it reaches the designated water body so an impact to the WFD water body is unlikely.

75. All the attenuation ponds will be designed, constructed and operated with weekly sampling, so discharges do not exceed 25mg/l suspended solids from construction works to fisheries waters or 35mg/l suspended solids from construction works to water bodies in peatland. Rates of discharge will also be controlled so there is no scour of the bed and banks of the receiving water bodies or surface water receptors. The risks are slight and temporary and would be managed through appropriate mitigation as listed in the Construction Environmental Management Plan (CEMP) (EIAR Appendix A5.1).

76. Overall, there will be no impact to water body quality elements or water body status as a result of drainage activities.

5.1.4.1 Assessment Against Biological, Hydromorphology, Supporting Chemistry and General Conditions Quality Elements

77. **Biological:** The main risk from construction of the attenuation ponds is the release of fine sediment into the receptor and loss of riparian species beneath the footprint of the ponds. Sediment conveyed to the WFD designated water body via a pathway would generate plumes and eventual settlement on the bed substrate to impede existing invertebrate/macrophyte habitat and impede water clarity. This has the potential to degrade habitat available for invertebrates. To avoid these impacts, rates of discharge and the locations will be controlled, along with mitigation to prevent sediment being released into the water. Potential likely impacts will be short term and localised, resulting in negligible risk to the water body.

78. Only where water bodies are smaller or in close proximity would dilution effects and interception of sediment be less. The proximity of the working area in these locations could mean there is a high likelihood that silty water could reach the water body. Without a vegetated buffer between the pond and the water body, there is potential for overland flows to the receptor during times of inundation which could reach the water body and be entrained within the water column. However given that there will be mitigation in place, including a vegetated buffer to intercept sediment and use of best practice, and the impact will be local and temporary, there will be no impact at a water body scale.

79. In any case where the required working area extends to the top of the banks of the water body, the proximity of the working area to the water body means there is a high likelihood that silty water could reach the water body and cause habitat degradation as well as reduced quantity and numbers of species. With appropriate mitigation, the likely impacts would be short term and insufficient to change biological quality elements (invertebrates).

80. **Salmonid lines of interest:** The salmonid lines of interest in the Kilmastulla_050 should not be impeded by the works. It is recognised as an important mixed fishery and an area for salmon lines of migration. The overall classification is Moderate. Should the works occur during periods of salmon passing through, there would be an impact from noise. Any other time outside of this, there will be no impact.

81. **Hydromorphological conditions:** Construction of attenuation ponds will result in loss of floodplain/riparian habitat. This will be local to the activity. Fine sediments finding their way into any of the WFD designated water bodies would generate plumes and lead to eventual settlement on the bed substrate where it could (in large enough volume) cloak existing habitat and coarser substrate.

82. **General condition and supporting chemistry:** Elevated levels of sediment and contaminants would impact water quality by affecting clarity (turbidity), pH, and dissolved oxygen levels. Only if water levels are low and temperatures high would dissolved oxygen and temperature become an issue for the receptor and the species within it. Should there be an accidental release of potentially polluting substances, such as oils, fuels, and/or lubricants, there would be a risk of degradation to the water quality and damage to aquatic habitats. To avoid this, rates of discharge and the locations will be controlled so there is no deleterious pathway to local water bodies or surface water receptors. In normal operating conditions, therefore, likely impacts, as a result of discharges from the attenuation ponds will be short term with mitigation in place.

5.1.5 Construction BPS, Including Power

83. The BPS site covers an approximate area of 2.57ha and is located on the L3003 (road), approximately 9km east of Birr and 8km south-west of Kilcormac. The BPS facilitates the movement of the water through the Treated Water Pipeline from the BPT to the TPR in high flows.

84. The BPS paved areas would be designed to incorporate SuDS principles to limit discharges from the site to the equivalent greenfield site flow rate. Surface water runoff would be conveyed via an underground drainage system to an attenuation pond, located at the front of the site. Stormwater from the attenuation basin would be discharged via a 200mm underground pipe to the unnamed tributary of the Camcor_030, approximately 200m east of the BPS site. Quality elements assessed for impacts of construction to relevant water bodies are included in Table 5.4.

Table 5.4: Quality Elements for Each Water Body Assessed During Construction

Waterbody (ID) (2019-2024)	WFD Regulations Quality Element	Likely Change
Camcor_030	**Ecological status or potential**	**-**

(✓ positive change; x negative change; - is no change)

85. There would be no direct impacts during construction of the BPS as there are no receptors other than local field drains or ditches.

5.1.5.1 Assessment Against Ecological Status

86. There is a risk that construction of the BPS may introduce temporary elevated concentrations of suspended solids and/or changes to the receptor's water chemistry due to natural bank material being removed to facilitate construction on the banks of Camcor_030. Surface water runoff entering the attenuation basin would be pre-treated in a Class 2 By-Pass Hydrocarbon Interceptor. The outfall from the attenuation basin would be fitted with a penstock which can be used to isolate the attenuation basin and so contain pollutants in the event of an accidental spillage. Stormwater from the attenuation basin would be discharged at greenfield runoff rates via a 200mm diameter underground pipe to the Camcor_030 WFD designated water body, approximately 200m east of the BPS site. This could affect the favourability of the habitat to species who prefer different conditions. Species do adapt to a local/temporary change in conditions for the most part. Where this is not possible, species numbers may decline and habitat will degrade temporarily and local to the activity. For fish, in-stream working may directly impact species particularly those passing through. Noise and vibration will deter fish from the area whilst construction activities are underway.

87. There would be one direct discharge of treated construction drainage to the Camcor_030 via attenuation basins. Discharges would be restricted to greenfield runoff rates. This is unlikely to change the status of ecological quality elements.

5.1.6 BPS Power Connection

88. The underground power supply cable would be buried in the roads and use existing bridges for the crossings of the WFD designated Camcor_040. There would also be a requirement to cross the WFD designated Camcor_050 (WCX078) which would be undertaken using a trenchless Horizontal Directional Drilling technique. These crossings would not impact on these surface water receptors.

89. Quality elements assessed for potential impacts to relevant water bodies are outlined in Table 5.5.

Table 5.5: Quality Elements for Each Water Body Assessed During Construction of BPS Power Connection

Waterbody (ID) (2019-2024)	WFD Regulations Quality Element	Likely Change
Camcor_050	**Ecological status or potential**	**-**
Camcor_040	**Ecological status or potential**	**-**

(✓ positive change; x negative change; - is no change)

5.1.6.1 Assessment Against Ecological Status

90. Both water bodies are assessed as Good. There is a slight risk that species will be disturbed by the requirement to create a dry working area for the cable installation, resulting in temporary and localised habitat loss for both in-stream and riparian species within all screened in WFD designated water bodies. The direct impact will be largely the same for these WFD designated water bodies; however, their indirect impacts will differ across each specific WFD designated water body.

91. Construction activities will lead to localised disturbance of bed and banks. Substrate will be lost beneath the footprint with a decrease in available habitat for aquatic species (macrophytes and macroinvertebrates), and/or riparian species. It will also impact the quality and quantity of invertebrates/macrophyte species and their habitat. Noise from the trenching process and tunnelling beneath will disturb fish upstream and downstream of the works footprint. Noise also inhibits fish passage as species are reluctant to swim past. The noise levels will be dampened as the works will not be directly in the water.

92. Overpumping as a result of creating a dry area and trenching will affect the morphology of waterbodies by making available higher rates of suspended sediment concentrations. This increase in suspended solids coupled with lower flows due to overpumping will temporarily impact species in the water bodies. During reinstatement of flow through the open cut working areas, fines will be released which will generate plumes and eventually settle on the bed substrate where it could (in large enough volume) cloak existing habitat and impede water clarity.

93. Suspended solids entering both the WFD designated water bodies will alter water clarity through generating increased suspended sediment concentrations, and also change pH, and dissolved oxygen levels. Only if water levels are low and temperatures high would DO and temperature become an issue for the receptor and the species within it. With appropriate controls in place the risk will be managed. The risk will be for the period of construction and will be local to the activities and unlikely to cause an impact to the water bodies.

5.1.7 Trenchless Crossings

94. Any watercourse crossings that are made would be laid beneath the watercourse bed level, so they would not impact in-channel or floodplain flow conveyance. Trenchless crossing techniques are not considered to be 'in-river' working, therefore, the potential for impacts as a result of trenchless techniques is minimal. Tunnelling will be used at major crossings and is an excavation method that installs the pipe behind the tunnel face shield by pushing, or 'jacking', pipes from a drive shaft or jacking platform. In some locations the shafts and tunnel drive will be below the natural water level and a system of water management (utilising a settlement pond and discharge to land drain) will be installed to provide a suitable safe and relatively dry working environment within the excavation. Quality elements assessed for impacts to relevant water bodies are outlined in Table 5.6.

Table 5.6: Quality Elements for Each Water Body Assessed During Construction of Trenchless Crossings

Waterbody (ID) (2019-2024)	WFD Regulations Quality Element	Likely Change
Nenagh_070	**Biological quality**	-
	Invertebrate	
	Supporting chemistry	-
Little Brosna_030	**Biological quality**	-
	Invertebrate	
	Supporting chemistry	-
Camcor_030	**Biological quality**	-
	Invertebrate	
	Morphological conditions	-
Silver (Kilcormac)_020	**Biological quality**	-
	Invertebrate	
	Hydromorphological conditions	-
Clodiagh (Tullamore)_020	**Biological quality**	-
	Invertebrate	
	Hydromorphological conditions	-
Figile_030*SLol	**Biological quality**	-
	Invertebrate	
	Supporting chemistry	-
Grand Canal Main Line East (Barrow)	**Biological quality**	-
	Invertebrate	
	Hydromorphological conditions	-
	Supporting chemistry	-
Liffey_140	**Biological quality**	-
	Invertebrate	
	Supporting chemistry	-
Grand Canal Main Line (Liffey and Dublin Bay)	**Biological quality**	-
	Invertebrate	
	Hydromorphological conditions	-
	Supporting chemistry conditions	-

(✓ positive change; x negative change; - is no change)

5.1.7.1 Assessment Against Biological, Hydromorphology, Supporting Chemistry and General Conditions Quality Elements

95. **Biological:** There is a slight risk that species will be disturbed by the requirement to provide a trenchless crossing. The main risk from construction is the release of fine sediment into the receptor and loss of riparian species beneath the footprint. Sediment conveyed to the WFD designated water body via a pathway would generate plumes and eventual settlement on the bed substrate to impede existing invertebrate/macrophyte habitat and impede water clarity. This has the potential to degrade habitat available for invertebrates. This risk will be temporary and localised.

96. **Salmonid lines of interest:** There is limited risk to those rivers which are salmonid lines of interest. Noise could limit migration or interrupt migration. Noise from the trenching process and tunnelling beneath will disturb fish upstream and downstream of the works footprint. Noise also inhibits fish passage as species are reluctant to swim past. The noise levels will be dampened as the works will not be directly in the water. The salmonid lines of interest in the Figile_030 will not be impeded by the works. It is recognised as an important mixed fishery and an area for salmon lines of migration. The overall classification is Moderate. Should the works occur during periods of salmon passing through, there would be an impact from noise. Any other time outside of this, there will be no impact.

97. **Hydromorphological conditions:** Bankside working will lead to losses of riparian vegetation, disturbance to bank material and potential channel instability, providing an additional sediment source to the bed substrate and additional risk to biological quality. These impacts however, will largely take place in tributaries and/or the upstream end/headwaters of large WFD designated water body and will be minimal in size comparative to the size of any WFD waterbody. Therefore, the impacts will be localised to the works and not propagate downstream or far upstream. Since trenchless techniques do not require in-channel workings, it is unlikely that there will be any direct impacts on riverine water levels/flow rates.

98. **General condition:** Trenchless tunnelling has the potential to result in water quality impacts from working in close proximity to the river channel, or from construction dewatering. In particular, dewatering of trenches and shafts during tunnel construction works could require large volumes of water to be removed. Without adequate mitigation to remove fine or contaminated sediment, directly discharging into the river could lead to a large volume of sediment being inputted into the river channel. Smaller channels with less free flowing discharge, and therefore the ability to transport sediment efficiently, will be affected more by this than larger channels with greater competence. As the works are likely to be at the upstream end/close to headwaters of WFD waterbodies, there is unlikely to be an impact.

99. The greatest risk from trenchless crossings is the potential for a ‘breakout’ of bentonite drilling fluid. In the absence of control measures, breakouts could occur spilling bentonite slurry onto the ground and/or into local water bodies/surface water receptors. If these were to occur, there could be impacts to water quality as a result of the release of fine sediments to the receptor, including change to pH, as bentonite grout is alkaline. There is unlikely to be a change to WFD waterbodies however. Any spill would likely be contained by mitigation measures and site-specific construction controls. Where the WFD waterbodies are small and highly sensitive (particularly if there are SLoI) and conservation interests, the impacts will present a higher risk. There will be a CEMP (EIAR Appendix A5.1); application of best practice and additional site controls outlined in the CEMP will limit any change to water quality elements and water body status.

5.1.8 Open Cut Crossings

100. Impacts caused by open cut crossings will differ to those of trenchless. Open cut techniques involve topsoil and vegetation clearance around the river bank, with the potential to destabilise channel banks, increase the likelihood of erosion, and mobilise increased volumes of fine sediment causing water quality and/or hydromorphological effects. Quality elements assessed for potential impacts to relevant water bodies are outlined in Table 5.7.

Table 5.7: Quality Elements for Each Water Body Assessed During Construction of Open Cut Crossings

Waterbody (ID) (2019-2024)	WFD Regulations Quality Element	Likely Change
Kilcomin Stream_030	**Biological quality**	-
	Invertebrate	
Shinrone Stream_010	**Biological quality**	-
	Invertebrate	
Clareen Stream/Fuarawn_020	**Biological quality**	-
	Invertebrate	
	Supporting chemistry	-
Kyleboher_010*	**Ecological status or potential**	-
Silver (Kilcormac)_020	**Biological quality**	-
	Invertebrate	
	Hydromorphological conditions	-
Daingean_030	**Biological quality**	-
	Invertebrate	
Esker Stream_010	**Ecological status or potential**	-
Esker Stream_020	**Ecological status or potential**	-
Figile_030* SLol	**Biological quality**	-
	Invertebrate	
	Supporting chemistry	-
Figile_20	**Biological quality**	-
	Invertebrate	
Abbeylough_010	**Ecological status or potential**	-
Blackwater (Longwood)_SC_010*	**Biological quality**	-
	Invertebrate	

(✓ positive change; x negative change; - is no change)

5.1.8.1 Assessment Against Biological, Hydromorphology, Supporting Chemistry and General Conditions Quality Elements

101. Temporary overpumping or fluming will convey the water downstream of the open excavation crossing point. A dam of sandbags and suitable clay material constructed across the existing stream/riverbed would ensure all flow is diverted through the conduit(s). It may be necessary to use a temporary pump sump to remove any additional water. Pumped discharge will be via a settlement tank to remove any solids from the dewatering.

102. There are 12 WFD water bodies. The Ballyfinboy_040 will be impacted the most as the crossing is almost central to the WFD designated water body and the WFD designated water body itself is smaller than other screened in WFD designated water bodies listed in Table 5.7.

103. **Biological:** The WFD designated water body will be temporarily dammed to create a dry working area for the pipeline installation, with temporary habitat loss in-stream and within the riparian zone for all screened in WFD designated water bodies. Construction activities will lead to localised disturbance of bed and banks. There will be a decrease in available habitat for aquatic species (macrophytes and macroinvertebrates), and/or riparian species. In-stream working for open cut trenches will directly impact fish (movement in particular) as well as important substrate for feeding/spawning/resting. Noise from the trenching process and tunnelling beneath will disturb fish upstream and downstream of the construction

footprint. Noise also inhibits fish passage as species are reluctant to swim past. The noise levels will be dampened as the works will not be directly in the water.

104. Overpumping or fluming could also result in a loss of riparian vegetation and integrity and introduce a temporary barrier to aquatic species movement up and downstream. Both techniques require water bodies/surface water receptors to be dammed and then either fluming or pumping the water downstream to the other side of the excavation.

105. **Salmonid lines of interest:** The salmonid lines of interest in the Figile_030 will not be impeded by the works. It is recognised as an important mixed fishery and an area for salmon lines of migration. Should the works occur during periods of salmon passing through, there would be an impact from noise. Any other time outside of this, there will be no impact.

106. **Hydromorphological conditions**: Crossing and reinstatement of the land for the RWRMs and Treated Water Pipelines have the potential to cause further pollution and/or disturbance to the riverbed from improperly laying the pipe or incorrectly reinstating the bed and banks. This could result in impacts to river condition, including increased river water levels, input of contaminants and suspended sediments. There will be disruption to flow and water levels as a result of overpumping or fluming.

107. Open cut crossings will lead to loss of riparian habitat along its alignments restricted to the width of the cut. There may be localised damage where areas are cleared to facilitate this. Open cut crossing techniques have the potential for impacts depending on the duration of the works. There are indirect impacts associated with the dewatering of the excavations and the potential to divert or cut off flow from other drains or ditches flowing into the water bodies/surface water receptors being crossed. A consequence of trenching is the risk of increased sediment-loading in-channel.

108. A temporary bridge will also be required at each water body and surface water receptor crossing. The temporary bridge will remove a localised length of riparian vegetation and potentially impact longitudinal connectivity during high flow events. The movement of machinery and vehicles across the bridges could result in accidental spillage of oils/chemicals and construction sediments.

109. **General condition and supporting chemistry:** potential impacts include accidental releases of hydrocarbons; silty water runoff; silty water in dewatering; the potential for the trench to be a pathway for pollutants to reach water bodies/surface water receptors; build-up of silt behind dam structures which, on removal could lead to a release of sediments to the water body/surface water receptor. During reinstatement of flow through the open cut working areas, fines will be released which will generate plumes and eventually settle on the bed substrate where it could (in large enough volume) cloak existing fish/invertebrate/macrophyte habitat and impede water clarity. This will be negative impact for the water bodies where this work is occurring but more so Ballyyfinboy_040, given the crossing's location along it. This risk is slight and temporary and would be managed through appropriate mitigation.

110. **Peat:** Open cut crossings in peat soils bring additional risks to water quality and hydromorphology such as to the Esker Streams and the Abbeylough. Water quality issues associated with peat include elevated levels of suspended solids, ammonia, phosphorus and dissolved organic carbon. In water bodies draining excavated peat areas, these elevations have been observed and been compared to lowered levels following the rewetting of peatlands (An Fóram Uisce, 2021[23]).

111. There will be a CEMP (EIAR Appendix A5.1) which will include measures used to mitigate any impact, including sediment management protocols. With the use of best practice and specific construction control measures to be implemented through the CEMP these impacts will be limited habitat loss to be minimised; minimise use of plant within riparian zone external to trench; flume watercourses, if feasible; seasonal constraints on working through and adjacent to watercourses of ecological interest - July to Sept working only (or as otherwise agreed with IFI); if spawning gravels are encountered, they would be removed at

[23] https://thewaterforum.ie/app/uploads/2021/04/An-Foram-Uisce-Newsletter-Spring-2021.pdf

the stream crossing points under the supervision of an aquatic ecologist prior to construction work start, stockpiled on geotextile filter fabric and reinstated to the stream bed after the damming/fluming measures have been removed. With appropriate controls in place the risks will be managed. The risks will be for the period of construction and will be local to the activities. There will be no overall degradation to the water body as a result.

5.1.9 Construction – Washouts

112. Washout Valves will be provided at low points along the pipeline. There are 187 Washout Valves in total. The majority of these will be temporary Washout Valves, which will be buried within concrete chambers with locked manhole covers. It is assumed that any Washout Valve within 250m of a water body or surface water receptor may discharge to that water body or surface water receptor during operation. In 39 locations, washouts will have additional permanent infrastructure and will discharge water to a water body or surface water receptor occasionally. Valves will consist of a suitable length of pipeline, valving to control discharge of drain water, a washout chamber and permanent outfall structure. The outfall structure will have three sides and be formed of precast concrete. All materials will be brought to site along the Construction Working Width and manoeuvred into position, or placed, with cranes and excavators. Potential impacts to relevant water bodies (Table 5.8) are discussed below.

Table 5.8: Quality Elements for Each Water Body Assessed During Construction of Washouts

Waterbody (ID) (2019-2024)	WFD Regulations Quality Element	Likely Change
Kilmastulla_050* SLol	**Biological quality**	-
	Invertebrate	
	Supporting chemistry	-
Kilmastulla_040	**Biological quality**	-
	Invertebrate	
Kilmastulla_030	**Ecological status or potential**	-
	Chemical surface water status	-
Kilmastulla_020	**Ecological status or potential**	-
	Phosphorous conditions	
	Orthophosphate	
Ardgregane Stream_010	**Ecological status or potential**	-
Nenagh_070	**Biological quality**	-
	Invertebrate	
	Supporting chemistry	-
Ardcrony Stream_010	**Ecological status or potential**	-
Ballyfinboy_040	**Ecological status or potential**	-
Kilcomin Stream_030	**Biological quality**	-
	Invertebrate	
Shinrone Stream_010	**Biological quality**	-
	Invertebrate	
Little Brosna_030	**Biological quality**	-
	Invertebrate	
	Supporting chemistry	-
Camcor_030	**Biological quality**	-
	Invertebrate	
	Hydromorphological conditions	-

Waterbody (ID) (2019-2024)	WFD Regulations Quality Element	Likely Change
Silver (Kilcormac)_020	**Biological quality**	-
	Invertebrate	
	Hydromorphological conditions	-
Clodiagh (Tullamore)_020	**Biological quality**	-
	Invertebrate	
	Hydromorphological conditions	-
Meelaghans_010	**Ecological status or potential**	-
Daingean_030	**Biological quality**	-
	Invertebrate	
Esker Stream_010	**Ecological status or potential**	-
Figile_030* SLol	**Biological quality**	-
	Invertebrate	
	Supporting chemistry	-
Figile_20	**Biological quality**	-
	Invertebrate	
Figile_10	**Biological quality**	-
	Invertebrate	
	Supporting chemistry	-
Blackwater (Longwood)_010	**Ecological status or potential**	-
Clonshanbo_010	**Biological quality**	-
	Invertebrate	
	Supporting chemistry	-
	Ecological status or potential	-
Clonshanbo_020	**Biological quality**	-
	Invertebrate	
Lyreen_010	**Ecological status or potential**	-
Liffey_140	**Biological quality**	-
	Invertebrate	
	Supporting chemistry	-
Reeves_010	**Ecological status or potential**	-

(✓ positive change; x negative change; - is no change)

5.1.9.1 Assessment Against Biological, Hydromorphology, Supporting Chemistry and General Conditions Quality Elements

113. All permanent outfalls are located on relatively large water bodies, large enough to install the outfall structure, which would be sized in proportion to the water body banks.

114. **Biological:** There is unlikely to be any change to biological elements as a result of construction of washout valves. There may be loss of habitat beneath the footprint of the outfall but this will be local to the washout location.

115. **Salmonid lines of interest:** The salmonid lines of interest in the Kilmastulla_050 and the Figile_030 will not be impeded by the construction of washout valves. Should the works occur during periods of salmon passing through, there would be an impact from noise. Any other time outside of this, there will be no impact.

116. **Hydromorphological conditions:** The majority of water bodies which will have permanent washout valves installed are within the location of open cut crossings for construction of the pipeline, therefore it is anticipated that each will be constructed in a dry area and there will be limited additional potential for silt-laden runoff, runoff containing pollutants within peat, or any additional impacts in relation to drainage. Working on the banks of the water body to install the outfall headwall structure, including excavation of the channel bed and banks, is likely to result in localised changes to the bed and bank.

117. There is potential for changes in flow and/or water levels due to dewatering of excavations or changes in drainage. This will be minimal and result in no change to the water body.

118. There is potential for some additional impacts in relation to hydromorphology as an additional area of river bank (particularly where composed of peat, and peat subsoils) will need to be excavated. Due to the existing dry working area for the open cut crossings, impacts are anticipated to be temporary and at a local scale. The level of impact will only vary as a result of the sensitivity of the water bodies but will be minimal to no discernible change on the water body scale.

119. **General condition and supporting chemistry:** There is the potential for silt-laden runoff during excavations for the outfall structure and potential for accidental spillage of oils/chemicals from machinery during the construction process. These could result in a reduction of baseline water quality.

120. Best practice will be used for the construction of these sites. Best practice and specific construction control measures are to be implemented through a CEMP (EIAR Appendix A5.1). Other recommendations are for habitat loss to be minimised, including through minimal use of plant within riparian zone external to trench and seasonal constraints on working through and adjacent to watercourses of ecological interest (July to Sept working only, unless otherwise agreed with the IFI.

5.1.10 Construction Compounds and Pipe Storage Depots

121. Establishment of Construction Compounds and Pipe Storage Depots during enabling and construction works has the potential to expose bare ground and create sources and pathways for fine sediment pollution from plant machinery to water bodies and surface water receptors. These impacts could be exacerbated for Construction Compound 5 (CC5), which is partially located within an area of peatland. Impacted water bodies are outlined in Table 5.9 and discussed below.

Table 5.9: Quality Elements for Each Water Body Assessed for Compounds and Pipe Storage Depot

Waterbody (ID) (2019-2024)	WFD Regulations Quality Element	Likely Change
Kilmastulla_020	Ecological status or potential	-
Ardgregane Stream_010	Ecological status or potential	-

(✓ positive change; x negative change; - is no change)

5.1.10.1 Assessment Against Biological Quality Elements

122. Site set out is likely to disturb ground adjacent to scoped in WFD designated water bodies. This will present a risk of disturbance to species and habitat as well as increasing the potential for runoff containing suspended sediments. An accidental release of potentially polluting substances would lead to a risk of water quality degradation and damage to any aquatic habitat. Without adequate mitigation to control site drainage and runoff this has the potential to lead to water quality and hydromorphological impacts on downstream receptors, if present. Furthermore, without appropriate mitigation, the storage of excavated ground adjacent to the Construction Compounds and Pipe Storage Depots could provide a substantial amount of fine sediment to the channel downstream. In the absence of control or mitigation measures, there would be a potential for the spillage of oil and chemicals to ground and the production of a large amount of silt-laden water as a result of dewatering or surface water runoff from stripped land.

123. Construction may introduce temporary elevated noise as well as suspended solids entering the waterbody. With appropriate controls in place there will be no impact to the water body.

124. In the case of CC5, these impacts could be exacerbated as it is located in an area of peatland soil. This could include increased runoff, due to stripping of topsoil, increases in impervious areas and overlaying the compound in stone. This may result in a slight increase in the rate of water draining the catchment, both baseflow and stormflow. Peat accumulates water and any removal of peat could impact the hydrological regime of receiving water bodies and surface water receptors. Physical alteration to the landscape and channel morphology from increased sediment may change the flow, and increase the rate and amount of erosion to river banks.

125. Impacts to channel morphology and integrity could be exacerbated as a consequence of working in peat areas, including increased sediment: peat disturbance and drainage could result in changes to the sediment regime of nearby and downstream water bodies and surface water receptors. The release of fine grained particles and suspended solids results in an increased sediment load, which in large quantities could alter a water body's hydromorphological condition by modifying the channel bed, clogging stream gravels and riparian areas. Physical alteration: altering drainage may increase the connectivity of land drains to the river network. Physical alteration to the landscape may change the flow and sediment regime, increasing the rate and amount of erosion to river banks.

126. Peat disturbance can release a variety of pollutants leading to impacts on water quality such as increased fine grained sediments; suspended solids, total solids, dissolved organic matter and turbidity. There could also be elevated nutrient content and colour change; changes in pH levels (more acidic); and elevated levels of total ammonia or phosphorus. These contaminants can be present in high concentrations in peat drainage channels as a result of lowered water tables and reduced flows; interactions with the drainage channels could potentially create preferential pathways to water bodies and surface water receptors leading to their contamination.

127. The risks are negligible and temporary and would be managed through appropriate mitigation as outlined in the CEMP. There will be no change to the WFD designated water body. There would be a negligible effect on aquatic flora and fauna at a local or WFD water body scale given the distances between compounds and receptors. Impacts will be controlled by appropriate best practice on site.

5.1.11 Construction – Haul Roads/Roads

128. Use of haul roads that cross the WFD water bodies or temporary roads that run alongside the WFD water bodies could locally alter any aquatic fauna and flora present. This impact would be restricted to the haul road crossing location and should result in a low risk to WFD water body status (Table 5.10).

Table 5.10: Quality Elements for Each Water Body Assessed for Haul Roads

Waterbody (ID) (2019-2024)	WFD Regulations Quality Element	Likely Change
Derg HMWB	**Biological quality**	-
	Phytoplankton	
	Macrophyte	
	Morphological conditions	-
	Supporting chemistry	-
Kilmastulla_040	**Biological quality**	-
	Invertebrate	
Daingean_010	**Biological quality**	-
	Invertebrate	
Liffey_130	**Biological quality**	-
	Invertebrate	
	Supporting chemistry	-

(✓ positive change; x negative change; - is no change)

5.1.11.1 Assessment Against Biological, Morphology, Supporting Chemistry and General Conditions Quality Elements

129. **Biological:** The main risks to biological elements are from the release of fine sediment into the receptor as a result of excavation.

130. **Morphological conditions:** There will be a reduction in vegetated riparian corridor where access tracks will be needed. This will affect species habitat, including loss of vegetation and substrate, as well as potentially affect species number and quality temporarily. The risk will be negligible and limited to the extent of the haul road footprint. There is also a slight risk of accidental release of fine sediment to any adjacent water body via runoff. The sediment regime of nearby and downstream water bodies and surface water receptors. The release of fine grained particles and suspended solids results in an increased sediment load, which in large quantities could alter a water body's morphological condition by modifying the channel bed

131. **General condition and supporting chemistry:** There is a slight risk of accidental release of fine sediment pollutants to adjacent WFD designated water bodies as a result of bankside working and the movement of plant machinery. Elevated levels of sediment and contaminants would impact water quality by affecting clarity (turbidity) dissolved oxygen and pH. However, given the comparative size of the WFD designated water bodies, the risk is slight. Impacts would only occur over the construction period and be localised. There is a slight risk of accidental release of fine sediment pollutants to adjacent WFD designated water bodies as a result of bankside working and the movement of plant machinery with a risk of water quality and aquatic habitat impacts.

5.1.12 Construction 38kV – Including Construction Compound

132. There are two overhead lines being upgraded with six crossings of WFD designated water bodies between Ardnacrusha Generating Station and the pumping station at Birdhill. This includes three crossings of the Blackwater (Clare)_020 and three crossings of the Shannon (Lower)_050. Existing public road crossings of both these significant surface water receptors would be utilised throughout the works.

133. The Proposed 38 kV Uprate Works would be undertaken on existing infrastructure. The works at Birdhill 38 kV substation are not close to any WFD water body.

134. All construction compounds are to be located at existing ESBN site depots or compounds. The public road network and existing trackways would be used in the first instance to gain access to the general vicinity of the proposed works. There will be undergrounding of existing overhead lines, including creation of trenches for lines and removal of existing polesets. Crossing of surface water receptors will be via the existing road network or temporary bridges. For the polesets that need replacement, this would require excavations. The average working area would extend 15m around the base of the poleset. Two trenches would be excavated to a depth of 2-3m. The top layer would be excavated first and stockpiled adjacent to the construction area on bog mats or other suitable material. The lower subsoil would be stored separately. Each pole would be buried to a depth of about 2.3m in the ground with the excavation carried out using a tracked excavator, and then backfilled. backfilTemporary clear span bridges would be used to provide access for construction machinery across water bodies and surface water receptors where there is no existing crossing structure. Clear span bridges may include multiple layers of bog mats, wooden sleepers or lightweight metal structures. This crossing method would be used unless an alternative crossing method is agreed with IFI.

135. All proposed temporary bridge crossings to facilitate access to works areas would be clear span and would not interact with the WFD water body. Morphology impacts would be localised, mainly due to fine sediment availability. The proposed construction activities may result in localised changes to surface water drainage patterns, and flow pathways. Any disturbance to these would be localised and temporary in duration.

136. Quality elements assessed for construction are listed in Table 5.11.

Table 5.11: Quality Elements for Each Water Body Assessed During Construction of 38kV

Waterbody (ID) (2019-2024)	WFD Regulations Quality Element	Likely Change
Shannon (Lower)_050	**Biological quality**	-
	Invertebrate	
	Supporting chemistry	-
Kilmastulla_050*SLoI	**Biological quality**	-
	Invertebrate	
	Supporting chemistry	-
Blackwater (Clare)_020	**Ecological status or potential**	-

(✓ positive change; x negative change; - is no change)

5.1.12.1 Assessment Against Biological, Supporting Chemistry and General Conditions Quality Elements

137. **Biological:** Site establishment is likely to disturb ground adjacent to scoped in WFD designated water bodies. The Shannon[Lower]_050 is designated as Poor and the Kilmastulla_050 is designated as Moderate. The activity will present a risk of disturbance to species and habitat mainly due to runoff containing suspended sediments. The risks are slight and temporary and will be managed through appropriate mitigation (refer to EIAR Appendix A5.1: CEMP). There will be no change to the quality element or the WFD designated water bodies.

138. **Salmonid lines of interest:** The salmonid lines of interest in the Kilmastulla_050 will not be impeded by the 38kV works. It is recognised as an important mixed fishery and an area for salmon lines of migration. The overall classification is Moderate. Should the works occur during periods of salmon passing through, there would be a potential impact from noise and interruption to migration. Any other time outside of this, there will be no impact.

139. **General conditions and supporting chemistry:** the release of silty water as a result of excavation works to install the polesets, alongside the storage of excavated material, vegetation clearance, temporary crossings of surface water receptors and infilling of trenches, could pose a risk to surface water quality through the potential for contaminated surface water runoff and the release of sediment to nearby surface water receptors. Working next to surface water receptors and along the bank top could also cause sediment-laden runoff due to heavy plant and machinery eroding the banks.

140. Elevated levels of sediment could impact on water quality by affecting dissolved oxygen, pH, turbidity, and nutrient levels, all of which have the potential to have negative impacts on aquatic species. The excavation of trenches for poleset placement may require dewatering (depending on ground conditions and water table elevations at the time of excavation), and any associated discharges to surface water receptors could alter baseline water quality. oAn accidental release of potentially polluting substances, would lead to a risk of water quality degradation and damage to any aquatic habitat. This could have a negative impact on any water dependent species present. The immiscible nature of hydrocarbons would affect dilution until they have degraded. Concrete and cement are both highly alkaline. In the freshwater environment, pH levels which are elevated beyond natural conditions can have impacts upon surface water receptors. The risks are slight and temporary and would be managed through appropriate mitigation. Mitigationwill include appropriate controls being in place so there will be no impact to any quality element or to the water body. Best practice and specific construction control measures to be implemented through a CEMP (EIAR Appendix A5.1). Where there is no hydrological connectivity, no mitigation will be required.

5.1.13 Abstraction for Testing and Commissioning of the Pipelines, Including Hydrostatic Pressure Testing

141. Two of the water bodies are considered to be more sensitive to change with respect to abstractions for testing and commissioning than for other impacts: the Camcor_030 and the Liffey_140, due to existing WTPs downstream.

Table 5.12: Quality Elements for Each Water Body Assessed During Commissioning

Waterbody (ID) (2019-2024)	WFD Regulations Quality Element	Likely Change
Kilmastulla_040	**Biological quality**	-
	Invertebrate	
Nenagh_070	**Biological quality**	-
	Invertebrate	
	Supporting chemistry	-
Little Brosna_030	**Biological quality**	-
	Invertebrate	
	Supporting chemistry	-
Camcor_030	**Biological quality**	-
	Invertebrate	
	Hydromorphological conditions	-
Silver (Kilcormac)_020	**Biological quality**	-
	Invertebrate	
	Hydromorphological conditions	-
Clodiagh (Tullamore)_020	**Biological quality**	-
	Invertebrate	
	Hydromorphological conditions	-
Figile_030* SLol	**Biological quality**	-
	Invertebrate	
	Supporting chemistry	-
Liffey_140	**Biological quality**	-
	Invertebrate	
	Supporting chemistry	-

(✓ positive change; x negative change; - is no change)

5.1.13.1 Assessment Against Biological, Hydromorphology, Supporting Chemistry and General Conditions Quality Elements

142. **Biological:** There is potential disturbance to invertebrate species as a result of abstraction for testing and commissioning, particularly those species that are sensitive to small changes in water levels. However, abstraction is temporary and abstraction velocities are limited and impacts would be localised to the inlet structure.

143. During testing there is potential for fish to interact with the abstraction apparatus leading to mortality. Abstraction velocities would be kept below 0.15m/s via a fine mesh no greater than 3mm in aperture. This would prevent fish from being taken up by the abstraction allowing them to outswim the velocities. Additional safeguards such as the mesh would also prevent entry into the equipment. The noise of the pumping equipment could deter fish from swimming upstream and cause mortality. This would be a temporary impact over the abstraction for testing and commissioning period and localised to the abstraction for testing and commissioning location.

144. **Salmonid lines of interest:** The salmonid lines of interest in the Figile_030 will not be impeded by the works.

145. **Hydromorphological conditions:** Downstream of the Camcor_030 abstraction point is the Birr WTP intake at Springfield Bridge, approximately 6.9km downstream. Birr WTP is being expanded by Uisce Éireann with a planned increased abstraction rate from 2.3Mld to 4.5Mld. The temporary abstraction on the Camcor_030 during testing and commissioning has the potential to impact water supply to the Birr WTP, and water levels in the river, particularly if the hydrostatic test abstraction is to occur over summer when the river is more susceptible to drought.

146. The River Liffey has been identified in the Regional Water Resources Plan for Eastern and Midlands Region as being under pressure as a result of abstractions. Approximately 8.4km downstream of the proposed temporary abstraction point on the Liffey_140 is the Leixlip Drinking WTP and Leixlip Hydro Station. Based on current WTP abstractions the proposed hydrostatic test abstraction is considered feasible.

147. In principle agreements have been reached with the respective Uisce Éireann operations teams that the existing WTPs would reduce their abstractions for the short periods required for the commissioning abstractions (approximately 10 days for the Camcor and approximately 36 days for the Liffey). Further discussion on the timing and duration of the abstractions will be agreed in advance of commissioning to ensure there is no negative impact on river flows and no risk to the water supplies at these locations.

148. Temporary abstractions have the potential to alter flow regime local to the abstraction location leading to changes in morphology and flow local to the abstraction location. Abstractions would be throttled to 0.15m/s and would be temporary over the time needed to fill a specific pipe section. Thus, any change resulting from abstraction would be localised to the inlet structure.

149. **General conditions and supporting chemistry, including specific pollutants:** There would be no change as abstraction will not alter the quality elements. The water would be treated to ensure no contaminants enter the pipeline.

150. Please note that the abstraction for commissioning of the pipeline replicates that of the operation and therefore is only included once in this document. Abstraction during operation is therefore considered assessed in this section.

5.1.14 Testing, Commissioning and Operation of Discharge Via Washouts

151. The water used to pressure test the pipeline will be released via each one of the 187 Washout Valves once the testing is completed.

Table 5.13: Quality Elements for Each Water Body Assessed for Testing and Commissioning of Washouts

Waterbody (ID) (2019-2024)	WFD Regulations Quality Element	Likely Change
Kilmastulla_040	**Biological quality**	-
	Invertebrate	-
Ardgregane Stream_020	**Ecological status or potential**	-
Ardgregane Stream_010	**Ecological status or potential**	-
Daingean_010	**Biological quality**	-
	Invertebrate	-
Esker Stream_020	**Ecological status or potential**	-
Figile_030* SLoI	**Biological quality**	-
	Invertebrate	-
	Supporting chemistry	-

(✓ positive change; x negative change; - is no change)

5.1.14.1 Assessment Against Biological, Supporting Chemistry and General Conditions Quality Elements

152. **Biological:** If discharge rates are not controlled, there is a risk of invertebrate species loss or degradation as a result. Those species sensitive to changes in flow tolerances, or those that are sessile are the ones most likely to be impacted. If the pH of water in the pipe is different to that of the receptor, then those species not able to tolerate pH change or cannot adapt to changes in alkalinity/acidity will deteriorate and habitat will degrade. This activity will have the most impact if discharge rates are high and/or prolonged.

153. Where discharge is high in areas where sediment is easily eroded, fines will be released which will generate plumes and eventually settle on the bed substrate where it could (in large enough volume) cloak existing fish/invertebrate/macrophyte habitat and impede water clarity. This risk is slight and temporary and would be managed through appropriate mitigation.

154. **Salmonid lines of interest:** The salmonid lines of interest in the Figile_030 will not be impeded by the works.

155. **General conditions and supporting chemistry:** From a water quality perspective, water in the pipeline will be treated river water and will not include any potential contaminants from the water body or surface water receptors from which it was abstracted. There is, however, potential for a reduction in the quality of this water from its time in the pipeline, however, a sweetening flow (minimum base flow) will be used to avoid this. If water were to be discharged to a water body or surface water receptor, impacts would include an increase in sediment loading to the receiving water.

156. Commissioning water discharge via the washout valves will contain silt (from inside the pipe which would not have been cleaned at this stage). In addition, the pH in the discharged water needs to be the same as that in the receiving water and oxygen levels in the discharge are likely to be low. Therefore, discharges have the potential to locally impact the physico-chemical parameters of the receiving WFD designated water body. Discharge water could have too high chlorine/disinfectant concentrations prior to discharge which would affect the water pH and DO levels. Dechlorination will be provided so that residual chlorine will be reduced to <0.005mg/l as required by the Salmonid Regulations. Any potential impact on physico-chemical quality elements is anticipated to be short-term and will not cause deterioration to any quality element or to any water body.

157. The receiving water bodies of the 39 permanent washouts (WA) and 147 temporary washouts to water bodies or surface water receptors vary in range of sensitivity according to their WFD status. All impacts at the Testing and Commissioning Phase described above are anticipated to be negligible. Therefore, the differentiation in effects comes from the status of each water body and surface water receptor to change.

5.1.15 Testing, Commissioning and Operation of Discharge Via Line Valve Washouts

158. There are 49 line valve washouts in total, all on the Treated Water Pipeline, of which 20 will discharge water during the Testing and Commissioning Phase only. Of these 20, three will discharge to WFD designated water bodies during testing and commissioning phase.

Table 5.14: Quality Elements for Each Water Body Assessed for Testing and Commissioning of Washouts

Waterbody (ID) (2019-2024)	WFD Regulations Quality Element	Likely Change
Kilmastulla_040	**Biological quality**	-
	Invertebrate	-
Nenagh Tributary_010	**Biological quality**	-
	Invertebrate	-
Kilcomin Stream_030	**Biological quality**	-
	Invertebrate	-

(✓ positive change; x negative change; - is no change)

5.1.15.1 Assessment Against Biological, Supporting Chemistry and General Conditions Quality Elements

159. **Biological**: If discharge rates are not controlled, there is a risk of invertebrate species loss or degradation as a result. Those species sensitive to changes in flow tolerances, or those that are sessile are the ones most likely to be impacted. If the pH of water in the pipe is different to that of the receptor, then those species not able to tolerate pH change or cannot adapt to changes in alkalinity/acidity will deteriorate and habitat will degrade. This activity will have the most impact if discharge rates are high and/or prolonged.

160. Where discharge is high in areas where sediment is easily eroded, fines will be released which will generate plumes and eventually settle on the bed substrate where it could (in large enough volume) cloak existing fish/invertebrate/macrophyte habitat and impede water clarity. This risk is slight and temporary and would be managed through appropriate mitigation.

161. **General conditions and supporting chemistry**: From a water quality perspective, water in the pipeline will be treated river water and will not include any potential contaminants from the water body or surface water receptors from which it was abstracted. There is, however, potential for a reduction in the quality of this water from its time in the pipeline, however, a sweetening flow (minimum base flow) will be used to avoid this. If water were to be discharged to a water body or surface water receptor, impacts would include an increase in sediment loading to the receiving water.

162. Commissioning water discharge via the washout valves will contain silt (from inside the pipe which would not have been cleaned at this stage). In addition, the pH in the discharged water needs to be the same as that in the receiving water and oxygen levels in the discharge are likely to be low. Therefore, discharges have the potential to locally impact the physico-chemical parameters of the receiving WFD designated water body. Discharge water could have too high chlorine/disinfectant concentrations prior to discharge which would affect the water pH and DO levels. Dechlorination will be provided so that residual chlorine will be reduced to <0.005mg/l as required by the Salmonid Regulations. Any potential impact on physico-chemical quality elements is anticipated to be short-term and will not cause deterioration to any quality element or to any water body.

163. The receiving water bodies of the three line valve washouts to water bodies or surface water receptors vary in range of sensitivity according to their WFD status. All impacts at the Testing and Commissioning Phase described above are anticipated to be negligible. Therefore, the differentiation in effects comes from the status of each water body and surface water receptor to change.

5.1.16 Testing, Commissioning and Operation of the RWI&PS

164. The RWI&PS would be one of the first elements of the Proposed Project to go into operation, abstracting water from the Parteen Basin. The RWI&PS would be a 'closed loop system'. There would be no discharge of RWRMs maintenance water from the RWI&PS back to the Derg HMWB. As a result of the closed system at the RWI&PS, there would be no impacts on the water quality of the Derg HMWB from any processes on the RWI&PS site (Table 5.15).

Table 5.15: Quality Elements for Each Water Body Assessed for Operation of RWI&PS

Waterbody (ID) (2019-2024)	WFD Regulations Quality Element	Likely Change
Derg HMWB	**Biological quality**	-
	Phytoplankton	
	Macrophyte	
	Morphological conditions	-
	Supporting chemistry	-

(✓ positive change; x negative change; - is no change)

5.1.16.1 Assessment Against Biological, Morphology, Supporting Chemistry and General Conditions Quality Elements

165. **Biological:** There will be a loss of natural substrate as a direct result of the intake and concrete revetment. The revetment mats will result in a localised loss of habitat but would be re-colonised over time (particularly for macrophytes). There is potential for fish to enter the intake chamber at the abstraction point. The Intake Chamber would be fitted with Passive Wedge-wire Cylinder (PWWC) Intake Screens to also minimise debris and/or fish or eels being taken up into the raw water pumps. Intake velocities through the screen slots would be limited to 0.15m/s, the velocity at which juvenile fish can swim away without being trapped/held by the screen.

166. During abstraction, the water level regimes in the WFD designated water bodies are only predicted to be affected during drought and in the days immediately preceding. Hydrological modelling results indicate the maximum difference in water level predicted to be caused by the inclusion of the proposed 300Mld abstraction was a drawdown of 134mm, and a drawdown of 65mm for the 154Mld scenario. With future climate change included in the modelling, the differences are 168mm and 73mm respectively. The size and rate of change fits within the commonly observed level changes seen within the 52-year period of observed levels.

167. Hydrodynamic modelling has demonstrated that in a worst case drought scenario, the Proposed Project would only result in miniscule changes to concentrations of BOD, dissolved oxygen, nutrients and chlorophyll-a. Overall, it is considered that the change in abstraction will not put WFD status at risk.

168. The changes arising from abstraction on the WFD designated water body will be negligible. Although the Derg HMWB would experience altered flows during flood periods, the proposed abstraction would not prevent fish passage as a result of abstraction. Hydrological modelling suggests that the Proposed Project would have no impact under the proposed Eflow regime, whereby increased releases of water (termed “freshets”) would be provided over Parteen Weir to improve fish migration.

169. **Morphological conditions:** The concrete revetment mats and gabion mattresses would alter the composition and structure of the substrate of Derg HMWB. There will be a permanent loss of natural substrate and permanent change to the bed and banks where these structures are located. The impact would be negligible due to the size of the structures compared to the size of the WFD designated water body.

170. There may be changes in inundation and exposure of shore sediments but this would be no different to already existing conditions. On this basis, the changes do not risk WFD compliance at the water body scale.

171. **General condition and supporting chemistry:** During operation, there are a few likely sources of surface water quality contamination from the operation of the RWI&PS infrastructure, such as contaminated runoff from new impermeable areas (e.g., the access road) and potential release of pollutants from operation procedures. Drainage will be via a Sustainable Drainage System (SuDS). Drainage from the new access road to the RWI&PS site from the R494 would be 'over the edge' to a hardcore longitudinal soakaway along both edges of the road.

172. **Nutrient sensitive areas:** The WFD status of the Derg TN (2019 to 2024) is Moderate and of the Derg HMWB is Good. The entirety of the Derg TN is located within a designated Drinking Water Protected Area (DWPA) and both the Derg TN and the Derg HMWB are classified as Nutrient Sensitive Areas. In addition, the Derg TN falls within the Derg TN (Shannon) Special Protection Area (SPA) with the Derg HMWB and the Kilmastulla_050 forming part of the Lower River Shannon Special Area of Conservation (SAC) [002165]. In relation to nutrient sensitive areas, as the water levels will not significantly vary (see EIAR Appendix A9.1), no impact to quality or nutrient sensitive areas are anticipated during operation of the RWI.

5.1.16.2 Assessment Against WFD Lake Tests

173. Lake level tests have been undertaken in EIAR Appendix A9.1 Annex A Hydrological Modelling Report[24]. The findings of this assessment are summarised below.

174. As WFD lake standards for the management of abstraction impacts are yet to be finalised by the EPA for Ireland, two different kinds of lake standards tests have been applied for the purpose of assessing the Proposed Project: i) the NWRP screening test based upon the proposed WSP abstraction being within a proportion of the lake inflow, and ii) the UKTAG WFD lake level standards test based on changes in the extent of the littoral zone due to the activity being assessed (in this case the proposed WSP abstraction).

175. The Proposed Project passes the (i) NWRP screening test as the proposed WSP peak 300Ml/d abstraction is comfortably within the 10% of the lake inflow Q50 threshold. After discussing the matter with the EPA, it was decided to adopt the (ii) UKTAG WFD lake level test approach as it was considered the more complex and sophisticated target used in the UK, therefore the most appropriate for the Proposed Project.

176. Based on the UKTAG WFD lake level test the following standards are met for the two WSP abstraction rates:

- A constant WSP abstraction of 154Ml/d results in both the water bodies meeting the lake level requirements for the WFD Good status (Potential) standard
- A constant WSP abstraction of 300Ml/d results in both the water bodies meeting the lake level requirements for the WFD Good status (Potential) standard
- Inclusion of the future “reasonable worst case” 2080s climate change impacts and/or proposed ORS Eflows regime sensitivity analyses results in both the water bodies still meeting the lake level requirements for the WFD Good status (Potential) standard for a constant WSP abstraction of 154Ml/d or 300Ml/d.

5.1.17 Testing, Commissioning and Operation of the WTP

177. The WTP process has been designed as a closed system, with no discharges from the process to surface water receptors. This principle applies to the testing and commissioning stage also. If water quality tests are failed, the water would be recirculated back through the treatment process until it is of the appropriate standard for onward transmission as treated water. Commissioning and test water for the WTP would be provided from Parteen Basin via the RWI&PS and the RWRMs. Following cleaning and dry inspection of all tanks, penstocks and chambers, the Raw Water Balancing Tanks (RWBTs) would be filled by forward pumping from the RWI&PS.

178. Initial testing and commissioning of the WTP would be carried out incrementally and using only a fraction of the ultimate flow. Commissioning would be possible, in the initial first stage, at a low rate (approximately 10Ml/d) and initially it would re-circulate that water. This would be done by discharging the treated water to one cell of the Clear Water Tanks (CWTs), and rather than pumping it forward to the BPT, it would be drained back to the Tank Draindown and Commissioning Lagoons on site and recirculated to the RWBTs at the head of the works.

179. When the water quality has reached a sufficient standard, it would be used initially as test water for tanks throughout the WTP site, and finally the through flow would be allowed to discharge forward to the CWTs. For the rest of the process commissioning, flows would gradually be increased (by activating further treatment sub-streams) until two full (treatment) streams are operational.

[24] Environmental Impact Assessment Report (EIAR) Volume 6 of 6: Environmental Assessment (Appendix A9.1) Annex A Hydrological Modelling Report, Jacobs, 2025

180. The second stage involves gradually increasing flows from 10Mld to 20Mld and flows at this level would be monitored and increased as required so that the flow from one full treatment module would be available for the commissioning of the Treated Water Pipeline from the WTP to the BPT and the HLPS. The same procedure would be followed with a second and third treatment module.

181. The Treated Water Pipeline would be swabbed, tested, chlorinated and commissioned, and the high lift pumps would then be commissioned individually and in parallel. The WTP site lagoons have adequate capacity to store the water volume in the Treated Water Pipeline to the first local high point downstream of the WTP.

182. See Table 5.16 for potential impacts to relevant water bodies.

Table 5.16: Potential Impacts of WTP Operation

Waterbody (ID) (2019-2024)	WFD Regulations Quality Element	Likely Change
Kilmastulla_050* SLoI	**Biological quality**	-
	Invertebrate	
	Supporting chemistry	-

(✓ positive change; x negative change; - is no change)

5.1.17.1 Assessment Against Biological, Supporting Chemistry and General Conditions Quality Elements

183. **Biological:** The WTP would be located within an area of agricultural land, with field drains and ditches currently crossing the footprint of the site. There may be limited change to substrate which could affect invertebrates; there would also be local change to water quality conditions. There is likely to be minimal change to invertebrates. Most will colonise other areas not affected by discharges. On this basis, the changes do not risk WFD compliance to the quality element.

184. **Salmonid lines of interest:** The salmonid lines of interest in the Kilmastulla_050 will not be impeded during operation of the WTP.

185. **General condition and supporting chemistry:** Following treatment on the WTP site, surface water would discharge to a proposed stormwater drain and eventually to a field drain with a direct pathway to the Kilmastulla_050 at the south east corner of the site. Only treated surface water runoff would discharge to the Kimastulla_050. There would be no discharges to other surface water receptors. As a result, no impacts on water quality are anticipated and no impacts to the general condition and supporting chemistry quality elements.

5.1.18 Testing, Commissioning and Operation of the TPR

186. Potential impacts of each of the activities of the TPR and to the relevant water bodies are included in Table 5.17.

Table 5.17: Potential Impacts of TPR

Waterbody (ID) (2019-2024)	WFD Regulations Quality Element	Likely Change
Liffey_170	**Ecological status or potential**	-
	Chemical	-

(✓ positive change; x negative change; - is no change)

5.1.18.1 Assessment Against Biological and Chemical Quality Elements

187. **Biological:** Discharges would take place in upstream surface water receptors. Surface water runoff would be attenuated to greenfield runoff rates and discharged to drainage ditches 600m upstream of the Liffey_170. There are no proposed new outfalls from the TPR to the Liffey_170. There is a small risk of impact associated with scour and deposition of sediment which may locally impact species confined to the surface water receptors. Discharges from the washout valve would potentially mobilise fine sediment and transport it via silt-laden runoff.

188. **Chemical:** Surface water discharges to filter drains, for attenuation and discharged to the local drainage network which has a pathway downstream to the Liffey_170 approximately 600m away. Additionally, the water would be treated and hydrocarbon interceptors would be installed. Suspended solids entering the WFD water bodies will alter water clarity and suspended sediment load, and also change pH, and dissolved oxygen levels. There would be no process discharges from the TPR to the surface water environment during operation. Operational discharge from the TPR site would be restricted to greenfield runoff rates.

189. Discharges would take place in upstream surface water receptors. Impacts would be associated with increased sediment loading which would see small temporary changes in dissolved oxygen and temperature for example. Impacts would be confined to the Liffey_170 water body and would not change quality element status. There would be no change to water body status. Only if water levels are low and temperatures high would Dissolved Oxygen (DO) and temperature become an issue for the receptor and the species in it.

190. There would not be sufficient impact to cause degradation to habitat or species numbers/quality and chemistry.

5.1.19 Testing, Commissioning and Operation of the BPS

191. Potential impacts of BPS and to the relevant water bodies are included in Table 5.18.

Table 5.18: Potential Impacts of RWI&PS Construction

Waterbody (ID) (2019-2024)	WFD Regulations Quality Element	Likely Change
Camcor_030	**Ecological status or potential**	**-**
	Hydromorphological conditions	**-**

(✓ positive change; x negative change; - is no change)

5.1.19.1 Assessment Against Biological and Hydromorphological Quality Elements

192. The BPT would be tested and commissioned together and alongside the High Lift Pumping Station at the WTP and the Treated Water Pipelines. Similar to the other Infrastructure Sites, this site would undergo water retention tests followed by water quality tests. Any water which cannot be passed forward, or fails the water quality test, would be disposed of via the nearest washout valve on the Treated Water Pipeline from the BPT to TPR. Any discharged water would be treated as described for the Testing and Commissioning of the Pipeline. Predicted impacts would be similar to those described for the Testing and Commissioning of the Pipeline. There would be no effects ton quality elements or the water body status overall.

193. **Biological:** The potential changes to flow regimes as a result of discharges would be limited as the rates are to greenfield runoff rates. There is a small risk of impact associated with scour and deposition of sediment which may locally impact species confined to the surface water receptors.

194. **Hydromorphological conditions:** Operational surface water discharges would occur to the Camcor_030 WFD designated water body via the proposed outfall from the BPS. Discharges have the potential to alter flow regimes within the receiving water body local to and downstream of the outfall location. New discharges from the BPS site could result in increases in bed and bank erosion and changes to flow pathways and morphological features if they impede the existing flow regime.

195. Outfall discharges would be restricted to greenfield runoff rates. Therefore, the risk to the water body would be negligible.

5.1.20 Invasive Non-Native Species

196. There is a risk that machinery and construction activities close to watercourses could introduce and disperse Invasive Non-Native Species (INNS) via the water. This would result in negative impacts on flora and fauna within the vicinity of and downstream of the receiving watercourse. The biodiversity chapter identified species such as curly waterweed, giant hogweed, Himalayan balsam, and Nuttall's waterweed.

197. With appropriate mitigation, interaction with and potential spread of INNS would be reduced. Best practice and specific construction control measures will be implemented through a CEMP with additional caution attached to vehicle washing. Protocols will be established on site in accordance with the OPW Environmental Standard Operating Procedures (OPW 2011), IFI Biosecurity Protocol (IFI 2010) and the Uisce Éireann Japanese knotweed Information and Guidance Document (UÉ 2021). Movement/transfer of invasive INNS to any other WFD designated water body and any other River Basin must be prevented. Good site hygiene, implementation of the CEMP and SWMP will all be in place and measures within should prevent spread of INNS.

198. There is potential for zebra mussels in Derg HMWB to attach to the inside of intake pipes and other pipework beyond the intake, which could lead to blockage. To prevent this and spread of the species, design measures have been put in place such as the inlet chambers being fitted with Passive Wedge-wire Cylinder Intake Screens. Proactive anti-fouling measures, microfilters (Amiad Filters) and an ultraviolet treatment unit would also deactivate any zebra mussel juveniles (veligers) before being returned to the Passive Wedge-wire Cylinder Intake Screen inlet basin. With these design measures in place, there is minimal risk of the operational activities in Parteen Basin spreading non-native invasive species at a WFD designated water body scale.

5.1.21 Protected Areas

199. The following protected areas interact with the Proposed Project. There is an accompanying NIS which outlines whether there are adverse effects from the Proposed Project on the integrity of any European Sites. Table 5.19 summarises whether the Proposed Project will adversely affect the integrity of a Protected Area.

Table 5.19: Summary of Protected Areas

Component	Description
Compounds and pipe storage depot	**CC0 and CC1 – Lower River Shannon SAC:** In the NIS it has been concluded beyond reasonable scientific doubt that, subject to the implementation of mitigation measures, the Proposed Project will not adversely affect the integrity of Lower River Shannon SAC or Lisduff Fen SAC. **CC2 to CC7 and PSD1 to PSD8:** There is no interaction between the sites above and any protected areas.
Open cut trenching/trenchless crossings	There is no interaction between the activity and any protected areas.
BPS and pipeline	The pipeline route has been designed to avoid protected areas so there are no interactions between activities at the BPS and any protected areas.
Outfalls	Pipeline route has been designed to avoid protected areas so there are no interactions between outfall sites and any protected areas.

Component	Description
WTP	In the NIS it has been concluded beyond reasonable scientific doubt that, subject to the implementation of mitigation measures, the Proposed Project will not adversely affect the integrity of Lower River Shannon SAC or Lisduff Fen SAC.
38kV works	In the NIS it has been concluded beyond reasonable scientific doubt that, subject to the implementation of mitigation measures, the Proposed Project will not adversely affect the integrity of Lower River Shannon SAC or Lisduff Fen SAC.
RWI and PS	In the NIS it has been concluded beyond reasonable scientific doubt that, subject to the implementation of mitigation measures, the Proposed Project will not adversely affect the integrity of Lower River Shannon SAC or Lisduff Fen SAC.
Water abstraction - commissioning	In the NIS it has been concluded beyond reasonable scientific doubt that, subject to the implementation of mitigation measures, the Proposed Project will not adversely affect the integrity of Lower River Shannon SAC or Lisduff Fen SAC. There is no interaction with any other protected areas.
Discharge activities	There is no interaction between the discharge activities for commissioning and protected areas.
Operational Phase RWI and PS and abstraction	In the NIS it has been concluded beyond reasonable scientific doubt, subject to the implementation of mitigation measures, the Proposed Project activities will not adversely affect the integrity of Lower River Shannon SAC or Lisduff Fen SAC.
For both outfalls and washout discharges	There is no interaction with protected areas for these activities.

5.1.22 Summary of WFD Assessment and Level of Effect to Status Elements During Operation

200. This section provides a summary of all the likely changes to surface water bodies as a result of the Proposed Project (Table 5.20).

Table 5.20: Summary of WFD Impact Assessment (✓ positive change; x negative change; - is no change)

Scheme Component	Waterbody (ID) (2019-2024)	WFD Regulations Quality Element	Likely Change
RWI&PS	Derg HMWB	**Biological quality**	-
		Morphological conditions	-
		Supporting chemistry	-
WTP and access road and attenuation pond	**Kilmastulla_050* SLoI**	**Biological quality**	-
		Supporting chemistry	-
TPR	**Liffey_170**	**Ecological status or potential**	-
		Chemical	-
BPS	**Camcor_030**	**Ecological status or potential**	-
		Hydromorphological conditions	-

5.2 Assessment of the Proposed Project Against RBMP Programme of Measures

201. This assessment considers whether the Proposed Project would contribute to or could prevent implementation of the Programme of Measures (PoM) outlined in the Water Action Plan (see Table 5.21). The list outlines Hymo (pressures on Hydromorphology) and attributed to physical modifications to the flow, form or function of natural surface water bodies. In summary, the Proposed Project will not have implications for the implementation of these measures.

Table 5.21: Programme of Measures Assessment

PoM reference	Description	Potential Impact on Programme of Measures
Hymo 1	A Hydromorphology Expert Group will be established to support the new National Hydromorphology Programme. This Expert Group will identify interim measures which will be readily implemented during the third RBMP cycle to assist in removing pressures on hydromorphology.	The Proposed Project will not impact the development of this measure. This is occurring as part of RBMP governance and will be a measure that there will need to be cognisance of.
Hymo 2	DHLGH will lead the development of a new enhanced and consolidated legislative regime to address pressures on the physical condition of waters.	The Proposed Project will not impact the development of this measure.
Hymo 3	IFI will establish a restoration programme to mitigate the negative impact of past construction in or near WFD designated water body.	The potential impact will be reduced through the restoration programme.
Hymo 4	A Sectoral Action Work Plan for Hydromorphology will be developed, which will include measures and plans to address the 448 WFD designated water body at risk from pressures on hydromorphology, including barriers, channelisation, drainage, sediment and flood protection. It will be led and coordinated by DHLGH with supporting bodies IFI, DAFM, Forestry, OPW and DECC.	Approximately 30 WFD designated water bodies screened into the assessment have pressures associated with hydromorphology. However, many of these are screened in due to the intermittent washout valve discharges. The Proposed Project would not interfere with the measures for WFD designated water bodies which will receive discharges from the treated water pipeline.
Hymo 5	It is proposed that IFI will lead a multi-agency whole of catchment pilot project on the River Dodder from source to sea with the aim of examining the feasibility of opening up this heavily urbanised catchment to migratory fish species by mitigating the five most significant barriers in the lower reaches and progressing to the next stage, as appropriate.	No interaction with WFD designated water body in measure.
Hymo 6	IFI will lead a pilot project to be undertaken for the Annacotty Weir in County Limerick. The project will provide an opportunity to test a collaborative and ecology focussed design approach. It will also test enhanced community engagement opportunities that go beyond the standard consultation practices involved in the planning process, thereby assisting with the design and implementation of the national restoration programme. The pilot project is initially examining the feasibility of mitigation and will progress to the next stages, as appropriate.	No interaction with WFD designated water body in measure.
Hymo 7	Implementation of the roadmap of actions, including the use of state-of-the-art technical solutions, to improve fish migration in the lower Shannon at the Hydroelectric scheme located around Parteen and Ardnacrusha. The pilot project will initially examine the feasibility of mitigation and will progress to the next stages, as appropriate.	The Proposed Project will not preclude the pilot from being undertaken, and would not interfere with the measure's aims for examining the feasibility of mitigation to improve fish migration.
Hymo 8	A proposed pilot project on the Slaney River at Clohamon will aim to improve fish passage at a medium scale hydroelectric scheme through a state and community collaborative initiative. The pilot project will initially examine the feasibility of mitigation and will progress to the next stages, as appropriate.	No interaction with WFD designated water body in measure.
Hymo 9	In addition to river barrier removal and mitigation other restoration and mitigation work will be developed. This will be partly guided by the framework for prioritising measures for both river restoration and Nature-based Catchment Management prepared by the EPA.	The potential impact on this measure will be reduced through appropriate mitigation including reducing the footprint of the Proposed Project and design elements on restoration.
Action 3.10	The Minister for Housing, Local Government and Heritage will undertake a short public consultation before deciding whether to designate or de-designate WFD designated water bodies as HMWBs. There were 466 WFD designated water bodies, which the EPA has found to meet the criteria for designation. The Minister will take into account the recommendations of the EPA and the key concerns raised in the submissions to the consultation process.	The Proposed Project will not impact this measure and/or proposal, as it does not alter the reasoning for designation.
Action 3.11	A review of arterial drainage requirements and the underpinning Arterial Drainage Act will be undertaken in order to inform future land use policy decisions arising out of the Land Use Review and to support the preparations for the implementation of the new Nature Restoration Law and the Heavily Modified Water body review process.	The Proposed Project does not alter land use for drainage. Washout valves do discharge into agricultural fields and land drains but these are intermittent with prolonged gaps between each discharge. This would not be frequent enough to alter land use.

202. Consideration of the Parteen Basin in terms of flood protection has been included for completeness; however, this is not relevant to compliance.[25]

5.3 Cumulative Impact Assessment

203. This section includes the assessment of the potential impacts on designated WFD water bodies arising from the Proposed Project activities in combination with other projects and the associated activities within each water body. Reference should also be made to Chapter 21 (Cumulative Effects & Interactions). Cumulative assessment for WFD looks at whether the impacts from multiple projects would impact on a water body scale.

204. Whilst undertaking the impact assessment for this Water Status Impact Assessment Report, there is cognisance that multiple project activities in individual water bodies would create their own cumulative impacts also. Whilst this is likely to happen, any impacts would reduce over time enabling each individual water body to return to conditions within the range of compliance for each quality element. It is recognised that smaller, more sensitive, water bodies with a greater number of project activities may take longer to return to normal. Whatever impacts are likely to occur, with appropriate mitigation in place, there would be no change that would risk compliance or cause deterioration as a result of cumulative impacts.

[25] Parteen Basin, also known locally as the "Lower Lake", was formed as part of the Shannon Hydro-Electric Scheme in the late 1920s. Parteen Basin floods an area through which the River Shannon once flowed as a river, and much of the perimeter of Parteen Basin is formed by high linear engineered embankment dams constructed as part of the Scheme. Parteen Basin is regulated both by the discharge through Parteen Weir to the Old River Shannon (ORS) channel, and by the flow abstracted by ESB through to the Ardnacrusha power station headrace to be used for electricity power generation.

The Shannon, including Parteen Basin has historically a number of users/ activities associated with it including navigation, hydropower generation, farming, environmental aspects and flood risk. There have been a number of studies in respect of flood risk, including the Shannon Catchment-based Flood Risk Assessment and Management (CFRAM) study, delivered by the Office of Public Works under government policy. As part of the CFRAM study research was undertaken to understand current operations of structures (e.g. weirs) along the River Shannon to establish how they impact on flood risk management. CFRAM study noted through the literature review that a 2001 study by Kirk McClure Morton, looked at the current management of the water levels of the River Shannon and recognised that the Shannon system has a history of severe flooding especially downstream of Lough Allen to Parteen Weir. It was also noted in the study that the operational controls by ESB and Waterways Ireland were not seen as contributing to flooding problems. It stated that simulations undertaken as part of the study "indicate that even if Ardnacrusha Power Station was not in operation during the most recent flood event this would have no impact on water levels in the worst hit flooded areas, however such a scenario would most likely result in severe flooding downstream of Parteen Weir to Limerick". It could be said then that the operational regime of Ardnacrusha and the controls undertaken at Parteen Weir act indirectly a flood protection measure for downstream sections.

The water storage and regulation nature of Parteen Basin is established in its designation as a heavily modified water body (Derg HMWB) under the first cycle River Basin Management Plan (RBMP). Further reviews of HMWBs designation have occurred including that undertaken by the EPA in 2022 as part of the third cycle River Basin Management Plan, a review of Ireland's Heavily Modified Water Bodies (HMWB) designations. The output of the review identified that 466 waterbodies meet the criteria for designation and it noted in the review the function of Parteen Weir, to raise the level of what was the river upstream and to create a water storage and divert the majority of its flow down the canal to Ardnacrusha for hydropower generation. As part of the 2022 review and the procedural steps applied it was outlined in the report that whilst "storage capacity and operating levels within impoundments also have dam safety implications" that it must be recognised that "these storages are long established, and there has been infrastructure built downstream of many of them that would potentially be placed at risk, such as in Limerick downstream of Parteen Weir". This further builds on the point that indirectly Parteen Weir functions as a flood protection measure. A more recent consultation (March 2025) on the Designation of Ireland's Heavily Modified Water Bodies, noted that water bodies can be designated as HMWBs if their hydromorphology has been significantly altered to serve as a beneficial specified use, and water regulation and flood protection are one such use. As part of the HMWB designation steps the consultation report noted that under step 7 which reviewed whether restoration measures would affect the specified use, it outlined that under step 7.3 that Derg HMWB was a "historic ESB impoundment, removal would result in flooding".

205. The projects screened in for the cumulative impact assessment for water in Chapter 21 are listed in Table A21.2.3 of EIAR Appendix A21.2 and typically comprise renewable energy schemes (solar or wind farms) and flood relief schemes. A review of the Natura Impact Statement (NIS), particularly Section 8.1.2 and 8.1.3 (Table 8.2) also confirms that plans will not conflict with the conclusions of this compliance assessment. Typical plan include the Water Action Plan 2024, which is considered as part of this WFD assessment in any case, The National Water Resources Plan (Uisce Éireann 2021)[26] and also The National Catchment Flood Risk Assessment and Management Study Programme (CFRAM) have also been considered. In conclusion, these plans pose no identifiable risk of conflicting with the WFD compliance.

206. Professional judgement has been used to review the listed schemes and it has been concluded that there will be no cumulative impacts arising from the Proposed Project activities in combination with the other project activities to the screened in WFD designated water bodies on a water body scale. This is because construction impacts will be mitigated and mitigated for operation where required.

5.4 Combined Assessment of the Proposed Project Against WFD Objectives, Article 4.8, 4.9 and Other EU Legislation

207. Taking into consideration the anticipated impacts of the Proposed Project on the biological, physico-chemical and hydromorphology quality elements, following the implementation of design and mitigation measures, it is concluded that it would not compromise WFD objectives as cited in Section 1.1 or cause a deterioration in the status of any surface water or groundwater WFD designated water body and/or jeopardise the attainment of good (ecological) surface water, or groundwater status.

208. As there is compliance with all of the WFD objectives, the Proposed Project will not cause a deterioration in the status of any water body and/or jeopardise the attainment of good surface water or groundwater status.

209. The WFD also requires consideration of how a new scheme or project might impact other bodies of water within the same river basin district and other EU legislation. This is covered in Articles 4.8 and 4.9 of the WFD.

210. Article 4.8 states: '*a Member State shall ensure that the application does not permanently exclude or compromise the achievement of the objectives of this Directive in other bodies of water within the same river basin district and is consistent with the implementation of other Community environmental legislation*'.

211. All WFD designated water bodies within the study area have been assessed for direct impacts to the relevant water body. The impact assessment concludes that where there are impacts as a result of construction of the proposed activities, these will mainly be local and temporary. The operation impact assessment also concludes that impacts will not jeopardise attainment of water body status or any other water body due to local effects only.

212. Where a cumulative assessment has been undertaken, the assessment concludes that the Proposed Project will not jeopardise other proposals and vice versa or create impacts that would jeopardise attainment of Good status in the relevant water body or any other. This satisfies the requirements of Article 4.8.

213. Article 4.9 of the WFD requires that '*Member States shall ensure that the application of the new provisions guarantees at least the same level of protection as the existing Community legislation*'.

[26] Irish Water (2021). National Water Resources Plan – Framework Plan. Irish Water's 25 Year Plan for Our Water Assets. Spring 2021. Available from: https://www.water.ie/sites/default/files/projects/strategic-plans/national-water-resources/2.-NWRP-… [Accessed October 2025]

214. The Habitats Directive (European Union Council Directive 92/43/EEC) promotes the maintenance of biodiversity by requiring Member States to take measures to maintain or restore natural habitats and wild species listed on the annexes to the Directive at a favourable conservation status, introducing robust protection for those habitats and species of European importance. European designated sites in the vicinity of the Proposed Project have been assessed and are presented in the NIS provided in support of the application for the Proposed Project. It concludes that the Proposed Project would not adversely affect the integrity of any European Site.

215. The Nitrates Directive (Council Directive of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources (91/676/EEC)) aims to protect water quality by preventing nitrates from agricultural sources polluting ground and surface waters and by promoting the use of good farming practices. The Proposed Project would not influence or moderate agricultural land use or land management.

216. The Drinking Water Directive (EU 2020/2184) aims to protect human health by ensuring the quality of water intended for human consumption. The Directive applies to all water intended for drinking, cooking, food preparation or other domestic purposes in both public and private premises. The Proposed Project would not adversely impact the quality of surface water or groundwater intended for human consumption.

217. The Environmental Quality Standards Directive (2008/105/EC) sets standards that must be met for priority substances in order to achieve good surface water chemical status. The Proposed Project would not contribute to increased pollutants or risk contamination to ground or surface waters through addition of priority substances. Therefore the standards for the EQSD are met.

218. The Groundwater Directive (2006/118/EC) sets groundwater quality standards for nitrates and pesticides that help ensure good chemical status within groundwater bodies. The Proposed Project would not impact the concentrations of nitrates or pesticides in groundwater bodies.

6 Conclusions

219. This Water Status Impact Assessment Report provides the findings of an assessment against WFD objectives which has been carried out for the Water Supply Project Eastern and Midlands Region.

220. The Water Status Impact Assessment Report draws on, and is consistent with, the impact assessments in the Environmental Impact Assessment Report (EIAR) chapters, specifically: Chapter 8 (Biodiversity), Chapter 9 (Water) and associated appendices, Chapter 10 (Soils, Geology & Hydrogeology), and Chapter 21 (Cumulative Effects & Interactions) and the NIS.

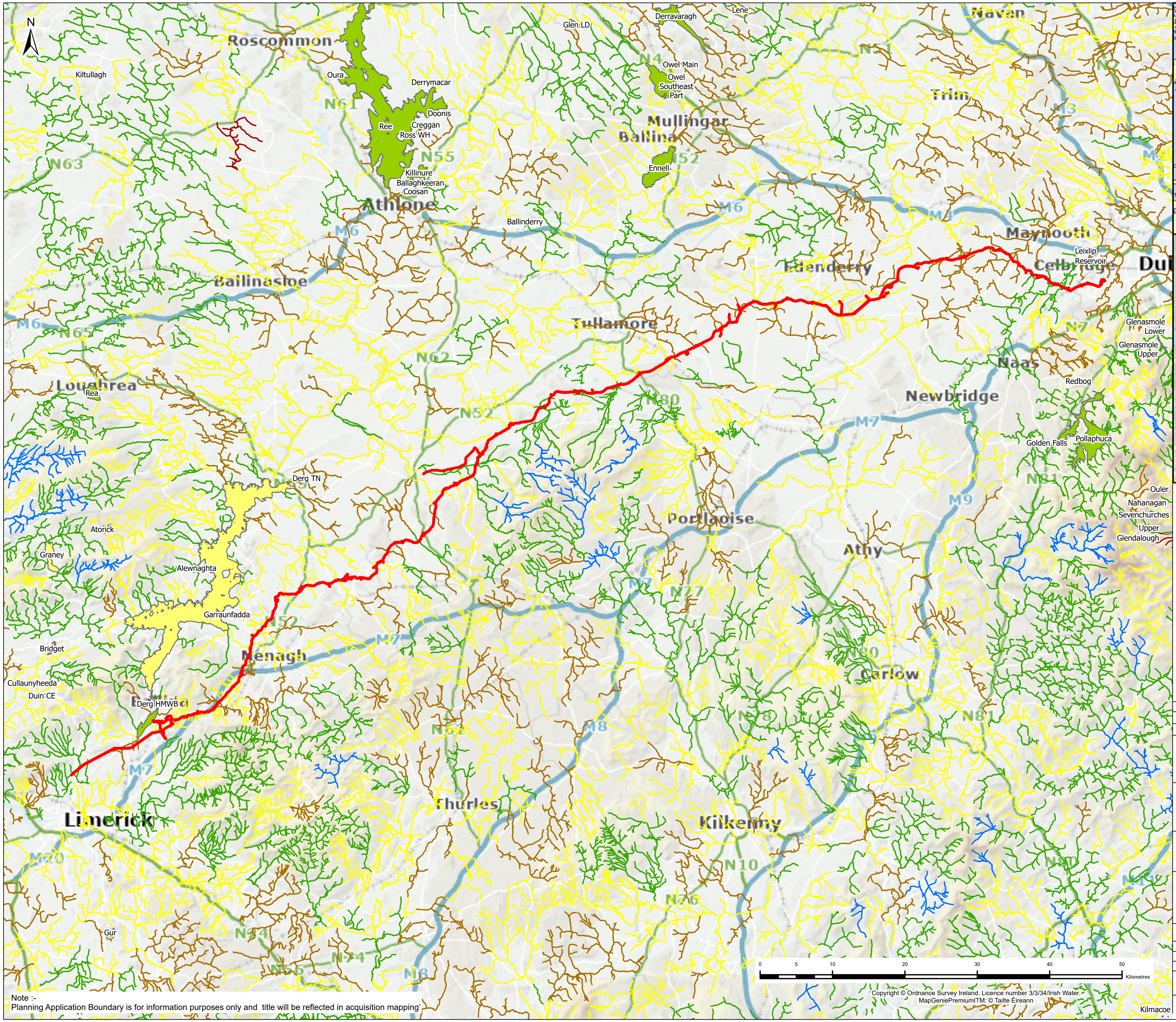
221. The impact assessment provides an assessment of the screened in activities for each relevant water body, identifies ways to avoid or minimise impacts.

222. There is an assessment of the Proposed Project against the RBMP Cycle 3 Programme of Measures outlined in the Water Action Plan 2024 (Section 5.2).

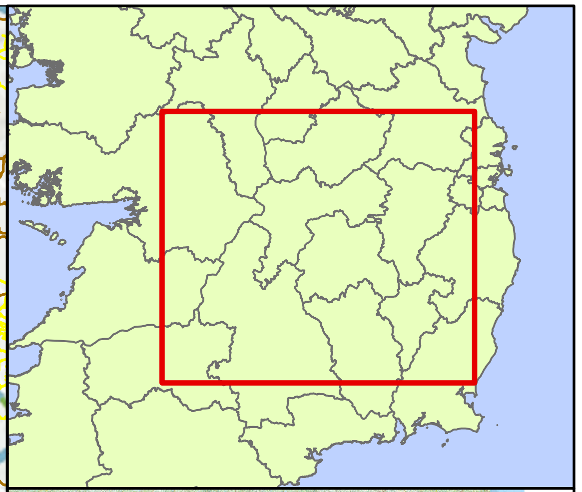
223. There is also an assessment against WFD Objectives, Article 4.8, 4.9 and other EU Legislation.

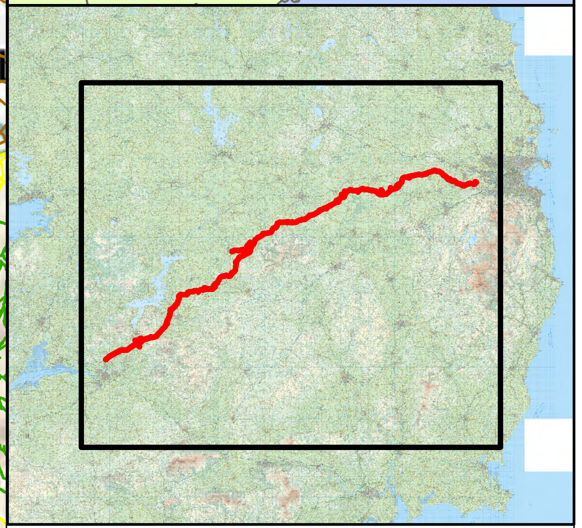
224. Taking into consideration the anticipated impacts of the Proposed Project on the biological, physico-chemical and hydromorphology quality elements, following the implementation of design and mitigation measures, the Proposed Project would not compromise WFD objectives or cause a deterioration in the status of any surface water or groundwater WFD designated water body and/or jeopardise the attainment of good surface water (or good ecological potential) or groundwater status.

7 Figures



N
Roscommon
Kiltullagh
Oura
Derrymacar
Doonis
Ree
Creggan
Ross WH
Killinure
Ballaghkeeran
Coosan
Athlone
Ballinderry
Glen LD
Derravaragh
Lene
Owel Main
Owel Southeast Part
Mullingar
Ballina
Ennell
Navan
Trim
Maynooth
Leixlip Reservoir
Celbridge
Edenderry
Tullamore
Ballinasloe
Loughrea
Rea
Naas
Newbridge
Redbog
Golden Falls
Pollaphuca
Glenasmole Lower
Glenasmole Upper
Ouler
Nahanagan
Sevenchurches
Upper Glendalough
Derg TN
Atorick
Graney
Alewnaghta
Garraunfadda
Bridget
Cullaunyheeda
Duin CE
Derg HMWB
Nenagh
Portlaoise
Athy
Carlow
Thurles
Kilkenny
Limerick
Gur
Kilmacoe
0
5
10
20
30
40
50
Kilometres
Copyright © Ordnance Survey Ireland. Licence number 3/3/34/Irish Water.
MapGeniePremiumITM: © Tailte Éireann





Note :-
Planning Application Boundary is for information purposes only and title will be reflected in acquisition mapping

Legend

Planning Application Boundary

WFD River Waterbody Status 2019-2024

WFD Ecological Status

- High
- Good
- Moderate
- Poor
- Bad

Lake Waterbody WFD Status 2019-2024

WFD Ecological Status

- High
- Good
- Moderate
- Poor
- Bad

Rev.	Date	Purpose of revision	Drawn	Check'd	Rev'd	App'd
F02	27/11/2025	FINAL - PLANNING PERMISSION	EA	PG	KK	SW
F01	10/10/2025	FOR APPROVAL	JL	GQ	HS	SW

Jacobs TOBIN

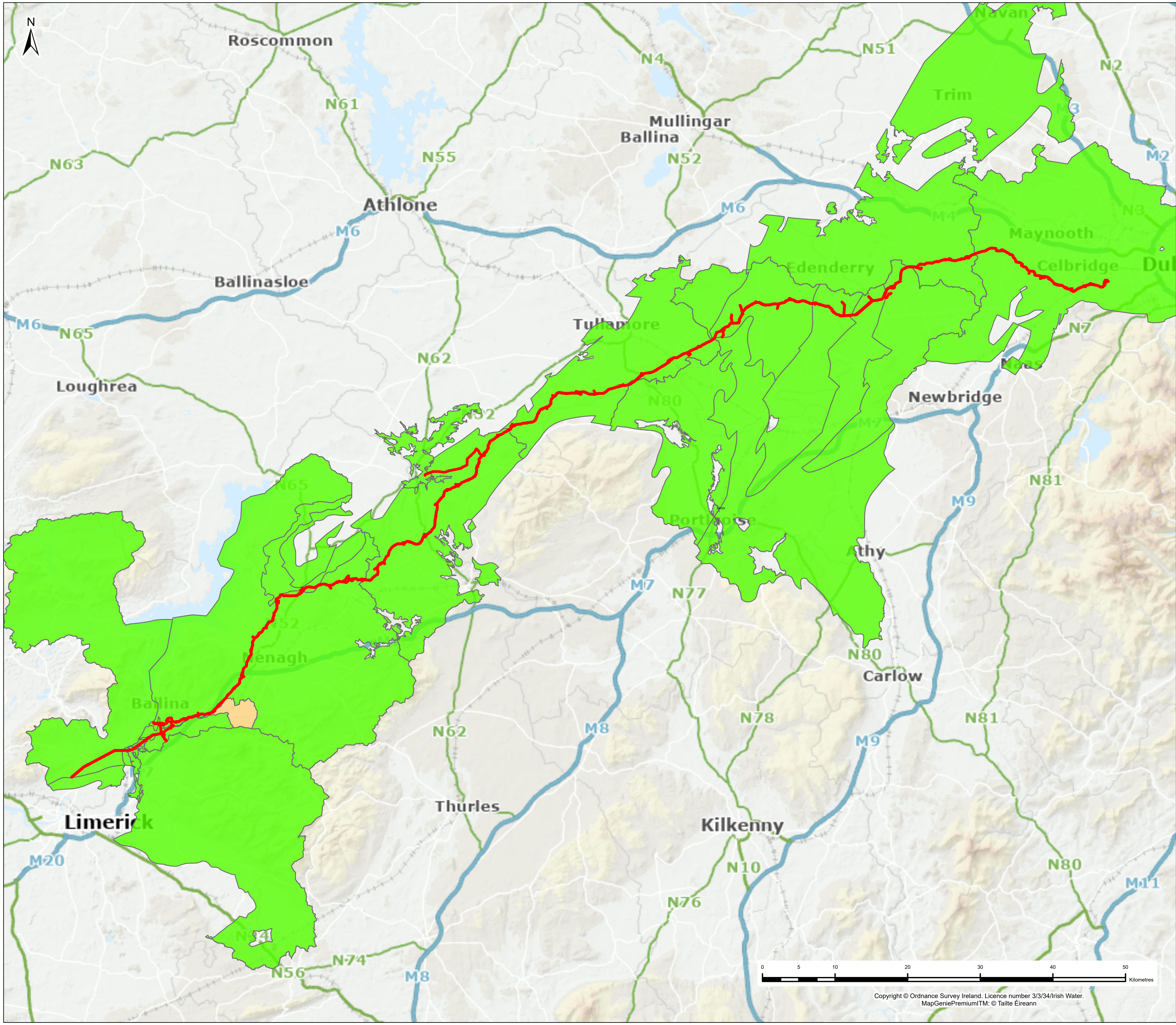
Client: Uisce Éireann Irish Water — Tionscadal Soláthair Uisce Water Supply Project

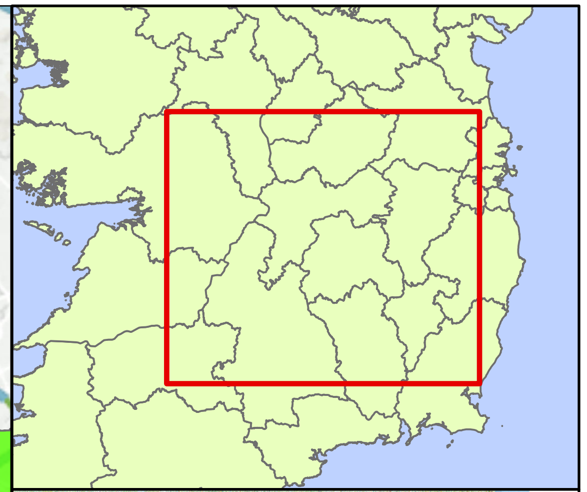
Project: Water Supply Project Eastern and Midlands Region

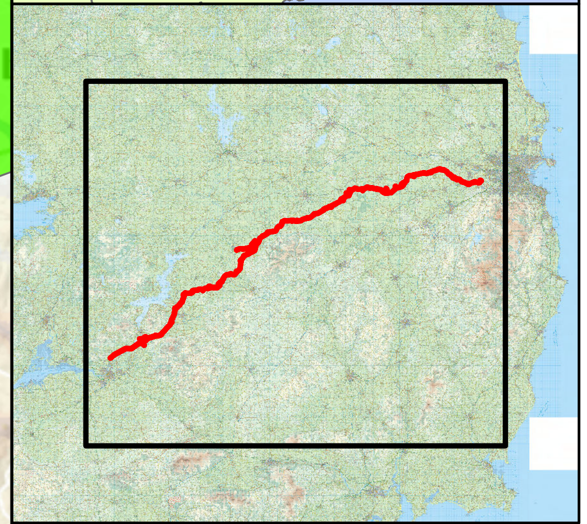
Drawing Title: Figure 1 WFD Status

Drawing Status: FINAL – PLANNING APPLICATION

Scale @A3	1:500,000		DO NOT SCALE
Jacobs No.	32105801	Client No.	9318
Filepath			
Drawing No.	32105801/700/12150		







Legend

Planning Application Boundary

Ground Waterbody WFD Status 2019-2024

Good

Poor

Rev.	Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
F02	11/11/2025	FINAL - PLANNING PERMISSION	EA	PG	KK	SW
F01	10/10/2025	FOR APPROVAL	JL	GQ	HS	SW

Jacobs TOBIN

Client

Uisce Éireann Irish Water

Tionscadal Soláthair Uisce Water Supply Project

Project

Water Supply Project
Eastern and Midlands Region

Drawing Title

Figure 2
Groundwater WFD Status

Drawing Status

FINAL – PLANNING APPLICATION

Scale @A3	1:500,000		DO NOT SCALE
Jacobs No.	32105801	Client No.	9318
Filepath			
Drawing No.	32105801/700/12150		